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Abdugaffarov M. A.
Metodik xizmat ko'rsatish bo'limi fizika fani metodisti.
Jizzax viloyati pedagogik mahorat markazi

MAKTABLARDA FIZIKA O'QITISHNING YANGI USULLARI

Annotatsiya: Maqolada fizika fanini zamonaviy usullar — interfaol metodlar, raqamli texnologiyalar, STEAM, loyiha asosida o'qitish va virtual laboratoriyalar orqali o'qitishning ahamiyati yoritilgan. Bu yondashuvlar ta'lim sifatini oshirib, o'quvchilarda ilmiy izlanish, mustaqil fikrlash va amaliy ko'nikmalarni rivojlantirishi asoslab berilgan.

Kalit so'zlar: fizika o'qitish, innovatsion metodlar, STEAM ta'limi, gamifikatsiya, virtual laboratoriyalar, raqamli texnologiyalar, fanlararo integratsiya.

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NEW METHODS OF TEACHING PHYSICS IN SCHOOLS

Abstract: The article highlights the importance of teaching physics through modern methods such as interactive techniques, digital technologies, STEAM, project-based learning, and virtual laboratories, emphasizing their role in improving education quality and developing students' research, critical thinking, and practical skills.

Keywords: physics teaching, innovative methods, STEAM education, gamification, virtual laboratories, digital technologies, interdisciplinary integration.

Hozirgi globallashuv va raqamli texnologiyalar davrida ta'lim tizimini modernizatsiya qilish har bir davlatning ustuvor vazifalaridan biridir. Ayniqsa, fizika kabi tabiiy fanlar ta'limining sifatini oshirish zamonaviy jamiyatning innovatsion rivojlanishida muhim o'rin tutadi. Chunki fizika — tabiat qonuniyatlarini tushuntirib beradigan, texnika va texnologiyalarning nazariy asosini yaratadigan fundamental fanlardan biridir. Shu bois, maktab o'quv dasturlarida fizika fanini zamonaviy metodlar asosida o'qitish, o'quvchilarning ilmiy tafakkuri, ijodkorligi va muhandislik ko'nikmalarini rivojlantirish bugungi kunning asosiy talablaridan hisoblanadi. So'nggi yillarda O'zbekiston Respublikasida ta'lim tizimini tubdan isloh qilish, fanlararo integratsiyani kuchaytirish, zamonaviy pedagogik texnologiyalarni joriy etish borasida keng ko'lamli islohotlar amalga oshirilmoqda. Xususan, "Ilm-ma'rifat va raqamli iqtisodiyotni rivojlantirish yili" hamda "Yoshlarni qo'llab-quvvatlash va aholining sog'lig'ini mustahkamlash yili"

doirasida qabul qilingan qaror va dasturlar fizika fanini o'qitish jarayonida innovatsion yondashuvlarni tatbiq etishga keng imkoniyatlar yaratdi. buniyam qisqartirib ber manosi o'zgarmasin An'anaviy o'qitish uslublarida o'qituvchi dars jarayonining asosiy axborot manbai sifatida ko'rilgan bo'lsa, hozirgi kunda darslarni interfaol metodlar asosida tashkil qilish, o'quvchini jarayonning faol ishtirokchisiga aylantirishga e'tibor qaratilmoqda. Bu esa o'quvchilarning nafaqat nazariy bilimlarni egallashiga, balki ularni amaliyotda qo'llash va tahlil qilish ko'nikmalariga ham ijobiy ta'sir ko'rsatadi. Fizika darslarini qiziqarli, samarali va o'quvchilar uchun tushunarli qilishning asosiy yo'li zamonaviy pedagogik texnologiyalar, axborot-kommunikatsiya vositalari va fanlararo integratsiyani keng joriy etishdir. Bu jarayon o'quvchilarda mustaqil izlanish, mantiqiy va tanqidiy fikrlash, ijodiy yechim topish ko'nikmalarini shakllantirishga yordam beradi. Shu bilan birga, fizika o'qitishning yangi usullari zamonaviy mehnat bozori talablariga javob bera oladigan yuqori malakali mutaxassislar tayyorlashga ham xizmat qiladi. Mazkur maqolada fizika o'qitish jarayonida qo'llanilayotgan innovatsion metodlar, ularning afzalliklari, ta'lim samaradorligiga ta'siri, shuningdek, o'qituvchilarning kasbiy rivojlanishida yangi yondashuvlarning o'rni keng tahlil qilinadi. Shu orqali maktablarda fizika fanini o'qitish sifatini oshirish, o'quvchilarning ilmiy qiziqishini kuchaytirish va ta'lim jarayonini xalqaro standartlarga moslashtirish yo'llari yoritiladi.

Fizika fanida innovatsion metodlarning o'rni

STEAM yondashuvi (Science, Technology, Engineering, Arts, Mathematics): ushbu modelda o'quvchi faqatgina nazariy bilimlarni emas, balki ularni amaliyotda qo'llashni ham o'rganadi. Fizika darslari matematika va texnologiyalar bilan uyg'un holda olib borilib, muhandislik va ijodkorlik elementlari ham kiritiladi. Konstruktivizm asosida o'qitish: bu yondashuvda o'quvchilar o'z bilimlarini faol ravishda quradi, o'qituvchi esa jarayonni boshqaruvchi va yo'naltiruvchi sifatida ishtirok etadi. Fizika darslarida bu metod tajribalar va muhokamalar orqali samarali qo'llaniladi. Gamifikatsiya: o'yin elementlari asosida o'qitish o'quvchilarda qiziqish uyg'otadi, sog'lom raqobat muhitini yaratadi va motivatsiyani oshiradi. Masalan, viktorinalar, daraja tizimlari yoki laboratoriya topshiriqlarini o'yin ko'rinishida berish. Loyiha asosida o'qitish (PBL): o'quvchilar haqiqiy hayotdagi masalalarga yechim topishga yo'naltirilgan loyihalarda ishlashadi. Bu metod ularning ijodiy fikrlash, muloqot va hamkorlik ko'nikmalarini rivojlantiradi. Raqamli texnologiyalar va virtual laboratoriyalar Axborot-kommunikatsiya texnologiyalarining rivojlanishi fizika ta'limida yangi imkoniyatlarni ochmoqda. Zamonaviy o'qituvchi endi nafaqat doska va marker, balki ko'plab raqamli vositalardan foydalanish imkoniyatiga ega. Virtual laboratoriyalar: tajribalarni xavfsiz va cheksiz takrorlash imkonini beradi. Masalan, kuch va tezlanish, elektr zanjirlar yoki optik hodisalarni simulyatsiya qilish mumkin. PhET simulyatsiyalari va AR/VR texnologiyalari: PhET kabi bepul dasturlar o'quvchilarga murakkab jarayonlarni 3D muhitda ko'rishga imkon beradi. Virtual reallik (VR) va kengaytirilgan reallik (AR) texnologiyalari esa o'quvchini "fizik jarayon ichida" his qilish imkonini beradi. Onlayn platformalar: Google Classroom, Moodle, Edmodo

kabi platformalar orqali darslarni interfaol va masofaviy formatda tashkil etish mumkin. Video-darslar va podkastlar: O'quvchilarga mustaqil o'rganish imkonini berib, vaqt va joydan qat'i nazar ta'lim olish imkoniyatini yaratadi. Fizika fani boshqa tabiiy va texnik fanlar bilan uzviy bog'liq. Shuning uchun fanlararo integratsiyani kuchaytirish fizika darslarini yanada samarali qiladi. Masalan: 1.Fizikani matematika bilan integratsiya qilish orqali formulalar va hisoblashlarni chuqurroq tushuntirish mumkin. 2.Kimyó va biologiya bilan bog'lanish orqali molekulyar jarayonlar va organizmdagi energetik hodisalarni tushuntirish osonlashadi. 3.Informatika va dasturlash bilan uyg'unlashgan fizika darslari zamonaviy o'quvchilarni algoritmik fikrlash va model yaratishga o'rgatadi. Fanlararo integratsiya o'quvchilarni dunyoqarashini kengaytiradi va fanni real hayotga bog'lash imkonini beradi. Muammoli ta'lim va ijodiy fikrlash Fizika darslarini qiziqarli qilishda muammoli ta'lim uslubi katta rol o'ynaydi. Bu metodda o'qituvchi o'quvchilarga tayyor yechim bermaydi, balki muammo qo'yadi va ularni o'zlari izlanishga undaydi. Masalan, "Nima uchun quyosh botganida osmon qizil ko'rinadi?" kabi savollar orqali o'quvchilar izlanish olib boradi. Muammoli ta'lim: I.Mustaqil fikrlashni rivojlantiradi; II.Ilmiy izlanish ko'nikmalarini shakllantiradi; III.Fanni hayot bilan bog'lashni o'rgatadi. Eksperimental ko'nikmalar va amaliy mashg'ulotlar Fizika — tajribalar va kuzatishlarga asoslangan fan. Shu sababli laboratoriya mashg'ulotlari darslarning ajralmas qismidir. Zamonaviy texnologiyalar yordamida: Oddiy tajribalarni uy sharoitida ham tashkil qilish mumkin (masalan, maishiy buyumlar orqali mexanik hodisalarni tushuntirish). Mobil ilovalar va sensor qurilmalar orqali real vaqtda o'lchovlar olib borish imkoniyati mavjud. O'quvchilar o'z loyihalarini tayyorlash jarayonida ilmiy tadqiqot metodlarini o'rganadi. O'qituvchi malakasi va kasbiy rivojlanish Ta'lim sifatini oshirishda o'qituvchining zamonaviy metodlardan xabardorligi muhim. Shu bois fizika o'qituvchilari uchun malaka oshirish kurslari, ilmiy-amaliy seminarlar va tajriba almashish anjumanlari muntazam o'tkazilishi lozim. O'qituvchilar raqamli savodxonlikni oshirib, yangi texnologiyalarni qo'llashni o'rganishi zarur. Maktab fizika ta'limiga zamonaviy pedagogik texnologiyalarni joriy etish samaradorlikni oshiradi. STEAM, gamifikatsiya, loyiha asosida o'qitish va virtual laboratoriyalar kabi innovatsion metodlar o'quvchilarning fanga qiziqishini kuchaytirib, nazariy bilimni amaliyotda qo'llash, mustaqil fikrlash va ijodkorlikni rivojlantiradi. Shuningdek, AKT vositalaridan foydalanish, masofaviy ta'lim resurslarini joriy etish va fanlararo integratsiya fizika fanining ahamiyatini yanada oshiradi.

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O'QITISHDA YANGI AXBOROT TEXNOLOGIYALARIDAN FOYDALANISH

Annotatsiya: Ushbu maqolada yoshlarning ongida axborot texnologiyalarining o'рни hamda uning boshqa tarmoqlarining maqsad va vazifalari haqida fikr bildirilgan. Shuningdek, oliy ta'limning asosiy vazifalaridan biri yosh avlodga axborot madaniyatini va uning mafkuraviy darajasini har tomonlama yaxshilash to'g'risida ma'lumotlar keltirilgan. O'qitishda yangi axborot texnologiyalarining o'рни, zamonaviy va interaktiv metodlar, onlayn platformalardan qanday foydalanish to'g'risida batafsil ma'lumot berilgan.

Kalit so'zlar: Sun'iy intellect, onlayn platformalar, virtual laboratoriya, axborot texnologiyalari, kommunikatsiya, zamonaviy metodlar, simulyatsiya, axborot.

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USING NEW INFORMATION TECHNOLOGIES IN EDUCATION

Annotation: This article discusses the role of information technologies in shaping the mindset of young people, as well as the objectives and functions of its various branches. It also highlights one of the main tasks of higher education – to comprehensively enhance the information culture and ideological awareness of the younger generation. The article provides detailed information on the role of new information technologies in teaching, the use of modern and interactive methods, and how to effectively utilize online platforms.

Keywords: artificial intelligence, online platforms, virtual laboratory, information technologies, communication, modern methods, simulation, information

Bugungi kunda axborot texnologiyalari hayotimizning barcha sohalariga kirib kelgan. Ta'lim sohasi ham bundan mustasno emas. O'qitishda yangi axborot texnologiyalaridan foydalanish o'quv jarayonini yanada samarali, qiziqarli va interaktiv tashkil etishga yordam beradi. Axborot texnologiyalari yordamida o'quvchilarga ko'plab ma'lumotlar, darsliklar, videodarslar, interaktiv testlar taqdim etish mumkin. Bu esa bilimni chuqurlashtirishga va sifatli ta'limga xizmat qiladi. O'qitishda yangi zamonaviy axborot texnologiyalaridan foydalanish, o'qituvchilarga o'quv jarayonini yaxshilash va osonlashtirish imkonini beradi.

Masalan, onlayn platformalar orqali darslarni izlash, o'quvchilarning foydalanishini nazorat qilish mumkin. Masofaviy ta'lim o'quvchilar uchun ham, o'qituvchilar uchun ham katta qulayliklar keltiradi va o'qitishda judayam samarali hisoblanadi. Zamonaviy interaktiv ta'lim vositalari yordamida o'quvchilarning o'z bilimlarini yaxshilashlari mumkin. Multimedia materiallar, virtual laboratoriyalar, simulyatsiyalar orqali murakkab mavzularni osonroq tushuntirish mumkin bo'ladi.

O'qitishda axborot texnologiyalari loyihasining asosiy maqsadi – ta'lim jarayonini kompyuter texnologiyalari yordamida samarali tashkil etish, o'quvchilarning bilim olish sifatini nazorat qilish, tashkilotda zamonaviy axborot-kommunikatsiya va xavfsizlikni ta'minlash orqali interaktiv individual ishlab chiqarishni ta'minlash. Quyida ba'zi loyihalarni ko'rib chiqishimiz mumkin.

- Axborotga tez va oson kirish, bunda internet orqali keng va yangilanib boruvchi ma'lumotlar bazasiga erishish mumkin.

- Dars jarayonini interaktiv qilishda o'quvchilar faol ishtirok etadi, harakati oshadi.

- Shaxsiylashtirilgan o'qitishda esa har bir o'quvchining bilim darajasiga mos materiallar bilan ishlanadi.

- Masofaviy ta'lim olishda hududdan qat'i nazar, o'quvchilar joylarda ta'lim olishlari mumkin.

- Ta'lim sifatini o'zgartirish yoshlarni zamonaviy texnologiyalarni yaxshi o'zlashtirishda yordam beradi.

Axborot texnologiyalarining ta'lim sifatiga ta'siri: Axborot texnologiyalari ta'lim sifatiga yaxshilash uchun ta'sir ko'rsatib, o'qitish jarayonini zamonaviy va samarali tashkil etishni yaratishga imkon beradi. Ular ta'lim usullari, o'quv materiallarini taqdim etish, interaktivlik va o'quvchilar bilan muloqotni yaxshilash orqali ta'lim sifatini oshirish uchun xizmat qiladi. O'quv jarayonining interaktivligi oshadi, o'quvchilarning darsga yordamini oshiradi. Bilimning individual yo'nalishini rivojlantiradi, ya'ni har bir o'quvchi o'zi ishlab chiqarish va bilimiga mos ta'lim olishi mumkin. Masofaviy ta'lim darajasi kengayadi, bu esa geografik xatolarni bartaraf etadi. O'z-o'zini tartibga solish va vaqtni boshqarish ko'rinishi shakllanadi, ayniqsa onlayn ta'lim olish.

Axborot texnologiyalarida ta'lim roli o'zgarishini ta'minlash muhim, ya'ni zamonaviy davrda ta'lim jarayonlariga axborot texnologiyalari integratsiyasi o'qitish an'anaviy usullarini yangilab o'quvchilarga bilim olishni ta'minlaydi. Aslida, axborot texnologiyalari ta'limning turli jabhalarida, tezlikda, o'quv jarayonlarida, bilimlarni taqdim etishda, interaktivlikni ta'minlashda va ta'limni shaxsiylashtirishda katta samaradorlikka ega. Axborot texnologiyalari o'quv materiallarini an'anaviy qog'oz ko'rinishidan elektron shaklga olib kelish orqali uni yanada kengroq tarqatish va talabalar uchun qulay formatda taqdim qilish imkonini beradi. Multimedia orqali (audio, video, animatsiyalar) ko'rish o'quv jarayonini yanada jonli, qiziqarli va tushunarli qiladi. Bu esa o'quvchilarning mavzularni yaxshi o'zlashtirishiga va jarayonlarga olib keladi. Axborot-kommunikatsiya texnologiyalari yordamida o'quvchilar o'z-o'zini amalga oshirish, interaktiv mashg'ulotlarda ishtirok etish, hamma mustaqil bilim olish uchun ega bo'ladi.

Ikkinchidan, ta'limda muloqot va axborot texnologiyalari hamkorlikni sotib oladi. Onlayn platformalar, elektron pochta, virtual sinflar va forumlar o'qituvchi va o'quvchilar o'rtasida samarali muloqotni yo'lga qo'yadi.

Uchinchidan, ta'limni shaxsiylashtirish axborot texnologiyalari. Har bir o'quvchining moddiy resurslariga moslashtirilgan o'quv dasturlari, interaktiv testlar, o'zlashtirish bosqichiga mos treninglar taqdim etilishi mumkin. Bu esa ta'lim sifatining oshishiga, individual bilim olish yo'llarining izlashga xizmat qiladi. Axborot vositalari yordamida o'qituvchilar o'z faoliyatini yanada samaraliroq olib borishlari mumkin. Misol uchun, darslarni tayyorlashda, nazorat va boshqarishda zamonaviy ta'minotdan jarayonni soddalashtirish va sifatni yaxshilaydi. Lekin, axborot texnologiyalarining ta'lim sifatiga ta'sirida ba'zi muammolar ham mavjud, shaxsan o'qituvchi va o'quvchi o'rtasida bevosita aloqaning kamayishi, o'quvchilarning o'z-o'zini tekshirish muammolari va axborotga tanqidiy nazoratning xavfsizligi mavjud. Texnik muammolar, resurslarni ishlab chiqarish yoki o'qitish texnologiyasini samarali o'zlashtira olish kabi ishlarni ham ta'lim jarayoniga ta'sir qilish mumkin.

Umuman olganda, axborot texnologiyalari ta'limni zamonaviylashtirib, o'quv jarayonining sifatini hisobga olishda katta texnologiyalardir. Ular o'quvchilarga bilim olish jarayonini qulay, interaktiv va individual tarzda tashkil qilishga yordam beradi. Shu bilan birga texnologiyalarni qo'llash, ularni doimiy yangilab borish, ta'limning samarali rivojlanishi uchun zarurdir. Ta'limda axborot texnologiyalarining to'g'ri va samarali joriy etilishi ta'lim sifatining uzluksiz harakatiga turtki beradi, o'quvchilarni ilmiy-tadqiqot faoliyatiga, ijodkorligiga mustaqil fikrlashiga yordam beradi.

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RAQAMLI TEXNOLOGIYALAR DAVRIDA MOLİYAVIY SAVODXONLIKNI OSHIRISH MUAMMOLARI VA YECHIMLARI

Annotatsiya: Mazkur maqolada raqamli texnologiyalar davrida moliyaviy savodxonlikni oshirish masalalari o'rganiladi. Moliyaviy savodxonlik jamiyatning iqtisodiy barqarorligi va aholining ijtimoiy farovonligi uchun muhim omil hisoblanadi. Raqamli iqtisodiyotning kengayishi, onlayn to'lov tizimlari, mobil banking va investitsiya platformalarining jadal rivojlanishi fuqarolardan yuqori darajadagi moliyaviy bilim va ko'nikmalarni talab qilmoqda. Shu sababli moliyaviy savodxonlikni oshirish jarayonida yangi pedagogik yondashuvlar, innovatsion ta'lim metodlari va raqamli vositalardan samarali foydalanish dolzarbdir. Maqolada mavjud muammolar, jumladan, aholining moliyaviy texnologiyalardan foydalanishdagi qiyinchiliklari, firibgarlik xavfi va bilim yetishmovchiligi tahlil qilinadi hamda ularni bartaraf etish yo'llari ko'rib chiqiladi. Taklif etilgan yechimlar orasida ta'lim dasturlarini raqamlashtirish, interaktiv onlayn kurslar tashkil etish, yoshlar va kattalar uchun moslashtirilgan moliyaviy treninglarni joriy etish, shuningdek, davlat va moliya institutlari o'rtasida hamkorlikni kuchaytirish kabi chora-tadbirlar muhim o'rin tutadi.

Kalit so'zlar: moliyaviy savodxonlik, raqamli texnologiyalar, onlayn banking, iqtisodiy barqarorlik, investitsiya platformalari, ta'lim dasturlari, innovatsion metodlar.

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DIGITAL TECHNOLOGIES ERA: CHALLENGES AND SOLUTIONS IN IMPROVING FINANCIAL LITERACY

Abstract: This article examines the issues of improving financial literacy in the era of digital technologies. Financial literacy is considered an important factor for the economic stability of society and the social well-being of the population. The expansion of the digital economy, the rapid development of online payment systems, mobile banking, and investment platforms require citizens to have a high level of financial knowledge and skills. Therefore, the use of new pedagogical approaches, innovative teaching methods, and digital tools in the process of enhancing financial literacy is highly relevant. The article analyzes the existing problems, including difficulties in using financial technologies, the risk of fraud, and the lack of

knowledge among the population, as well as ways to overcome them. Proposed solutions include the digitalization of educational programs, the organization of interactive online courses, the introduction of tailored financial training for youth and adults, and strengthening cooperation between the state and financial institutions.

Keywords: *financial literacy, digital technologies, online banking, economic stability, investment platforms, educational programs, innovative methods.*

Kirish

Bugungi globallashuv va raqamli iqtisodiyot sharoitida moliyaviy savodxonlikni oshirish masalasi davlat, jamiyat va har bir fuqaro uchun ustuvor vazifalardan biriga aylanmoqda. Raqamli texnologiyalar kundalik hayotimizning ajralmas qismiga aylangani sayin, moliyaviy jarayonlarning elektron shaklda amalga oshirilishi tobora kengayib bormoqda. Elektron to'lovlar, internet-banking, mobil ilovalar, kriptovalyuta savdosi, onlayn investitsiya va mikromoliya platformalari kabi xizmatlarning rivojlanishi moliyaviy operatsiyalarni yengillashtirdi, ammo bir vaqtning o'zida yangi muammolarni ham yuzaga keltirdi. Xususan, moliyaviy firibgarliklarning ko'payishi, kiberxavfsizlik tahdidlari, noto'g'ri qarorlar natijasida yuzaga keladigan moliyaviy yo'qotishlar va aholining ayrim qatlamlarida moliyaviy bilimlarning past darajadaligi eng dolzarb muammolardan hisoblanadi.

Moliyaviy savodxonlik nafaqat individual daromad va xarajatlarni boshqarishda, balki oilaviy byudjetni to'g'ri shakllantirishda, jamg'armalarni samarali yo'naltirishda, qarz va kreditlardan oqilona foydalanishda ham muhim ahamiyatga ega. Ayniqsa, yoshlar, talabalar va kichik tadbirkorlar uchun moliyaviy savodxonlikni oshirish iqtisodiy faoliyatda muvaffaqiyatga erishishning asosiy omillaridan biridir. Shu bilan birga, aholining turli ijtimoiy guruhlarida raqamli moliya xizmatlariga bo'lgan ishonchni oshirish, ulardan xavfsiz foydalanish ko'nikmalarini shakllantirish bugungi kun talabidir.

Moliyaviy savodxonlikni oshirish bo'yicha xalqaro tajriba shuni ko'rsatadiki, muvaffaqiyatli davlatlar aholining barcha qatlamlari uchun maxsus dasturlarni joriy etish, maktab va oliy ta'lim tizimiga moliyaviy ta'lim elementlarini kiritish, ommaviy axborot vositalari va internet platformalari orqali keng ko'lamli tushuntirish ishlari olib borish orqali ijobiy natijalarga erishmoqda. Shu ma'noda, raqamli texnologiyalar davrida moliyaviy savodxonlikni rivojlantirish iqtisodiy barqarorlikni mustahkamlash, investitsion muhitni yaxshilash va jamiyatda ijtimoiy farovonlikni ta'minlashning muhim yo'nalishlaridan biri sifatida ko'riladi. Mazkur maqolada ushbu masalaning nazariy asoslari, mavjud muammolari hamda samarali yechimlari ilmiy tahlil qilinadi.

Metodlar: Raqamli texnologiyalar davrida moliyaviy savodxonlikni oshirish masalasini o'rganishda qo'llanilgan metodlar kompleks va tizimli yondashuvga asoslanadi. Avvalo, ilmiy adabiyotlar tahlili orqali moliyaviy savodxonlik tushunchasi, uning asosiy komponentlari hamda raqamli iqtisodiyot sharoitida ahamiyati o'rganildi. Jahon banki, Xalqaro valyuta jamg'armasi va boshqa xalqaro

tashkilotlarning tavsiyalari tahlil qilinib, ilg'or tajribalar asosida solishtirma metoddan foydalanildi. Shu bilan birga, raqamli moliya xizmatlari, jumladan, onlayn banking, elektron hamyonlar, kriptovalyuta platformalari va mobil to'lov tizimlarining rivojlanish tendensiyalari statistik usullar yordamida o'rganildi. Bu jarayonda so'nggi yillarda aholining moliyaviy savodxonlik darajasini baholash bo'yicha milliy va xalqaro reytinglar ham qiyosiy jihatdan ko'rib chiqildi.

Amaliy metodlar sifatida so'rovnoma va intervyu usullari qo'llanilib, yoshlar, talabalar va tadbirkorlar o'rtasida moliyaviy bilim va ko'nikmalar darajasi o'rganildi. Ushbu usullar aholining turli ijtimoiy guruhlarida moliyaviy texnologiyalarni qo'llashdagi muammolarini aniqlash imkonini berdi. Eksperimental metod yordamida esa ayrim o'quv dasturlarida raqamli vositalardan foydalangan holda moliyaviy ta'lim berish samaradorligi sinovdan o'tkazildi. Shu orqali interaktiv onlayn kurslar, mobil ilovalar va virtual treninglarning an'anaviy o'quv usullariga nisbatan afzalliklari ko'rsatib berildi.

Analitik yondashuv asosida moliyaviy savodxonlikni oshirishda davlat siyosati, bank tizimi va ta'lim muassasalarining roli tahlil qilindi. Normativ-huquqiy hujjatlar, milliy dasturlar va strategiyalar o'rganilib, ularning amaliy samaradorligi baholandi. Shu bilan birga, moliyaviy savodxonlikni oshirishda xalqaro tajribani mahalliy sharoitga moslashtirish imkoniyatlari ko'rib chiqildi. Bunda SWOT tahlil usuli yordamida mavjud kuchli va zaif tomonlar, shuningdek, imkoniyat va tahdidlar aniqlanib, muammoning kompleks yechimlarini ishlab chiqish uchun asos yaratildi. Mazkur metodlar yig'indisi tadqiqot natijalarining ilmiy asoslangan va amaliy ahamiyatga ega bo'lishini ta'minladi.

Asosiy yo'nalish	Muammolar	Yechimlar
Moliyaviy bilimlar darajasi	Aholining ko'p qismi, ayniqsa yoshlar va kichik tadbirkorlar moliyaviy tushunchalarni yetarli bilmaydi	Maktab va oliy ta'lim tizimiga moliyaviy savodxonlik fanlarini kiritish, onlayn kurslar tashkil etish
Raqamli texnologiyalarni qo'llash	Elektron banking, mobil ilovalar va investitsiya platformalaridan foydalanishda qiyinchiliklar, internet infratuzilmasining zaifligi	Raqamli xizmatlarni soddalashtirish, texnik infratuzilmani rivojlantirish
Kiberxavfsizlik	Firibgarliklar va onlayn hujumlarning ko'payishi, parol va shaxsiy ma'lumotlarni himoyalashdagi kamchiliklar	Maxsus treninglar, xavfsizlik bo'yicha interaktiv dasturlar, banklar tomonidan qo'shimcha himoya tizimlari
Aholining ishonchi	Moliyaviy xizmatlardan foydalanishda ayrim guruhlarda ishonchsizlik mavjud	Davlat va moliya institutlari hamkorligini kuchaytirish, tushuntirish ishlari, ijtimoiy tarmoqlar orqali keng targ'ibot
Innovatsion yondashuvlar	An'anaviy ta'lim usullari ko'p hollarda zamonaviy ehtiyojlarga javob bermaydi	Virtual treninglar, mobil ilovalar, gamifikatsiya asosida o'qitish

Natijalar: Tadqiqot davomida aniqlanishicha, aholining moliyaviy savodxonlik darajasi raqamli texnologiyalarni to'liq va samarali qo'llash uchun yetarli emas. O'tkazilgan so'rovnomalarning natijalariga ko'ra, yoshlarning katta qismi mobil banking va elektron hamyonlardan faol foydalanayotgan bo'lsalar-da, ularning xavfsizlik choralari bo'yicha bilimlari yetarli emasligi ma'lum bo'ldi.

Ayniqsa, parollarni himoya qilish, firibgarlik sxemalarini aniqlash va shubhali tranzaksiyalardan ogoh bo'lish masalalarida ko'plab xatolarga yo'l qo'yilmoqda. Bu esa moliyaviy texnologiyalardan foydalanishda sezilarli xavf tug'diradi.

Eksperimental tadqiqotlar shuni ko'rsatdiki, interaktiv onlayn kurslar va mobil ilovalar orqali o'rgatilgan moliyaviy bilimlar an'anaviy o'quv usullariga nisbatan samaraliroq natija bermoqda. Talabalar va kichik tadbirkorlar uchun ishlab chiqilgan maxsus dasturlarda budjetni rejalashtirish, kredit olish va qarzlarini boshqarish, jamg'armalarni investitsiya qilish bo'yicha ko'nikmalar sezilarli darajada oshgan. Bu esa raqamli texnologiyalar vositasida moliyaviy savodxonlikni rivojlantirishning yuqori samaradorligini isbotlaydi.

Shuningdek, moliya institutlari va davlat organlari tomonidan olib borilgan targ'ibot ishlari natijasida aholining onlayn banking va elektron to'lov tizimlariga bo'lgan ishonchi ortgani kuzatildi. Shu bilan birga, ayrim hududlarda internet infratuzilmasining zaifligi, raqamli xizmatlardan foydalanishda texnik to'siqlar mavjudligi aholining barcha qatlamlarini qamrab olishga to'sqinlik qilmoqda.

Tahlillar shuni ko'rsatdiki, moliyaviy savodxonlikni oshirish jarayonida eng samarali yechimlardan biri — raqamli texnologiyalar asosida bosqichma-bosqich o'qitish va treninglarni keng joriy etishdir. Bu usul nafaqat yoshlar, balki turli yoshdagi aholiga ham mos kelib, ularning moliyaviy qarorlarida ongli yondashuvni shakllantiradi. Umuman olganda, natijalar raqamli iqtisodiyot sharoitida moliyaviy savodxonlikni rivojlantirish uchun kompleks chora-tadbirlar zarurligini ko'rsatmoqda.

Muhokama: Tadqiqot natijalari shuni ko'rsatdiki, raqamli texnologiyalar davrida moliyaviy savodxonlikni oshirish jarayoni ko'p qirrali va murakkab vazifa hisoblanadi. Bir tomondan, onlayn banking, elektron hamyonlar, mobil ilovalar va investitsiya platformalari odamlarning moliyaviy operatsiyalarini soddalashtirib, ularning vaqt va resurslarini tejash imkonini bermoqda. Ikkinchi tomondan, ushbu imkoniyatlar moliyaviy xavflar, jumladan, kiberhujumlar, onlayn firibgarlik va moliyaviy qarorlarni noto'g'ri qabul qilish ehtimolini ham oshirmoqda. Shuning uchun moliyaviy savodxonlikni oshirishda nafaqat texnik ko'nikmalar, balki tanqidiy fikrlash, xavfsizlik madaniyati va iqtisodiy ongni shakllantirish zarur.

Muhokama davomida aniqlanishicha, yoshlarning moliyaviy texnologiyalardan foydalanish darajasi yuqori bo'lsa-da, ularda chuqur iqtisodiy tushunchalar yetishmaydi. Masalan, kredit olish va uni qaytarish mexanizmlari, investitsiya risklarini baholash yoki shaxsiy byudjetni rejalashtirish masalalarida yetarli bilimga ega bo'lmaslik ularning moliyaviy barqarorligiga salbiy ta'sir ko'rsatadi. Shu nuqtai nazardan, ta'lim tizimida moliyaviy savodxonlikni alohida modul sifatida kiritish, maktab va oliy ta'limda amaliy mashg'ulotlarga ko'proq e'tibor qaratish zarur.

Moliyaviy savodxonlikni oshirishda davlat siyosati, banklar va nodavlat tashkilotlarning hamkorligi muhim ahamiyat kasb etadi. Xalqaro tajriba shuni ko'rsatdiki, moliyaviy ta'lim dasturlarini ommaviy axborot vositalari, televidenie va ijtimoiy tarmoqlar orqali keng targ'ib etish, maxsus mobil ilovalar orqali interaktiv treninglar tashkil etish ijobiy natija beradi. Shu bilan birga, moliyaviy

savodxonlikni oshirish faqat bilim berish bilan cheklanmasdan, amaliyotda qo'llash imkoniyatlarini ham yaratishi lozim.

Yana bir muhim jihat — aholining turli guruhlar uchun maxsus yondashuv zarurligidir. Talabalar, o'qituvchilar, tadbirkorlar yoki pensiya yoshidagi fuqarolarning moliyaviy ehtiyojlari va duch keladigan muammolari turlicha bo'lgani sababli, ular uchun moslashtirilgan dasturlar ishlab chiqilishi zarur. Shu asosda moliyaviy savodxonlikni oshirish jamiyatning iqtisodiy barqarorligini mustahkamlash va aholi farovonligini oshirishda muhim omil bo'lib xizmat qiladi.

Xulosa: Tadqiqot asosida xulosa qilish mumkinki, raqamli texnologiyalar davrida moliyaviy savodxonlikni oshirish muammosi nafaqat iqtisodiy, balki ijtimoiy ahamiyatga ham ega. Moliyaviy bilimlarning yetarli emasligi fuqarolarning shaxsiy byudjetini samarali boshqara olmasligiga, kredit va qarzlardan noto'g'ri foydalanishga, investitsiya risklarini to'g'ri baholay olmasligiga olib kelmoqda. Raqamli texnologiyalar bunday muammolarni hal etishda katta imkoniyatlar yaratmoqda, biroq ulardan to'g'ri foydalanish uchun aholi orasida keng ko'lamli tushuntirish va o'quv ishlari olib borilishi talab etiladi.

Moliyaviy savodxonlikni oshirishning samarali yo'llaridan biri ta'lim tizimiga maxsus moliyaviy kurslarni kiritishdir. Maktab, litsey va oliy ta'lim muassasalarida shaxsiy moliyani boshqarish, kreditlash, investitsiya va jamg'arma madaniyatiga oid fanlar o'qitilishi yoshlarning iqtisodiy tafakkurini rivojlantiradi. Shu bilan birga, interaktiv treninglar, mobil ilovalar va onlayn platformalar orqali aholining barcha qatlamlari uchun qulay va zamonaviy ta'lim imkoniyatlarini yaratish muhimdir.

Davlat, banklar, moliya tashkilotlari va nodavlat sektor o'rtasida samarali hamkorlik o'rnatilishi ham moliyaviy savodxonlikni oshirishda asosiy omil bo'lib xizmat qiladi. Xalqaro tashkilotlar bilan hamkorlikda innovatsion loyihalarni amalga oshirish, ilg'or tajribalarni mahalliy sharoitga moslashtirish orqali ushbu jarayonni yanada jadallashtirish mumkin. Shu bilan birga, aholining moliyaviy savodxonligini oshirish ularning raqamli xizmatlardan ishonchli foydalanishiga, moliyaviy xavflardan himoyalanganishiga va iqtisodiy qarorlarini ongli ravishda qabul qilishiga imkon yaratadi.

Umuman olganda, moliyaviy savodxonlikni oshirish bugungi kunda barqaror iqtisodiy taraqqiyot va ijtimoiy farovonlikning kafolati hisoblanadi. Shu sababli, raqamli texnologiyalar imkoniyatlaridan oqilona foydalanish, innovatsion ta'lim metodlarini joriy etish va aholining barcha qatlamlarini qamrab oluvchi dasturlarni amalga oshirish ushbu muammoning samarali yechimi bo'lib xizmat qiladi.

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**TEXNIKA OLIY TALIM MUASSASALARIDA “KIMYO SANOATI
ENERGOTEXNOLOGIYASI” FANINI O‘QITISH METODIKASINI
TAKOMILLASHTIRISHDA ZAMONAVIY PEDAGOGIC
TEKNOLOGIYALARDAN FOYDALANISH**

Anottatsiya : “Kimyo sanoati energotexnologiyalari” fanini o‘rganishda innovatsion pedagogic texnologiyalardan foydalanish yo‘llari, fanning maqsad vazifalari, fanni oqitishda visual materiyallardan foydalanish yollari kabi masalalar yoritilgan.

Kalit so‘zlar: Vizual materiyallar, pedagogik texnologiya, texnologik jarayon, kompyuter, multimediya, internet.

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**THE USE OF MODERN PEDAGOGICAL TECHNOLOGIES IN
IMPROVING THE TEACHING METHODOLOGY OF THE SUBJECT
“ENERGY TECHNOLOGY OF THE CHEMICAL INDUSTRY” IN
TECHNICAL HIGHER EDUCATIONAL INSTITUTIONS**

Abstract: The article covers issues such as the use of innovative pedagogical technologies in the study of the subject “Energy technology of the chemical industry”, the objectives of the subject, and the use of visual materials in teaching the subject.

Keywords: Visual materials, pedagogical technology, technological process, computer, multimedia, Internet.

Jahon miqyosida texnika va texnologiyalar jadal sur'atlar bilan rivojlanib, takomillashib borayotgan ayni davrda kimyo sanoati energotexnologiyasi o'quv fanidan dars mashg'ulotlarni innovasion ta'lim texnologiya asosida tashkil etish va uning asosida talabalarning kasbiy malaka va ko'nikmalarini shakllantirish ta'lim sifatini oshirish zarurati vujudga kelmoqda. Bugungi kunda bir qator sabablarga ko'ra jahon kimyo sanoati energotexnologiyasi kontseptsiyasida sifat jihatidan o'zgarishlar ro'y bermoqda, elektr energiyasini ishlab chiqarishning noan'anaviy usullariga qiziqish kuchaymoqda, elektr stantsiyalarining mavjud turlarini takomillashtirishga, ularning ekologik xavfsizligini ta'minlashga e'tibor kuchaymoqda. Shuning uchun bu fanni oqitish metodikasini takomillashtirish

talabalarni zamon talabiga mos kadrlar etib ta'yorlash eng muxim masalalardan biri bolib qolmoqda.

Dunyo talimining ilmiy-texnikaviy salohiyati o'sishi, ichki iqtisodiyotni innovatsion modernizatsiya qilish uchun kuchli turtki beradigan va zamonaviy sharoitga moslashgan raqobatbardosh muxandis kadrlar tayyorlash masalasi kimyo sanoati energotexnologiyalari fanini oqitishni rivojlantirishning innovatsiyon pedagogik texnologiyalarini tanlashga bogliq bolib qolmoqda. Amaldagi ushbu fan dasturida energiya muammolarini o'rganishga shu paytgacha etarlicha e'tibor berilmagan. Unda texnologik va maishiy qurilmalarda elektr energiyasi issiqlik energiyasi kabi energiya turlarini tejash, masalalarini innovatsiyon pedagogic texnologiyalar vositasida oqitish orqali o'zlashtirish korsatkichlarini oshirish kabi muxim masalalari mavjud.

Mamlakatimizda texnika oliy ta'lim muassasalarida kimyo sanoatida energotexnologiyalari fanini, o'qitish orqali talabalarning bilim, ko'nikma va malakalarini shakllantirishning ilmiy-pedagogik asoslarini ishlab chiqish tashkiliy-pedagogik shart-sharoitlari va axborot-metodik imkoniyatlari kengaytirilmoqda. O'zbekiston Respublikasini yanada rivojlantirish bo'yicha xarakatlar strategiyasida "sifatli ta'lim xizmatlari imkoniyatlarini oshirish, mehnat bozorining zamonaviy ehtiyojlariga muvofiq yuqori malakali kadrlar tayyorlash siyosatini davom ettirish"¹ ustuvor vazifa sifatida belgilangan. Shu bois, mazkur vazifalarning ijrosini ta'minlashda amaldagi muammo va kamchiliklarni bartaraf etishda kimyo sanoati energotexnologiyalari fanini o'qitish orqali kadrlarni tayyorlash jarayoni samaradorligini oshirishga qaratilgan innovatsion pedagogik texnologiyalarni ishlab chiqish va ularni amaliyotga joriy qilish muhim ahamiyat kasb etadi.

O'zbekiston Respublikasi Prezidentining 2017 yil 7 fevraldagi «O'zbekiston Respublikasini yanada rivojlantirish bo'yicha Harakatlar strategiyasi to'g'risida»gi PF-4947-sonli Farmoni, 2017 yil 20 apreldagi «Oliy ta'lim tizimini yanada rivojlantirish chora-tadbirlari to'g'risida»gi PQ-2909-sonli, 2017 yil 27 iyuldagi «Oliy ma'lumotli mutaxassislar tayyorlash sifatini oshirishda iqtisodiyot sohalari va tarmoqlarining ishtirokini yanada kengaytirish chora-tadbirlari to'g'risida»gi PQ-3151-sonli Qarorlari hamda mazkur sohaga taalluqli boshqa me'yoriy-huquqiy hujjatlarda belgilangan vazifalarni amalga oshirishda ushbu dissertatsiya tadqiqoti muayyan darajada xizmat qiladi.

Ushbu fan texnologik jarayonlarning termodinamik nazariyasi usullarini qo'llab mamlakatimizdagi kimyo sanoatida texnologiya tizimlarini tahlil qilish, optimallashtirish masalalarini echish jarayonini, zamonaviy innovatsiyon pedagogik tadqiqot usullalaridan foydalanib organish amaliy tadqiqot natijalarining respublikamizdagi ijtimoiy-iqtisodiy islohotlar natijadorligiga ta'siri kabi masalalarni xam qamrab oladi.

Jizzax politexnika institutida laboratoriya mashgulotlarini bajarish xozirgi kunda toliq muqobil energiya manbalaridan (yani quyosh panelidan) foydalanib

¹Ўзбекистон Республикаси Президентининг

“Ўзбекистон Республикасини янада ривожлантириш бўйича Ҳаракатлар стратегияси тўғрисида” ги Фармони. // Ўзбекистон Республикаси Қонун ҳужжатлари тўплами. –Т., 2017. – Б.39.

amalga oshirilmoqda yani tarmoqdan olinadigan energiya boshqa turdagi (issiqlik yani silikat materiyallarni tayorlash va boshqalar) energiyaga aylantirish xisobiga amalga oshirilmoqda.

Zamonaviy talaba – dars jarayonida yangi texnika vositalari, kompyuterlar, EHM va boshqalardan samarali foydalanish malaka va ko'nikmalarini chuqur egallagan bo'lishi shart. Yangi pedagogik texnologiyaga asoslangan dars talabalarni real ishlab chiqarish vaziyatlarini modellashtirish, oyin holatlarini yuzaga keltirishga o'rgatadi.

Har bir o'quv mashg'ulotida o'qitishning elektron vositalari turlarini tanlash – individual ijodiy jarayon. Har bir o'qituvchi uni o'z predmeti mazmunidagi bilimlarni, o'quvchilarning o'ziga hos xususiyatlarini, ularning tayyorgarlik darajasini, o'quv predmetiga munosabatini inobatga olgan holda bajaradi. [1].

Ta'lim jarayonida pedagogik texnologiyalarni amalda qo'llashning xozirgi holatining tahlili shuni ko'rsatadiki, bugungi kunda yeng ko'p ishlab chiqilgan soha – bu ma'lum o'quv predmeti, didaktik mavzu yoki savol doirasida aniq o'quv materialini o'zlashtirish yo'lini tasvirlovchi o'qitish texnologiyasi hisoblanadi Danilyuk A.Ya.[2].

Mazkur fanni o'qitish jarayonida ta'limning zamonaviy metodlari, pedagogik va axborot-kommunikatsiya texnologiyalari va o'qitish vositalarini (kompyuter, multimediya va boshqalar) qo'llanilishi nazarda tutilgan. Shu bilan birga talabalar fanni o'zlashtirish jarayonida:

- ma'ruza darslarida zamonaviy kompyuter texnologiyalari yordamida elektron-darsliklardan;

- amaliy mashg'ulotlarida kichik guruxlar musobaqalari, guruxli fikrlash innovatsion pedagogik texnologiyalarini uzlkusiz qo'llash nazarda tutilad

Vizual materiyallar

1-ilova.

Kimyo sanoati energotexnologiyalari fani vazifalari

Fanning maqsadi - Fanni o'qitishdan maqsad - talabalarga kimyoviy texnologik jarayonlarni termodinamika, ishlab chiqarish jarayonlarini termodinamik baholash, energiyani tejash, ikkilamchi energiya manbalarini aniqlash va maqsadli foydalanish uchun texnologik hisoblarni o'rgatish hamda amaliyotda tatbiq etish ko'nikmasini hosil qilishdan iborat

Fanning vazifalari -Ushbu maqsadga erishish uchun fan talabalarni nazariy bilimlar, amaliy ko'nikmalar, yuqori samarali kimyoviy texnologik jarayonlar va ular haqida fundamental bilimlar asosida talabalarda texnologik hisoblarni bajarish hamda ilmiy dunyoqarashini shakllantirish vazifalarini bajaradi.

Texnologik jarayonlarni ularda olib boriladigan jarayonlar bo'yicha sinflash ularni o'rganish bilan birga har bir jihozni kompleks texnologik va mexanik xisoblash uchun kerak b'oladi.

Texnologik jarayonni olib boradigan jixozlarning sinflanishi

1. Kimyo sanoatidagi mexanik jarayonlar nasoslar, sentrofuga, aralashtirgich, kompressorlar, tindirgichlar, filtrlar yordamida olib boriladi.
2. Kimyo sanoatida issiqlik jarayonlari uchun – trubali pechlar, olovli isitgichlar, issiqlik almashtirgichlar, kondensatorlar kerak.
3. Kimyo sanoatida massa almashuv jarayonlari asosan colonna turidagi jixozlarda: rektifikatsiya kolonnalarida, absorber, desorber, ekstraktorda olib boriladi.
4. Kimyo sanoatida mexanik jarayonlar maydalagichlarda, tegirmonlarda, qattiq moddalarni elaklarda saralash (klassifikatorlarda) va dozatorlarda olib boriladi.
5. Kimyoviy jarayonlar – konstruksiyalari har xil bolgan reaksiyon jixozlarda-reaktorlarda olib boriladi.

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KIMYO SANOATI ENERGOTEXNOLOGIYASI FANINI O'QITISHDA ENERGOTEXNOLOGIK VOSITALARDAN FOYDALANISH

Annotatsiya : “Kimyo sanoati energotexnologiyalari” fanini o'rganishda innovatsion pedagogik texnologiyalardan foydalanish yo'llari, fanning maqsadi vazifalari, fanni oqitishda kam energiya sarflovchi elektrotexnik vositalardan foydalanish yollari kabi masalalar yoritilgan.

Kalit so'zlar: Elektr yoy uskuna, pedagogik texnologiya, texnologik jarayon, kompyuter, televizor, multimediya, internet.

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THE USE OF ENERGY-TECHNOLOGICAL MEANS IN TEACHING THE SUBJECT OF ENERGY TECHNOLOGY OF THE CHEMICAL INDUSTRY

Annotation: The article covers issues such as the use of innovative pedagogical technologies in the study of the subject “Energy technologies of the chemical industry”, the goals and objectives of the subject, and the use of low-energy electrical means in teaching the subject.

Keywords: Electrical equipment, pedagogical technology, technological process, computer, television, multimedia, internet.

Energiya iste'moli o'sib borayotgan rivojlanayotgan mamlakatlarda keskinroq turmush darajasini oshirish. Rivojlangan mamlakatlar allaqachon o'zgaruvchan sharoitlarga moslashgan va iste'mol talabining keskin o'sishidan himoya qilish mexanizmini ishlab chiqqan. Shuning uchun ularning resurslarni iste'mol qilish ko'rsatkichlari optimal va biroz o'zgaradi.

Energotexnologiya fanini oqitishda elektr energiya kam istemol qiladigan elektrotexnik elektr yoy qurilma tayyorlash uchun televizor qismlarining taxminan 70-80 % dan foydalaniladi. Bu qurilmaning arzonligi va unda sodir bo'ladigan fizik jarayonlar mavjud asbob uskunalarga o'xshashligi bilan boshqa qurilmalardan ajralib turadi. Xozirgi paytda qo'llaniladigan qurilmalardan farqli jixati bu laboratoriya qurilmasida kechadigan jarayonlar masalan razryad 1 qurilmasida elektr uchqini bo'lsa elektrotexnik yuqori kuchlanishli universal telequrilmada elektr yoyini ko'rish mumkin.

Beknazarova L.S. Ta'limning samarali shakl va uslublarini izlab topish, o'quv rejasi va dasturlari mazmunini qayta ishlab chiqish, talabalarning o'quv uslubiy tayyorgarlik faoliyatini kuchaytirish, ularning pedagogik mahoratini oshirish shart-sharoitlarini to'g'ri yo'naltirish ta'lim tizimi oldidagi birinchi galda hal qilinishi lozim bo'lgan ishlardan ekanligi aniqlandi[1].

Bunday eski televizor qismlaridan foydalanish orqali elektr tokini 8 kv dan 30 kv gacha ko'tariladigan elektr qurilmalar ishlab chiqarish imkoniyati tug'iladi. Bu qurilmalar orqali talabalar laboratoriya sharoitida rentgen nurlarining tabiati va xususiyatlarini bilish imkoniyatlari yaratiladi. Bu qurilmadan foydalanib qiyin eriydigan silikat moddalarda kechadigaan kimyoviy reaksiyada ajraladigan issiqlik jarayonlari va buni tejash yollarini organish mumkin bo'ladi.

Zayseva, S.A.[2]. Bo'lajak mutaxassislarni tayyorlash va umuman ta'lim tizimini modernizatsiya qilish jarayonlariga boshqa tendensiyalar qatori faol ishlab chiqilgan va qo'llaniladigan professional standartlar tobora ko'proq ta'sir ko'rsatmoqda. "Ular kasbiy faoliyatning muayyan turlari xodimlari tomonidan mehnat funksiyalarini bajarish natijalari va sifatiga o'lchanadigan talablarni tavsiflaydi".

Kutilayotgan natijalar.

Elektr yoy qurilmadan foydalanib quyidagi laboratoriya mashg'ulotlarini amalga oshirish mumkin.

1. Elektr zarralarining elektromagnit maydonda yoyilish xodisalari.
2. Gazlardan elektr toki.
3. Rentgen nurlarining xosil bo'lish jarayonlari.
4. Konturning ishi va vazifasi.
5. Dielektriklarning elektr teshilishi.
6. Strimer.
7. Qattiq suyuq materiallarning elektr mustaxkamligi ($E=U/h$).
8. Reaktiv va reaktiv toklar ayirmasi.
9. Elektr yoy pechini ishlash jarayonlari.
10. Elektromagnit maydondagi issiqlik energiyasidan foydalanish yollari.
11. Termodinamika qonunlarini organish.

Qo'llanilish soxalari.

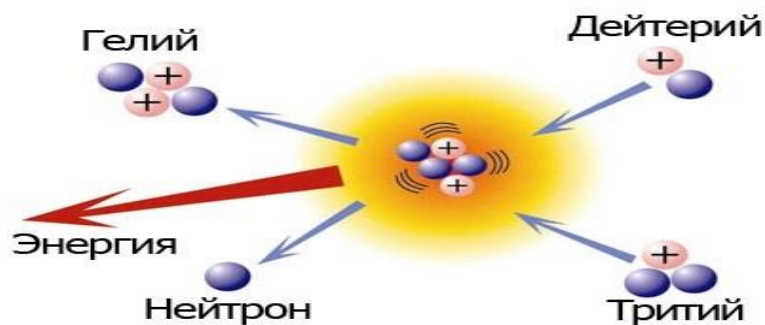
Qiyin eriydigan moddalarni eritish va ishlov berib materiallar olish.

Isitish tarmoqlarida ishlatiladigan qiyin eriydigan moddalarni o't oldirish jarayonlarida.

Har bir o'quv mashg'ulotida o'qitishning elektron vositalari turlarini tanlash – individual ijodiy jarayon. Har bir o'qituvchi uni o'z predmeti mazmunidagi bilimlarni, o'quvchilarning o'ziga hos xususiyatlarini, ularning tayyorgarlik darajasini, o'quv predmetiga munosabatini inobatga olgan holda bajaradi.[3].

Elektr energiyasi ishlab chiqarish:

Ko'pgina zamonaviy elektr stantsiyalari kimyoviy potentsial energiya printsipligiga asoslanadi. Masalan, yadro sintezi yoki yoqilg'i yonishi asosida ishlaydigan elektr stantsiyalarida kimyoviy reaksiyalar natijasida ajralib chiqqan energiya elektr energiyasiga aylanadi.



1-rasm

Energotexnologiya fanidan ilmiy laboratoriyalari mashg'ulotlari jarayonida.- amaliy mashg'ulotlarida kichik guruxlar musobaqalari, guruxli fikrlash innovatsion pedagogik texnologiyalarini uzlkusiz qo'llash nazarda tutiladi

Pedagogik texnologiya - o'quvchini o'qitish, tarbiyalash, shaxsini rivojlantirish masalalari yechimiga qaratilgan va ma'lum ketma-ketlik asosida amalga oshiriladigan pedagogik-psixologik usullar, uslublar majmuidir.

Innovatsion pedagogik texnologiyalar aynan ta'lim-tarbiya jarayonida o'quvchi-talabalar (tinglovchilar)ga muayyan fan (mavzu) bo'yicha bilim berish va shaxsini shakllantirishga qaratilgan o'qitishning zamonaviy uslublari va texnik vositalari majmuidir.

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INNOVATIVE TOOLS FOR IMPLEMENTING INDEPENDENT LEARNING IN THE CREDIT-MODULE SYSTEM OF HIGHER EDUCATION STUDENTS

***Abstract:** This article presents information about the essence of innovative didactic tools for students' independent learning in the credit-modular system, their types, and the stages of organizing independent learning.*

***Key words:** Credit-modular system, independent learning, classroom sessions, knowledge, competence.*

Introduction. In the legislation of the President of the Republic of Uzbekistan Sh.M.Mirziyoyev on education dated September 23, 2020, the structure, content and conditions of its implementation, as well as the physical, personal, intellectual, scientific and Mandatory requirements for professional qualities were determined. Introduction of educational plans and educational programs into the educational process, educational plans and educational programs are developed based on the goals and tasks of the relevant educational stages.

The main strategic goal of the concept of development of science until 2030 is the transition to the innovative and high-tech format of the development of the national economy, the use and proper mobilization of the competitive advantages of our country, the expansion of the volume of innovative products, which ensures rapid economic growth. directing investments to the directions, improving the standard of living of the population several times, finding a scientific solution to current issues in the social sphere based on the innovative approach and scientific research and the achieved results, developing scientific cooperation at the international level, as well as "Science and scientific activity" and "Innovative Activity" is to ensure the execution of the laws.

The main part. Today, four models of credit measurement system implementation are widely used:

United States Credit System (USCS). Credit system of European countries (ECTS). Asia-Pacific credit system (UCTS). UK Credit System (CATS).

Among these models, the US and European models are the most common. In our republic, the Ministry of Higher and Secondary Special Education gives priority to the use of the European ECTS system in the implementation of the credit system. One of the most important aspects of the Bologna Declaration is the use of a single "credit system" (ECTS) for higher education institutions. A credit or credit unit is a cost indicator of any educational activity included in the curriculum. The ECTS system also offers a number of conveniences for universities. Thus, it ensures the

similarity and uniqueness of curricula that accurately reflect information about the educational process in the context of specific educational areas and specialties.

According to the ECTS system, the number of credits that students must accumulate in one year is 60. Considering that one academic year consists of two semesters, a student must accumulate 30 credits in each semester.

If the bachelor's course is 3-4 years, the student must collect 180-240 credits for the bachelor's degree, and 60-120 for the 1-2-year master's degree. That is, in order for a student to obtain the appropriate credits in a certain subject, it is necessary to complete a certain number of learning workloads. This means that the study load of 25-30 hours determined for 1 credit is the sum of the total study efforts that the student is expected to spend in order to learn the subject.

In the credit module system, the amount of independent work of students increases to 50-60%, that is, if a total of 120 hours must be spent in 1 semester in a 4-credit systematic subject, the classroom hours are 60 or 48 hours, and independent education is 60. or 72 hours. Therefore, it is impossible to fully implement the credit-module system without paying enough attention to independent education and forming methodological types of independent education.

Modern educational didactic materials include the following:

Electronic versions of educational literature on science are necessary for learning this science from reliable scientific sources. Syllabus of the subject - to get acquainted with the credit of the subject, period of study, goals and objectives, course policy, subjects of the subject, types of training, types of independent work, teaching methods, evaluation criteria, literature, final control questions, etc. necessary. Science glossary - necessary to quickly learn science terms and content. The text of the lectures is necessary for studying the subjects of science. Organization of science forums on social networks and electronic platforms - it is necessary for students to exchange opinions on topics and assignments, to be aware of news related to science. Video recordings, podcasts, science videos taken from the Internet - necessary for learning science topics through video recordings. Science digests, i.e. internet links, are necessary for students to study the topic using internet links. Multimedia simulators, educational tests, practical programs, virtual laboratory stands - to acquire practical skills by practicing through a mobile device. Science MOOCs for learning science content online. Examples of cases related to science - to solve problematic situations and get acquainted with them. Scientific research topics - to independently conduct scientific research within the field, write scientific articles.

The organization of independent work in higher education institutions within the framework of the Bologna process implies the following:

1) to significantly increase the weight of educational material provided for independent education; 2) Development and constant updating of the knowledge repository, a set of educational materials designed to organize independent work of students, including evaluation of its effectiveness; 3) implementation of the principle of individualization of education; 4) changing the teacher's functions in the educational process; 5) there is a strong motivation for wider use of independent

education forms among students and teachers; 6) availability of appropriate material base both in the departments and in the university as a whole.

The independent work of students in the credit-module system is divided into independent education performed by the student without the guidance of a teacher and independent education under the guidance of a teacher.

Summary. Currently, great attention is being paid to the effective use of modern information technologies in the education of young people. In order to bring higher education institutions up to the level of world standards, it is necessary to equip them with information communication technologies and to have a high level of professional training of professors and teachers in all subjects using modern computers.

This is, first of all, the application of new innovative technologies in the field of education, taking samples from the experience of prestigious higher education institutions of foreign countries, effective use of Internet technologies in the educational process, and creating the basis for increasing the creativity of students. Independent education of students using various innovative didactic tools (MOOC, LMS, CMS systems), design of educational process and information educational space using Google tools and services (services) and formation of electronic learning environment in education, educational process through Google apps (Google Drive, Google Docs (text, spreadsheet, presentations, graphic editors), Google Calendar (calendar), Google Hangouts (messenger), Google+, Google Blogger (site creation) and Google Scholar and implementation of organization and management requires pedagogues to work on themselves perfectly, to complete and clearly formulate each assignment.

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“KELINLAR QO‘ZG‘OLONI” KOMEDIYASIDA STILISTIK VOSITALARNING QO‘LLANILISHI

Annotatsiya. Ushbu tadqiqot Said Ahmadning “Kelinlar qo‘zg‘oloni” komediyasidagi stilistik vositalarni tizimli tahlil qiladi. Tanlab olingan sahna va qahramonlar nutqlarini yaqin o‘qish orqali maqollar, xalqona iboralar, metafora, o‘xshatish, metonimiya, sinekdoxa, ironiya, personifikatsiya va parallelizm kabi leksik-stilistik vositalarning rolini aniqlab, tiliy normalar, milliy qadriyatlar, madaniyat va hazil-huzulga qanday ta’sir ko‘rsatishini o‘rganadi. Xulosaga ko‘ra, maqollar va idiomalar milliy ruhni mustahkamlab, metafora hamda metonimiya dramatik va hissiy yukni kuchaytiradi. Stilistik vositalar asarning doimiy ommaligi va kommunikativ qudratini belgilovchi markaziy omil ekanligini ko‘rsatadi.

Kalit so‘zlar: maqol, xalq iborasi, metafora, o‘xshatish, metonimiya, sinekdoxa, ironiya, personifikatsiya, parallelizm, O‘zbek adabiy stilistikasi

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USE OF STYLISTIC DEVICES IN THE COMEDY "BRIDES' REBELLION"

Abstract. This study provides a structured analysis of stylistic devices used in Said Ahmad’s Uzbek comedy “Kelinlar qo‘zg‘oloni”. Through close reading of selected scenes and dialogues, the analysis identifies lexico-stylistic tools such as proverbs, folk idioms, metaphors, similes, metonymy, synecdoche, irony, personification and parallelism and examines their functions in shaping linguistic norms, national values, culture and humor. The findings show that proverbs and idioms anchor the text in national spirit, while metaphor and metonymy amplify dramatic and affective impact. The conclusion argues that stylistic devices are central to the work’s enduring popularity and communicative power.

Key words: proverb, idiom, metaphor, simile, metonymy, synecdoche, irony, personification, parallelism, uzbek literary stylistics

O‘zbek adabiyotida kulgi janri har doim jamiyatdagi illatlarni fosh etish, milliy qadriyatlarni ifoda etish va ijtimoiy o‘zgarishlarga munosabat bildirishda muhim vosita bo‘lib kelgan. Said Ahmadning “Kelinlar qo‘zg‘oloni” komediyasi ham ana shunday asarlardan biridir. Mazkur asar xalq orasida mashhurligini yo‘qotmagan bo‘lib, unda o‘zbek oilalarining ichki muammolari, kelin-kuyov,

qaynona va boshqa qahramonlar o'rtasidagi ziddiyatlar kulgili, ammo chuqur ma'noga ega sahnalar orqali tasvirlanadi. Asarda ishlatilgan metafora, metonimiya, sinekdoxa, mubolag'a va boshqa stilistik vositalar nafaqat yumor manbai, balki jamiyat hayotining o'ziga xos tasviriy vositalaridir.² Said Ahmad — o'zbek adabiyotining barcha janrlarida samarali ijod qilgan yirik adiblardan biri bo'lib, uning ayniqsa "Kelinlar qo'zg'oloni" komediyasi hanuzgacha mashhurligini yo'qotmagan va xalq orasida sevimli asar sifatida e'tirof etib kelinmoqda. Mazkur komediyada muallif turli obrazlar orqali o'zbek xalqining tili, milliy qadriyatlari va madaniyatini yorqin tasvirlab beradi. Asarning keng omma qalbidan chuqur joy olishi va yillar davomida dolzarb bo'lib kelishining eng asosiy sababi — unda stilistik vositalarning turli shakllari ustalik bilan qo'llanganidir.³ Ushbu tadqiqotda "Kelinlar qo'zg'oloni" komediyasi stilistik tahlil asosida o'rganiladi hamda ushbu maqolada "Kelinlar qo'zg'oloni"dagi stilistik vositalar lingvopoetik jihatdan tahlil qilinib, ularning badiiy-estetik funksiyalari yoritiladi.

Mazkur tadqiqotning metodologik asosini "lingvopoetik tahlil" tashkil etadi. Tadqiqotning bosh maqsadi — "Kelinlar qo'zg'oloni" asarida qo'llangan uslubiy birliklarni aniqlash, ularning "semantik, pragmatik va estetik funksiyalarini" ochish hamda badiiy matnning umumiy g'oya va kompozitsiyasiga qanday xizmat qilayotganini yoritishdan iboratdir.

1. Tadqiqotning nazariy asoslari:

Tahlilda tilshunoslikning "stilistika, lingvopoetika, matn lingvistikasi" kabi bo'limlariga oid nazariy qarashlar hamda adabiyotshunoslikdagi "obrazlar tahlili, xalqona nutq vositalarining badiiy funksiyasi" haqidagi ilmiy qarashlar tayanch bo'ldi. Shu bois, metodologiya tilshunoslik va adabiyotshunoslik yondashuvlarining integratsiyasiga asoslanadi.

2. Qo'llangan metodlar va ularning vazifalari

Tadqiqot davomida quyidagi metodlar qo'llanildi:

- "Deskriptiv tahlil" — matndan maqol, matal, frazeologik birlik va xalqona iboralarni aniqlash, ularni turkumlash va tavsiflash uchun qo'llandi.

- "Kontekstual tahlil" — aniqlangan birliklarning qahramon nutqidagi vazifasi va ma'no yukini ochish, ularning dramatik vaziyatdagi funksiyasini tushuntirish uchun qo'llandi.

- "Qiyosiy tahlil" — turli obrazlar nutqida uslubiy birliklarning qo'llanish chastotasi, ta'sirchanlik darajasi hamda badiiy-estetik vazifasini taqqoslash maqsadida ishlatildi.

3. Tadqiqot obyekti va materiali

Tadqiqot obyekti sifatida Said Ahmadning "Kelinlar qo'zg'oloni" komediyasi tanlandi. Asarning matni lingvopoetik tahlil uchun asosiy manba bo'lib xizmat qildi. Qahramonlarning nutqida uchraydigan "maqol-matal, xalqona iboralar, stilistik figura va tasviriy vositalar" tadqiqot materiali sifatida tanlab olindi.

² G'anieva S. XX asr o'zbek dramaturgiyasi va uning ijtimoiy-badiiy qimmati // Filologiya masalalari. — 2008. — №2. — B. 40–47.

³ Qodirov S. Said Ahmad ijodida kulgi va hajvning badiiy xususiyatlari // O'zbek tili va adabiyoti. — 2015. — №4. — B. 55–62.

4. Tadqiqot yondashuvi

Metodologiya “kontekstual yondashuv”ga tayandi. Har bir uslubiy birlik alohida emas, balki “sahna voqealari, qahramon xarakteri va dramatik konflikt” bilan uzviy bog‘liq holda o‘rganildi. Shu orqali uslubiy vositalarning nafaqat til birliklari, balki “badiiy-estetik yuklama”ga ega element sifatidagi xususiyatlari yoritildi.

5. Metodologiyani ahamiyati

Ushbu metodologik yondashuv “Kelinlar qo‘zg‘oloni”da qahramonlarning o‘zaro muloqoti, xalqona nutqning komediyaviy effekt yaratishdagi roli hamda maqol-matal va iboralarning “milliy madaniy qadriyatlarni aks ettirishdagi funksiyasi”ni ochib berishga imkon berdi. Shuningdek, lingvopoetik tahlil asar matnini faqat til darajasida emas, balki “madaniy, ijtimoiy va estetik nuqtai nazardan ham” tushuntirish imkonini yaratdi.

Tadqiqot davomida o‘tkazilgan lingvopoetik tahlil shuni ko‘rsatdiki, Said Ahmadning “Kelinlar qo‘zg‘oloni” komediyasi tilida stilistik vositalar turli darajada qo‘llangan bo‘lib, ular asarning badiiy-estetik qiymatini oshirishda muhim rol o‘ynaydi. Eng ko‘p qo‘llangan uslublar sifatida metafora, o‘xshatish va metonimiya alohida ajralib turadi va bu quyidagi tahlillar orqali yaqqol namoyon bo‘ladi:

Leksik-stilistik vositalar. Asarning milliy uyg‘unligini boyitish maqsadida turli obrazlar nutqlarida adib o‘zbek xalq maqollari, matallaridan foydalanadi. Maqollar asarga xalqona ruh bag‘ishlaydi va milliy ruh uyg‘otadi. Masalan, 1. “*Kelinning ko‘zi qaynona qo‘lida*”.⁴ Maqol Farmonbibi tomonidan keliniga uning qarorlari, kundalik turmushi, mehnati va dam olishi, xullas, butun hayoti uning izmi ostida ekanligini uqtirish uchun aytilgan. Bundan tashqari, *ko‘zi* so‘zida ko‘z orqali barcha harakatlar nazarda tutilayotganligi sababli ushbu parchada *sinekdoxa* qo‘llanilgan. Shu bilan birga, *qaynona qo‘lida* deyish bilan qaynonaning hukmi, boshchiligi nazarda tutilyapti. Boshliqlik vazifasi qo‘l orqali anglashilishi *metonimiya* hisoblanadi.

2. “*Er-xotin, it-mushuk*.”⁵ Ushbu maqol katta kelin Sotti tomonidan aytilgan bo‘lib, ovsini va uning turmush o‘rtog‘ini to‘xtovsiz janjal hamda tushunmovchiliklarini, xafagarchilik, ginalarini ochib berish uchun aytilgan. Er va va uning ayoli xuddi it va mushuk kabi bir-birini yomon ko‘radi, ko‘rishsa janjallashadi ma‘nosida *metafora* ishlatilgan.

3. “*Qovoqdek boshini qashima*”.⁶ Maqol shevaga xos bo‘lgan so‘zlardan olingan bo‘lib, bu usul bilan muallif o‘quvchini o‘ylashga va til birliklarini tushunishga undaydi. Maqolda “*Bema‘ni gaplarni gapirma*” ma‘nosida boshini qashima so‘zi ishlatilgan. Boshini qovoqqa qiyoslash esa *o‘xshatish* san‘atidan dalolat beradi.

⁴ Ahmad S. Kelinlar qo‘zg‘oloni. – Toshkent: G‘afur G‘ulom nomidagi Adabiyot va san‘at nashriyoti, 1976. – B. 5

⁵ Ahmad S. Kelinlar qo‘zg‘oloni. – Toshkent: G‘afur G‘ulom nomidagi Adabiyot va san‘at nashriyoti, 1976. – B. 7

⁶ Ahmad S. Kelinlar qo‘zg‘oloni. – Toshkent: G‘afur G‘ulom nomidagi Adabiyot va san‘at nashriyoti, 1976. – B.

4. “*Kattakon bo'lsang ham aqling chaqmoqtoshday*”.⁷ Kimningdir ustidan aqli chaqmoqtoshday deb aytish, odamning yoshiga mos bo'lmagan xatti-harakatlari, fe'l-atvori, gap-so'zi va qiliqlari bo'lishini anglatadi. Aqlini chaqmoqtoshga qiyoslash esa o'xshatish ekanligini ifodalaydi.

5. “*Bor tovog'im, kel tovog'im*”.⁸ Maqol kelinlardan biri Bashorat tomonidan aytilgan bo'lib, o'zbek xalqi oldi-berdisini tushuntirish maqsadida qo'llanilgan. Ushbu parchada jismning harakatlanishi *personifikatsiya* bilan sifatlangan bo'lsa, jism orqali urf-odatning ifodalanishi *metonimiya* usulidan xabar beradi.

Maqollardan tashqari, ushbu komediya frazeologik birliklar hamda uslubiy vositalar ishlatilgan sintaktik, grammatik va pragmatik jihatdan mukammal gaplardan tashkil topgan. Quyida komediyaning sahnalari hamda obrazlar nutqlarini uslubiy vositalar kesimida ko'rib chiqamiz.

“*Otang rahmatli erkaklikni o'rniga qo'yardi. Rahmatlini hamma Azim she'r derdi. Yursa yer titrardi. Yo'talsa, daraxtdagi qushlar parr etib uchib ketardi. Aksa ursa, osmonda momaqalldiroq bo'lib, chaqmoq chaqardi. Rahmatlik xotin kishini gapini gap demasdi. (ko'ziga yosh olib) Shundoq odam tuproqda yotibdi. (birdan o'ziga kelib) Kenja kelin qani? Nega ko'rinmaydi?*”

Asqar: Shunchaa gap bekorga ketdi-ya.

*Sotti: Yangi kelin-kuyov misoli Layli-Majnun... ”*⁹

Parchada foydalanilgan uslubiy vositalar asarni yanada boyitib turganligi yaqqol ko'zga tashlanadi: “*Azim she'r derdi*”- insonni she'rga qiyoslash orqali muallif Farmonbibining vafot etgan turmush o'rtog'i qanchalik kuchli, zabardast va ilg'or bo'lganligini isbotlab bermoqchi, bundan kelib chiqadiki, *metafora* ushbu gapda o'rinli qo'llanilgan. “*Yursa yer titrardi. Yo'talsa, daraxtdagi qushlar parr etib uchib ketardi. Aksa ursa, osmonda momaqalldiroq bo'lib, chaqmoq chaqardi.*”¹⁰- insonning qadam tempti yurganda yer titragulik darajada emas shuning uchun parchaning ushbu qismidagi Azim she'rga nisbatan berilgan sifatlar *mubolag'a* vositasida boyitilgan va o'quvchini diqqatini yanada oshirishga harakat qilingan. Keyingi jumlada keladigan “*tuproqda yotibdi*” iborasida esa kishining vafot etgani va qabrga ko'milgani, hech kimni mensimagan odam bo'lsa-da oxir-oqibat vafot etib, tuproq ostida qolgani haqida gap ketar ekan, ushbu jumlada *sinekdoxa* (tuproq orqali qabr nazarda tutilgan)dan foydalanilganiga guvoh bo'lamiz. Suhbatning so'nggida kenja kelin-kuyovga nisbatan berilgan sifatlar esa uslubiy vositalardan mohirona foydalanilganligi bilan bizni lol qoldiradi. “*Misoli Layli-Majnun*” jumlasidan anglashiladiki, o'xshatish sifati (misoli) qo'llanilishi bilan birga ularning yosh sevishganlarga o'xshatilishi *antonomaziya* ya'ni Majnun va Layli nomi qahramonlarning bir-birini chindan sevishini eslatib turuvchi uslub qo'llanilgan. Bundan tashqari, bu ibora orqali insonning ishq yo'lida chekkan azob-

⁷ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 29

⁸ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 14

⁹ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 3

¹⁰ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 11

uqubatlari va fidoyiligi umumlashtirilgan hamda qahramonlar yosh kelin-kuyov bu zamonda bunday azob-uqubatlarsiz baxtli ekanligini ko'rsatish, kesatish maqsadida ironiyadan foydalanilgan.

“-Bu uy ham bir hukumat. Ha, bir mamlakat. O'z poshshosi, o'z qonuni bor. - O'z shpioni ham bor.”¹¹

Ushbu parchada stilistik vositalar bisyor qo'llanilgan. “-Bu uy ham bir hukumat. Ha, bir mamlakat” aynan ushbu gapda Farmonbibini yashab turgan xonadonini mamlakat ya'ni bir davlatga qiyoslayapti. Shuning uchun ham *metafora* bu gapda juda mos ravishda qo'llanilgan. Shu bilan birga, gapning bir xil maromda o'qilishi hamda ikki gap bir xil tuzilishga ega bo'lib, mazmun jihatdan bir-birini to'ldirib turishi *parallelizmdan* darak beradi va uslub fikrning ta'sirchanligini oshiradi. Keyingi gapda poshsho so'zi hukmdorni, qonun esa tartib-qoidalarni bildiradi. Bu yerda haqiqiy davlat haqida emas, balki oila ichidagi boshqaruv haqida gap ketmoqda. Aynan ushbu uslub *metonimiya* deb ataladi. Qizig'i shundaki, yana boshqa kelinning Sottiga qarata – “O'z shpioni ham bor.” deya kesatq qilishi orqali ironiya ishlatilgan.

“Kampir hozir dazmoldek qizib turibdi. Yaqiniga borib bo'lmaydi yaxshisi, kampir hovuridan tushguncha jindekkina o'z holiga qo'yaylik”.¹²

Bu parchada qo'llanilgan uslubiy vositalar matnga obrazlilik va ta'sirchanlik baxsh etib, Farmonbibining holatini yorqin tasvirlab beradi. “Kampir hozir dazmoldek qizib turibdi”- dek qo'shimchasi orqali qo'llanilgan o'xshatish vositasi jumlagi ham yumor, ham jiddiylik beradi. Navbatdagi “Yaqiniga borib bo'lmaydi”- nutqidan bilishimiz mumkinki, inson ta'nasi kuydiradigan darajada issiq bo'lolmasligi *mubolag'a* san'atidan darak beradi. “jindekkina o'z holiga qo'yaylik”- takror yana kesatish orqali ironiya stilistik vositasidan mohirona qo'llanilgan.

“Bir tovuqqa ham don kerak, ham suv kerak degandek...”

Farmon(gapini bo'lib). Maqol qo'shmay gapir. Maqol ham o'lsin, bo'lar-bo'lmasga suqulmay.

Bashorat. Maqol so'z ko'rki, o'zingizdan qolar gap yo'q. Do'st boshga, dushman oyoqqa qaraydi, degandek... Tuflimning rangi o'chib, tumshug'i yalpayib ketibdi.”¹³

Endi navbatdagi parchada nafaqat uslubiy vositalar yordamida urg'u berilgan jumlar balki maqollarning turli xillarini o'z o'rnida ishlatilayotganini ko'rishimiz mumkin. Parchada ishlatilgan maqollar:

— Bir tovuqqa ham don kerak, ham suv kerak; (hayotda hamma narsa bir-biridan muhim. Inson faqat bitta narsaga emas, balki turli ehtiyojlarga e'tibor qaratishi kerak. Tirikchilik uchun esa ayrim insonga ham pul, ham sog'lik kerak)

¹¹ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 11

¹² Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 20

¹³ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 14

—*Maqol soʻz koʻrki*; (yaʼni oddiy soʻzlardan foydalanib gapirishdan koʻra maqol qoʻllansa yanada tushunarliroq boʻladi)

—*Doʻst boshga, dushman oyoqqa qaraydi*. (bu yerda bosh hamda oyoq soʻzlari *metaforik* maʼnoda ishlatilgan. “*Bosh*” yaqin va aziz kishilar, “*oyoq*” esa mensimagan yoki yomon koʻradigan odamlar sifatida tasvirlangan).

“*Maqol ham oʻlsin, boʻlar-boʻlmasga suqulmay*” — Farmonbibining ushbu gapi kesatish maʼnosida aytilgan boʻlib, aynan maqol suqulmaydi, uni sen boʻlar-boʻlmasga oʻrtaga qoʻshasan deya keliniga qarata aytayotgandek edi. Shuning uchun ushbu gapda ironiyadan foydalanilganligining guvohi boʻlamiz. “*Tuflimning rangi oʻchib, tumshugʻi yalpayib ketibdi*” — ushbu gapda maʼno koʻchishini tuflining tumshugʻi soʻzida koʻrishimiz mumkin. *Metafora* yana bir bor ustalik bilan qoʻllanilgan.

“*Yegan ogʻiz uyalar, “Qudachilik-ming yilchilik”, oʻzingiz bilasiz, bittayu-bitta qizim. Koʻzimning oqu qorasi, haligi qudalarimni bir chaqirsam degandim.*”¹⁴

Yuqorida keltirilgan parcha orqali Said Ahmad uslubi vositalari bilan maqollarni milliy ruhga qanchalik mohirona uygʻunlashtirganining dalilidir. “*Yegan ogʻiz uyalar*” - oʻzbek xalq maqoli hisoblanadi, shu bilan birga bu jumlada *metonimiya* qoʻllanilganligi, ogʻiz orqali bajariladigan ish-harakatga nisbatan inson soʻziga sifat berilayotgani yaqqol maʼlum, shu bilan bir qatorda insonning bir tana aʼzosi orqali butun odam tasvirlanishida *sinekdoxa*ning hissasi ham kattadir. “*Koʻzimning oqu qorasi*” – bu parchaning eng hayajonli gapi boʻlgani bois, obrazning nutqi yanada keng hamda chuqur maʼno egallashini anglatish maqsadida muallif *metaforadan* foydalangan.

Tadqiqot jarayonida qayd etilgan asosiy natijalar quyidagicha:

Metafora va oʻxshatishlar asarda eng koʻp ishlatilgan boʻlib, umumiy stilistik vositalarning qariyb 40% ini tashkil etadi. Ular koʻpincha xalq maqollari, xalqona iboralar orqali ifodalanib, milliy ruhni kuchaytiradi.

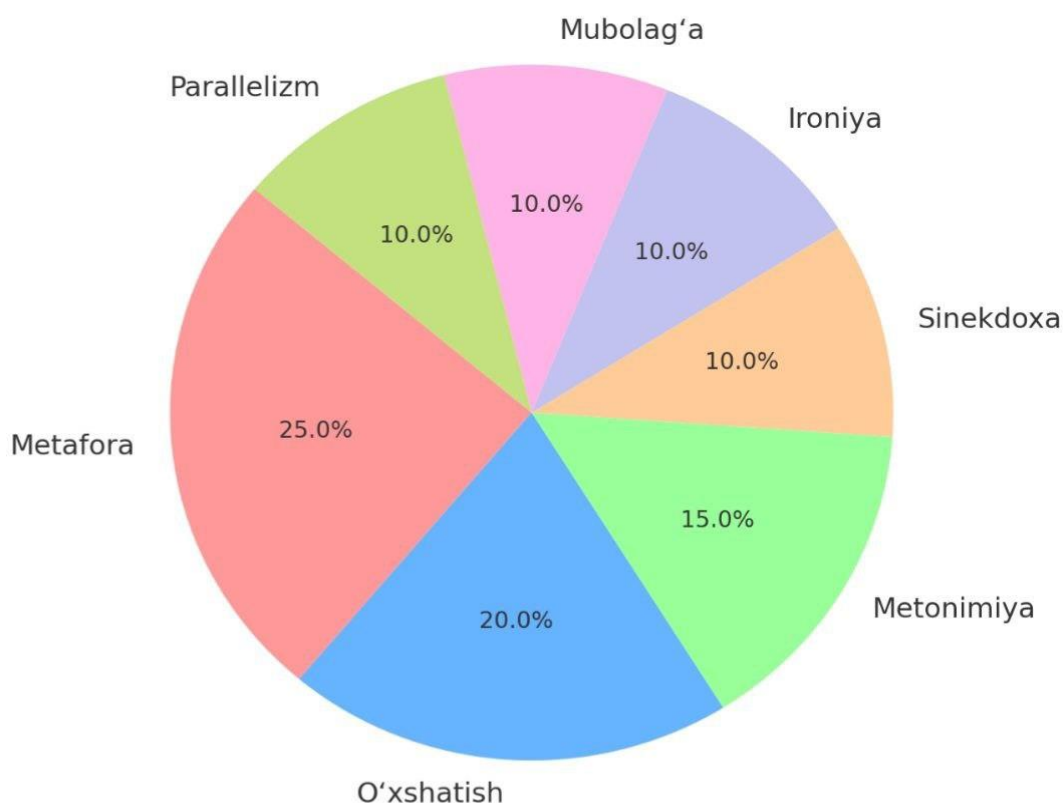
Metonimiya – 20%. Qahramonlarning kundalik nutqida koʻproq qoʻllanilib, oilaviy va ijtimoiy hayotning turli jihatlarini ramziy ifodalashga xizmat qiladi. Masalan, “*koʻz*” orqali nazorat, “*qoʻl*” orqali hukmronlik anglatiladi.

Mubolagʻa va *ironiyalar* – 20%. Ular kulgi yaratish, satirik ruhni kuchaytirish va ijtimoiy tanqidni ifodalashda muhim vosita sifatida ishlatilgan.

Sinekdoxa va *boshqa vositalar* – 20%. Xususan, “*tuproq*” orqali qabr nazarda tutilishi, “*koʻzimning oqu qorasi*” orqali mehr ifodalanishi kabi misollar *sinekdoxa*ning samarali qoʻllanilganini koʻrsatadi.

¹⁴ Ahmad S. Kelinlar qoʻzgʻoloni. – Toshkent: Gʻafur Gʻulom nomidagi Adabiyot va sanʼat nashriyoti, 1976. – B. 15

Leksik-stilistik vositalarning taqsimoti



1.1.§.-diagramma. “Kelinar qo’zg’oloni” asari stilistik tahlili.

Said Ahmad ushbu komediyasida quyidagi uslublardan samarali foydalanib asarni o’qilishi oson bo’lishiga yordam beradi:

Komedik uslub: Asarning asosiy uslubi komediyadir. Muallif o'zbek oilalaridagi kundalik hayotning kulgili tomonlarini, kelinlar va qaynonalar o'rtasidagi munosabatlardagi ziddiyatlarni, an'anaviy qarashlarning zamonaviy hayotga moslashmasligini o'ziga xos yumor bilan tasvirlaydi.¹⁵ Masalan:

“Bo’ston. Shu desangiz...

Farmon. Shu desangiz demay gapir...

Bo’ston. Xo’p bo’ladi, oyijon. Shu desangiz... ishxonamizga yangi yaponcha jemper kepti. Shundan bittagina olsam. Shu desangiz... iltimos, shundan bittasini olib bering. Jon, oyijon, iltimos.

Farmon. Tavba, yaponchasini kiygilari kepti. O’zimizniki teshib chiqadimi? Bozorda ivirsib yuradigan qalang’i-qasang’i xotinlarning egnida yaponcha jemper. O’shalarning tengi bo’ldingmi? Odamlarga hayronman, xo’rozqand chet elniki bo’lsa yalayman, deydi. Jempering hali yap-yangi, Sotti, sen mashinadan benzin quyib, jemperini yuvib ber. Besh- o’n kun hidi kelsa ham o’zi ulgur top-toza bo’ladi.”¹⁶

¹⁵ . Karimov N. Adabiyot nazariyasi asoslari. – Toshkent: O’qituvchi, 1996. – B. 280

¹⁶ Ahmad S. Kelinar qo’zg’oloni. – Toshkent: G’afur G’ulom nomidagi Adabiyot va san’at nashriyoti, 1976. – B. 12

Xalq og'zaki ijodi elementlari: Asarda xalq og'zaki ijodiga xos bo'lgan maqollar, matallar, topishmoqlar, latifalar, ertak unsurlari keng qo'llaniladi. Bu asar tilining boy va rang-barang bo'lishiga, o'quvchiga ta'sirchanlik kuchining oshishiga xizmat qiladi. Masalan: *"Yuzga aytganni zahri yo`q. Olarda kirar jonim, berarda chiqar jonim, qo`ying, oyi. Ziqlaligingiz jonimga tegdi. Ro`zg`orimni bo`lak qilib bering yoki meni javobimni bering."*¹⁷

Realistik tasvir: Asar o'zbek qishloqlaridagi hayotni, odamlarning turmush tarzini, urf-odatlarini, an'analarini realistlik tarzda tasvirlaydi. Muallif qahramonlarning xarakterlarini, ularning o'zaro munosabatlarini, kundalik hayotdagi voqea-

hodisalarni ishonarli tarzda tasvirlashga erishgan. *"U yog`i xotin poshshoning yurti. Bu poshsholikning o`z qonuni, o`z urf-odatlari bor. Ajablanmang. Poshsho xotinning yetti og`li, yetti kelini, qirq bir nevarasi bor. Jami bo`lib, bu uyda ellik olti kishi turadi. Kampir Gorispolkomga borib, janjal qilaverib, oxiri shu do`konni ochtirdi. Har kuni bu uydan bir qop jag`i ayrilgan, poshnasi ko`chgan, yirtilgan etik deysizmi, tufli deysizmi, tapochka deysizmi, chiqaveradi."*¹⁸

Satirik elementlar: Asarda o'zbek jamiyatidagi ba'zi illatlar, jumladan, ayollarning huquqlari poymol qilinishi, an'anaviy qarashlarning zamonaviy hayotga moslashmasligi, mansabdorlarning o'zboshimchaligi satirik tarzda tanqid qilinadi.¹⁹ Masalan: *"Nigora. Bu qaysi xonlik zamoni? Qaysi feodalning uyi?"*

Asqar. Bu yog`I yomon bo`ldi. Kelin siyosiy tomondan oldi.

*Nigora. Gorkomga boraman. Arz qilaman. Toshkentdek shahri azimda bir feodal oila bor, tekshirib chora ko`riylar deyman."*²⁰

Til va uslub xususiyatlari: Asar tili sodda va ravon. Muallif o'zbek tilining boy imkoniyatlaridan unumli foydalanadi, qahramonlarning nutqi ularning xarakteriga mos tarzda yaratilgan. Asarda dialoglar muhim o'rin tutadi, ular qahramonlarning o'zaro munosabatlarini, ularning ichki kechinmalarini ochib berishga xizmat qiladi. Masalan: *"Ma`mur. Obbo, siz-ey. Doim shunaqa suv qo`shilmagan gaplarni topasiz.*

*Mahkam. Ha, endi akasi... Ko`pni ko`rganmiz-da. Zarur bo`lganda xotiniga chap berib, aroqdan klizma qilganlarni ham ko`rganmiz."*²¹

Qahramonlar tasviri: Asarda kelinlar va qaynonalar o'rtasidagi munosabatlar, ularning xarakterlari, orzu-umidlari, kurashlari yorqin va ishonarli tarzda tasvirlangan. Har bir qahramon o'ziga xos xarakterga ega, ularning o'zaro munosabatlari asar syujetining rivojlanishida muhim rol o'ynaydi: *"Farmon. Lutfi Boboyeva mening eng yaxshi ko`rgan kelinim. Unga o`zim tarbiya berganman. Mo`min, qobil, uy ishlarini o`ynab- kulib bajaradi. Hurmatimni qiladi.*

¹⁷ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 14

¹⁸ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 1

¹⁹ Hakimova M. Adabiyotshunoslikda badiiy asar tili va badiiy nutq uslubi// www.oriens.com. – 2022. B. 79

²⁰ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 8

²¹ Ahmad S. Kelinlar qo'zg'oloni. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 10

Pazandaligini aytmay qo'ya qolay. Lag'monni sochning tolasidek ingichka cho'zadi, chuchvarani danakdek tugadi..."²²

Umuman olganda, o'zbek adabiyotining yorqin durdonasi bo'lmish "Kelinlar qo'zg'oloni" komediyasidan uslubiy vositalarni birma-bir izlash yillar talab qiladi. Muallif o'z ishini shunchalik puxta bitirganki, asar qayta va qayta o'qilsa yangidan yangi uslubiy vositalar ko'zga tashlanib, qahramonlar nutqiga ko'rk qo'shib turadi.²³ Ushbu ilmiy tadqiqot davomida izlangan hamda tahlil qilingan ushbu yuqoridagi barcha asarda qo'llanilgan uslubiy vositalar yuzasidan diagrammaga e'tibor qaratilsa, asardagi parchalarning aksariyat qismida *metafora* va *o'xshatish* ma'no ko'chishlarining qo'llanilganligining guvohi bo'lish tayin. *Metonimiya* esa keyingi o'rinda eng ko'p qo'llanilgan stilistik vositasi sifatida anglashiladi. Ushbu asar komedik janrga xos bo'lganligi uchun ham ironiya hamda mubolag'a uslubiy vositalari birgalikda 20% ma'no ko'chishlarini tashkil qilib, asarni yanada yumorga boy ko'ratishga yordam beradi. *Parallelizm*, *sinekdoxa* va boshqa turdagi ma'no ko'chishlari ushbu komediyada muhim o'rin egallash bilan birga, asar tilini oson, qiziqarli hamda tushunarli bo'lishiga yordam beradi va asarga rang-baranglikni olib kiradi.

Olingan natijalar shuni ko'rsatadiki, Said Ahmadning "Kelinlar qo'zg'oloni" komediyasi o'zbek adabiyotida kulgi orqali jamiyat hayotidagi ijtimoiy muammolarni yoritishning eng yorqin namunalaridan biridir. Asarda qo'llangan stilistik vositalar nafaqat kulgini yuzaga chiqaradi, balki o'quvchini chuqurroq mushohada qilishga, jamiyatdagi dolzarb masalalar haqida o'ylashga undaydi.

Avvalo, metafora va o'xshatishlarning ko'pligi qahramonlar nutqini obrazli, ta'sirchan va esda qolarli qiladi. Bu vositalar orqali oddiy voqelik hayotiy bo'yoqlar bilan tasvirlanib, o'quvchi ongida yanada yorqin taassurot uyg'otadi. Masalan, "uy – hukumat" tarzidagi metafora oddiy oilaviy boshqaruvni davlat tizimi bilan qiyoslash orqali bir tomondan kulgi uyg'otsa, ikkinchi tomondan patriarxal oilaning qattiq tartib-qoidalarini tanqidiy yondashuvda ko'rsatadi. Demak, metafora bu asarda estetik va ijtimoiy vazifani birgalikda bajaradi.

Shu bilan birga, metonimiya va sinekdoxa kabi vositalar xalqona tildan keng foydalanish imkonini beradi. "Ko'zimning oqu qorasi" yoki "tuproq" kabi obrazlar orqali muallif qahramonlarning ruhiy kechinmalarini, mehr-muhabbat yoki yo'qotish tuyg'usini ixcham va ta'sirchan ifoda qiladi. Bunday vositalar asarda xalqona ruhni kuchaytirib, milliy madaniyatga xos tasviriy uslublarni boyitadi.

Maqol va matallarning keng qo'llanilishi ham alohida e'tiborga loyiq. Ular qahramonlarning xarakterini ochib berish, ularning dunyoqarashini ifodalash va milliy mentalitetni aks ettirishda muhim vosita sifatida xizmat qiladi. Masalan, "Er-xotin, it-mushuk" maqoli oila ichidagi ziddiyatlarni keskin, ammo xalqona tarzda ko'rsatadi. Bu holat Said Ahmadning xalq og'zaki ijodi boyligidan ustalik bilan foydalanganidan dalolat beradi.

²² Ahmad S. *Kelinlar qo'zg'oloni*. – Toshkent: G'afur G'ulom nomidagi Adabiyot va san'at nashriyoti, 1976. – B. 19

²³ Hayitmetov A. *Ma'naviyat yulduzlari*. – Toshkent: Ma'naviyat, 2001. – 165 b.

Ironiya va mubolag'a esa komediyaning kulgi va satirik ruhini kuchaytiradi. Mubolag'a qahramonlarning kuch-qudratini yoki ularning xatti-harakatlarini oshirib ko'rsatish orqali kulgi uyg'otadi, ironik ifodalar esa ortiqcha jiddiylikni yumshatib, voqealarga tanqidiy munosabat beradi. Shunday qilib, kulgi ortida jamiyatdagi adolatsizlik, patriarxal stereotiplar va oilaviy nizolar tanqid qilinadi.²⁴

Natijalar tahlili shuni ko'rsatadiki, "Kelinlar qo'zg'oloni" komediyasi o'zbek milliy komediyachiligida alohida o'rin tutadi. Undagi stilistik vositalar xalqning til boyligi, og'zaki ijodi va estetik qarashlarini mujassamlashtirgan holda, bugungi kunda ham dolzarbligini yo'qotmagan. Demak, ushbu asar tilidagi stilistik vositalar nafaqat badiiy-estetik qiymatga ega, balki o'zbek xalqining ijtimoiy-madaniy hayotini chuqur anglash uchun ham muhim manba hisoblanadi.

Xulosa qilib aytganda, Said Ahmadning "Kelinlar qo'zg'oloni" komediyasi mukammal usulda yozilgan o'zbek noyob asarlaridan biri bo'lib, uning stilistik tahlili izlanuvchidan ko'p vaqt hamda e'tibor talab qiladi. Yuqorida keltirilgan uslubiy tahlillar esa bu komediya ustida ishlanishi kerak bo'lgan tadqiqotning bir qismi hisoblanadi. Mazkur uslubiy tahlil natijalarining nazariy ahamiyati quyidagilardan iborat:

- ushbu tadqiqot o'zbek komediyachiligida stilistik vositalarning qo'llanishini lingvopoetik jihatdan yoritib berdi;

- asardagi metafora, metonimiya, sinekdoxa va boshqa usullarni ilmiy tasnif qilish orqali stilistik vositalarning ijodiy va badiiy funksiyalari aniqlashtirildi;

- maqola adabiyotshunoslik va tilshunoslikdagi "komediya tili" tushunchasini kengaytirib, kulgi vositalarining ilmiy-nazariy asosini kuchaytirdi.

- o'zbek komediyasining jahon adabiyoti bilan umumiy jihatlari va farqlari yuzasidan qiyosiy tadqiqotlarga nazariy zamin yaratdi.

Amaliy ahamiyati:

- ushbu tadqiqot natijalari o'zbek adabiyoti bo'yicha darslik, qo'llanma va o'quv-uslubiy majmualar tayyorlashda foydalanilishi mumkin;

- "Kelinlar qo'zg'oloni"dagi stilistik vositalarning tahlili talabalarga matnni lingvopoetik nuqtai nazardan tahlil qilish ko'nikmasini shakllantirishda metodik manba bo'lib xizmat qiladi;

- natijalar adabiyot darslarida, ijodiy yozuv mashg'ulotlarida, shuningdek, tarjima amaliyotida ham qo'llanishi mumkin. Chunki maqol va matallarni tarjima qilishda ularning stilistik yukini to'g'ri anglash muhimdir;

- maqolada olingan natijalar zamonaviy sahna asarlari va kino ssenariylarida milliy ruhni kuchaytirish uchun uslubiy manba sifatida foydalanilishi mumkin.

Shunday qilib, "Kelinlar qo'zg'oloni" nafaqat o'zbek komediyasining yorqin namunasi, balki tilshunoslik va adabiyotshunoslikda stilistik vositalarni chuqur o'rganish uchun ilmiy-amaliy manba hamdir. Mazkur tadqiqot milliy adabiyotimizni jahon miqyosida o'rganishga xizmat qiladigan qimmatli ilmiy xulosalar beradi.

²⁴ Jo'rayev T. O'zbek adabiyotida komediya janri va uning taraqqiyoti. – Toshkent: Fan va texnologiya, 2019. – 240 b.

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OTMDA INGLIZ TILINI O'QITISHDA INTEGRATIV KOMPETENSIYANI RIVOJLANTIRISHNING AMALIYOTDAGI HOLATI

Annotatsiya: *Mazkur maqolada oliy ta'lim muassasalarida ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirishning amaliyotdagi holati tahlil qilingan. Integrativ kompetensiya til o'rganuvchilarning nafaqat grammatik va leksik bilimlarini, balki kommunikativ, madaniy va ijtimoiy ko'nikmalarini ham o'z ichiga oladi. Bugungi globallashtirish davrida ingliz tilini o'qitishda integrativ yondashuv talabalarni turli madaniyat vakillari bilan samarali muloqot qilishga, o'z fikrini mustaqil va ravon ifoda etishga, hamda real hayotiy vaziyatlarda tilni to'laqonli qo'llashga tayyorlaydi. Tadqiqot davomida ingliz tili o'qituvchilarining amaliy faoliyati, dars jarayonida qo'llanilayotgan metodlar va talabalarning o'zlashtirish darajasi o'rganilgan. Tahlillar shuni ko'rsatadiki, mavjud o'quv dasturlari va darsliklarda integrativ kompetensiyani rivojlantirishga qaratilgan topshiriqlar yetarli darajada bo'lsa-da, ularning samarali amalga oshirilishi ko'proq o'qituvchining yondashuvi va innovatsion metodlardan foydalanishiga bog'liq. Xususan, kommunikativ mashg'ulotlar, loyihaviy ishlar, interaktiv texnologiyalar va madaniyatlararo aloqalarni rivojlantirishga qaratilgan topshiriqlar integrativ kompetensiyani rivojlantirishda muhim ahamiyat kasb etadi. Shu bilan birga, ayrim qiyinchiliklar ham aniqlangan, jumladan, auditoriya soatlari cheklanganligi, talabalar motivatsiyasining turlicha darajada bo'lishi va resurslarning yetarli emasligi. Mazkur maqola integrativ kompetensiyani shakllantirishning real amaliyotini yoritib, uning rivojlanishi uchun samarali yo'nalishlarni belgilab beradi.*

Kalit so'zlar: *integrativ kompetensiya, ingliz tili o'qitish, kommunikativ yondashuv, innovatsion metodlar, madaniyatlararo muloqot.*

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THE PRACTICAL STATUS OF DEVELOPING INTEGRATIVE COMPETENCE IN TEACHING ENGLISH AT UNIVERSITY

Abstract: *This article analyzes the current state of developing integrative competence in teaching English at higher education institutions. Integrative competence encompasses not only learners' grammatical and lexical knowledge but also their communicative, cultural, and social skills. In today's era of globalization, an integrative approach to English language teaching prepares students to communicate effectively with representatives of different cultures, to express their ideas independently and fluently, and to use the language fully in real-life situations. The study examined the practical activities of English teachers, the methods applied during the teaching process, and students' levels of acquisition. The analysis shows that although existing curricula and textbooks include sufficient tasks aimed at developing integrative competence, their effective implementation largely depends on the teacher's approach and the use of innovative methods. In particular, communicative exercises, project-based work, interactive technologies, and tasks promoting intercultural communication play a crucial role in fostering integrative competence. At the same time, certain challenges were identified, such as limited classroom hours, varying levels of student motivation, and insufficient resources. This article highlights the real practices of shaping integrative competence and outlines effective directions for its further development.*

Keywords: *integrative competence, English language teaching, communicative approach, innovative methods, intercultural communication.*

Kirish

Bugungi kunda ingliz tilini o'qitishda integrativ kompetensiyani shakllantirish masalasi oliy ta'lim tizimida dolzarb muammolardan biri sifatida qaralmoqda. Integrativ kompetensiya tilni bilish jarayonini faqatgina grammatik qoidalar va lug'at boyligini o'zlashtirish bilan cheklamay, balki uni real hayotiy vaziyatlarda samarali qo'llashni, madaniyatlararo muloqotga kirishishni, turli ijtimoiy vaziyatlarda muloqot qila olishni ham qamrab oladi. Oliy ta'lim muassasalarida ingliz tili o'qitish jarayoni ko'p hollarda an'anaviy usullarga asoslanib kelgan bo'lsa-da, zamonaviy ta'lim talablariga ko'ra bu jarayon integrativ yondashuvni talab qilmoqda. Chunki ingliz tili bugungi kunda nafaqat ta'lim jarayonida, balki xalqaro hamkorlik, ilmiy izlanishlar, kasbiy faoliyat va madaniyatlararo muloqotda asosiy vosita sifatida xizmat qilmoqda.

Talabalar uchun ingliz tilini o'rganish jarayonida integrativ kompetensiya ularning mustaqil fikrlash, o'z fikrini ravon va lo'nda ifoda etish, turli madaniyat vakillari bilan samarali muloqot qilish ko'nikmalarini shakllantiradi. Shuningdek, bu kompetensiya talabalarning tilni faqat o'quv maqsadida emas, balki hayotiy zarurat sifatida o'zlashtirishlariga yordam beradi. Shu jihatdan, ingliz tili darslarida kommunikativ metodlar, interaktiv texnologiyalar, rolli o'yinlar, loyiha asosidagi topshiriqlar va muammoli vaziyatlarga yechim topishga qaratilgan mashg'ulotlar keng qo'llanilishi zarur.

Ammo amaliyotda ko'plab qiyinchiliklar ham uchramoqda. Masalan, ba'zi hollarda dars jarayonida grammatik bilimlarga haddan tashqari urg'u berilib, kommunikativ faoliyat ikkinchi o'rinda qolib ketadi. Bundan tashqari, talabalar motivatsiyasining pastligi, texnik va metodik resurslarning yetishmasligi, auditoriya vaqtining cheklanganligi integrativ kompetensiyani samarali rivojlantirishga to'sqinlik qilmoqda. Shu boisdan, oliy ta'limda ingliz tilini o'qitishda zamonaviy metodlardan foydalanish, darslarni talabalar faol ishtirokida tashkil etish, hamda real hayotiy vaziyatlarga moslashtirish orqali integrativ kompetensiyani rivojlantirish zaruriyati kuchaymoqda. Integrativ yondashuv faqat o'qituvchi faoliyatiga emas, balki ta'lim dasturlarining mazmuniga, o'quv jarayonini tashkil etish usullariga va baholash tizimiga ham bevosita bog'liqdir. Shu nuqtayi nazardan, ingliz tili o'qitishda integrativ kompetensiyani rivojlantirish bugungi ta'lim jarayonining muhim vazifasiga aylangan.

Metodika

Ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish bo'yicha olib borilgan tadqiqot metodlari bir necha bosqichda amalga oshirildi. Avvalo, mavjud adabiyotlar, ilmiy maqolalar, o'quv dasturlari va darsliklar tahlil qilinib, ularda integrativ kompetensiya tushunchasining mazmuni, mohiyati va ta'lim jarayonidagi o'rni o'rganildi. Bu bosqichda nazariy asoslarni aniqlash hamda ularni amaliyot bilan bog'lash imkoniyati yaratildi. Shuningdek, xalqaro tajribalar o'rganilib, ingliz tilini o'qitishda qo'llanilayotgan zamonaviy metodlar, kommunikativ yondashuv, loyiha asosida o'qitish, interaktiv texnologiyalarni joriy etish kabi usullar tahlil qilindi.

Keyingi bosqichda oliy ta'lim muassasalarida ingliz tili o'qituvchilari va talabalar o'rtasida so'rovnomalar o'tkazildi. So'rovnomalar asosan dars jarayonida qo'llanilayotgan metodlar, talabalar ishtirokining faolligi, integrativ kompetensiyani rivojlantirishga qaratilgan topshiriqlarning samaradorligi, shuningdek, mavjud muammolarni aniqlashga qaratildi. Natijalar o'qituvchilarning ko'p hollarda an'anaviy yondashuvlardan foydalanishi, ammo talabalarning ko'proq interaktiv va amaliy mashg'ulotlarga qiziqishi mavjudligini ko'rsatdi.

Tadqiqotning yana bir muhim bosqichi kuzatuv metodidan foydalanish orqali amalga oshirildi. Ingliz tili dars jarayonida o'quvchilarning faoliyati, mashg'ulotlarning interaktivligi, o'qituvchi va talabalar o'rtasidagi muloqot, hamda topshiriqlarning amaliyotga yo'naltirilganlik darajasi kuzatildi. Kuzatuv natijalari integrativ kompetensiyani shakllantirish jarayoni ko'p hollarda o'qituvchining metodik yondashuvi va darsni tashkil etish uslubiga bog'liq ekanligini tasdiqladi.

Shuningdek, tahlil jarayonida sifatli intervyular ham o'tkazildi. Ular orqali talabalar ingliz tilini o'rganishda duch kelayotgan qiyinchiliklari, motivatsiya manbalari, shuningdek, tilni amaliyotda qo'llash imkoniyatlari haqida o'z fikrlarini bildirishdi. Olingan ma'lumotlar integrativ kompetensiyani rivojlantirish bo'yicha samarali strategiyalarni ishlab chiqishda muhim manba bo'lib xizmat qildi. Shu tarzda, tadqiqot nazariy va amaliy metodlarni uyg'unlashtirish orqali ingliz tili ta'limida integrativ kompetensiyaning amaliyotdagi holatini kompleks tahlil qilish imkonini berdi.

Natijalar

Tadqiqot natijalari shuni ko'rsatdiki, oliy ta'lim muassasalarida ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish bo'yicha ma'lum ijobiy yutuqlar mavjud bo'lsa-da, jarayon yetarlicha samarali emas. Avvalo, o'quv dasturlarida integrativ kompetensiyani shakllantirishga qaratilgan topshiriqlar, mashqlar va kommunikativ faoliyatlar mavjudligi qayd etildi. Ammo ularning amalda qo'llanishi ko'pincha formal xarakterga ega bo'lib, talabalar faol ishtirokchi sifatida emas, balki passiv tinglovchi sifatida qatnashayotgan holatlar kuzatildi. Bu esa kompetensiyaning to'laqonli rivojlanishiga to'sqinlik qilmoqda.

So'rovnomalar natijasida talabalar ingliz tili mashg'ulotlarida ko'proq interaktiv usullardan, amaliy mashqlardan va real hayotiy vaziyatlarga moslashtirilgan topshiriqlardan foydalanilishini istashlarini bildirishdi. Ayniqsa, loyihaviy ishlar, muammoli vaziyatlar asosida tashkil etilgan mashg'ulotlar va guruhviy ishlarda talabalar yuqori faollik ko'rsatgani qayd etildi. Bu esa shuni anglatadiki, talabalar integrativ kompetensiyani rivojlantirishga qaratilgan metodlarga ko'proq moyillik bildirishmoqda.

Kuzatuvlar jarayonida esa o'qituvchilarning metodik yondashuvlarida sezilarli farqlar mavjudligi aniqlandi. Ba'zi o'qituvchilar kommunikativ metodlar, rolli o'yinlar va interaktiv texnologiyalardan faol foydalanayotgan bo'lsa, boshqalarida an'anaviy grammatik mashqlarga haddan tashqari urg'u berilishi kuzatildi. Natijada, ayrim guruhlarda talabalar integrativ kompetensiyani samarali shakllantirish imkoniga ega bo'lsa, boshqa guruhlarda bu jarayon sust kechdi.

Intervyular esa talabalarning motivatsiya darajasi turlicha ekanini ko'rsatdi. Yuqori motivatsiyaga ega talabalar ingliz tilini nafaqat o'quv jarayonida, balki kundalik hayotda ham qo'llashga harakat qilayotgan bo'lsa, past motivatsiyaga ega talabalar faqat imtihonlarga tayyorlanish bilan chegaralanmoqda. Shuningdek, texnik vositalarning yetarli emasligi, chet ellik mutaxassislar bilan amaliy muloqot imkoniyatlarining cheklanganligi ham salbiy omillar sifatida qayd etildi.

Umuman olganda, natijalar ingliz tili o'qitishda integrativ kompetensiyani rivojlantirish bo'yicha salmoqli ishlar amalga oshirilayotganini, ammo bu jarayonni yanada samarali tashkil etish uchun metodik yondashuvlar, resurslar va motivatsion mexanizmlarni kuchaytirish zarurligini ko'rsatdi.

Muhokama

Olingan natijalar ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish masalasi hali ham ko'plab muammolar va imkoniyatlarni o'z ichiga olishini ko'rsatmoqda. Integrativ kompetensiyaning asosiy mohiyati tilni o'rganishni faqat nazariy bilimlar bilan cheklab qo'ymasdan, uni madaniyat, ijtimoiy muloqot va shaxsiy rivojlanish bilan uyg'unlashtirishdan iboratdir. Amaliyotda esa ko'plab o'qituvchilar grammatik mashqlar va an'anaviy metodlarga ko'proq e'tibor qaratib, kommunikativ faoliyatlarni yetarlicha rivojlantirmayapti. Bu esa talabalarning mustaqil muloqot qilish, turli madaniy kontekstlarda samarali fikr almashish ko'nikmalarining to'laqonli shakllanishiga to'sqinlik qilmoqda.

Tadqiqot jarayonida aniqlanganidek, talabalar integrativ yondashuv asosidagi mashg'ulotlarda yuqori faollik ko'rsatmoqda. Bu holat shuni anglatadiki,

zamonaviy metodlardan foydalanish talabalar uchun samarali va qiziqarli hisoblanadi. Loyihaviy topshiriqlar, rolli o'yinlar, muammoli vaziyatlarni hal qilish mashg'ulotlari va interaktiv texnologiyalar integrativ kompetensiyani rivojlantirishda muhim vosita sifatida ko'rilishi lozim. Shu bilan birga, talabalar ingliz tilini faqat auditoriya doirasida emas, balki amaliy hayotda ham qo'llash imkoniga ega bo'lishlari uchun qo'shimcha tashabbuslar zarur. Masalan, chet ellik mutaxassislar bilan onlayn muloqot, xalqaro loyihalarda ishtirok etish yoki ingliz tilidagi klublar tashkil qilish samarali bo'lishi mumkin.

Muhim jihatlardan yana biri shundaki, integrativ kompetensiyani rivojlantirish nafaqat metodik yondashuvlarga, balki ta'lim jarayonining tashkiliy tomonlariga ham bog'liqdir. Auditoriya soatlarining cheklanganligi, zamonaviy texnik vositalarning yetarli emasligi va talabalar motivatsiyasining pastligi bu jarayonning rivojlanishiga salbiy ta'sir ko'rsatmoqda. Shu bois, ta'lim siyosatida integrativ yondashuvga mos dasturlar ishlab chiqish, o'qituvchilarning malakasini oshirish va resurs bazasini kengaytirish zarur.

Umumiy qilib aytganda, ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish o'quv jarayonining markaziy vazifalaridan biri bo'lishi kerak. Bu jarayonni samarali tashkil qilish orqali talabalar nafaqat tilni mukammal biluvchi mutaxassislar, balki global kommunikatsiyada faol ishtirok eta oladigan shaxslar sifatida shakllanadilar.

Xulosa

Yuqoridagi tahlillar shuni ko'rsatadiki, oliy ta'lim muassasalarida ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish bugungi ta'lim jarayonining dolzarb va zaruriy vazifasidir. Integrativ kompetensiya talabalarning nafaqat lingvistik bilimlarini, balki ularning kommunikativ, madaniyatlararo va ijtimoiy ko'nikmalarini ham shakllantirishga xizmat qiladi. Bu esa ularni kelajakda xalqaro maydonda muvaffaqiyatli faoliyat yurita oladigan, mustaqil fikrlovchi va moslashuvchan mutaxassis sifatida tarbiyalash imkonini beradi.

Tadqiqot natijalari shuni tasdiqladiki, ingliz tili o'qitishda integrativ kompetensiyani shakllantirish bo'yicha ma'lum ijobiy tajribalar mavjud bo'lsa-da, ularni yanada samarali tashkil qilish uchun qo'shimcha choralar zarur. Xususan, an'anaviy grammatik mashqlar bilan cheklanib qolmasdan, interaktiv texnologiyalar, loyihaviy ishlar, muammoli vaziyatlar asosidagi mashg'ulotlar va real hayotiy muloqot imkoniyatlarini kengaytirish talab etiladi. Shuningdek, talabalar motivatsiyasini oshirish, zamonaviy texnik vositalar bilan ta'minlash va o'qituvchilarning malakasini muntazam oshirish integrativ yondashuvning samaradorligini ta'minlaydi.

Kelgusida ingliz tili ta'limini yanada rivojlantirish uchun integrativ kompetensiyaga yo'naltirilgan dasturlarni ishlab chiqish, o'quv jarayonini xalqaro standartlarga yaqinlashtirish va talabalarning o'zlashtirish darajasini baholashda ham integrativ yondashuvni inobatga olish maqsadga muvofiqdir. Shu bilan birga, ta'lim muassasalari doirasida ingliz tilida erkin muloqot muhitini yaratish, xalqaro loyihalarda ishtirok etishni rag'batlantirish hamda chet ellik mutaxassislar bilan tajriba almashishni yo'lga qo'yish ham samarali bo'lishi mumkin.

Umuman olganda, ingliz tilini o'qitishda integrativ kompetensiyani rivojlantirish nafaqat til o'rgatishning sifatini oshiradi, balki talabalarni global jamiyatda faol ishtirok etishga tayyorlaydi. Bu esa zamonaviy ta'lim tizimining eng muhim maqsadlaridan biri sifatida alohida ahamiyat kasb etadi.

Adabiyotlar:

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BO‘LAJAK GEOGRAFIYA O‘QITUVCHILARINING KASBIY- METODIK TAYYORGARLIGINI VA IJODKORLIGINI TAKOMILLASHTIRISH

Annotatsiya Jahonda bo‘lajak o‘qituvchilarining innovatsion faoliyati kasbiy kompetentligi va metodik tayyorgarligini takomillashtirish, o‘zini-o‘zi kasbiy rivojlantirishga bo‘lgan ehtiyojini yanada kuchaytiradi. Bu borada o‘qituvchilarining nazariy tayyorgarligi, amaliy tayyorgarligi, kompleks tayyorlash, ta’lim amaliyoti variativligi, innovatsion muhitda texnika vositalaridan foydalanish, kompleks rivojlanish, multimedia tasvirli ma’lumotlarni qo‘llash bo‘yicha ilmiy tadqiqotlar olib borish muhim ahamiyat kasb etadi.

Kalit so‘zlar: kasbiy tayyorgarlik, differensiya, konseptual, gnoseologik, didaktik

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IMPROVEMENT OF PROFESSIONAL AND METHODOLOGICAL TRAINING AND CREATIVITY OF FUTURE GEOGRAPHY TEACHERS

Annotation: The innovative activity of future teachers in the global context contributes to the enhancement of their professional competence and methodological preparedness, while also increasing the need for self-directed professional development. In this regard, it is crucial to conduct scientific research on various aspects such as theoretical and practical training, integrated preparation, variability in teaching practices, the use of technical tools in innovative environments, holistic development, and the application of multimedia and visual materials. These components play a key role in shaping a modern, competent, and adaptable teaching workforce.

Keywords: professional training, differentiation, conceptual, gnoseological, didactic

Pedagogik tizim strukturasini “nisbatan barqaror” deb aniqlash pedagogika va ta’lim nazariyasi doirasida metodologik yondashuvni talab qiladi. Bunda “barqarorlik” tushunchasi tizimning vaqt davomida o‘z vazifalarini muntazam bajarish qobiliyatini bildiradi.

Quyida pedagogik tizim strukturasini nisbatan barqaror deb aniqlash tartibi bosqichma-bosqich keltiriladi: Pedagogik tizim quyidagi komponentlardan tashkil topadi:

- maqsadlar (ta'lim-tarbiya maqsadlari),
- mazmun (o'quv material, dastur, standart),
- o'qituvchi (pedagogik faoliyat subyekti),
- o'quvchi (ta'lim jarayoni obyekti va subyekti),
- metodlar va vositalar,
- natija (bilim, ko'nikma, kompetensiya).

Agar bu komponentlar o'zaro uzviy bog'lanishda ishlasa, tizim strukturasi asosiy tayanchlari saqlanib turadi. Ichki aloqadorlik va muvozanatni baholash: Har bir elementning boshqasiga ta'siri o'rganiladi (masalan, o'qituvchining metodikasi – o'quvchining natijasiga ta'sir qiladi): Komponentlar o'rtasida muvofiqlik darajasi aniqlanadi: Agar tizimning bir elementi qisqa muddatli o'zgarishlarga qaramay umumiy natijaga jiddiy zarar yetkazmasa, tizim nisbatan barqaror deb qaraladi. Pedagogik tizim ijtimoiy-iqtisodiy, siyosiy yoki texnologik sharoitlar ta'sirida ham o'z asosiy funksiyalarini bajara olsa – u barqaror hisoblanadi. Masalan: ta'lim standarti yangilansa, tizim umumiy strukturani saqlab qoladi; texnologiyalar o'zgarsa ham, asosiy maqsad va mazmun barqaror qoladi. Vaqt mezonini bo'yicha tekshirish: Barqarorlik doimiy emas, nisbiy bo'ladi. Shuning uchun tizimning 3–5 yil davomida saqlanib kelayotgan elementlari va funksiyalari kuzatiladi. Agar ular asosan o'zgarmagan bo'lsa, tizim nisbatan barqaror deb tan olinadi.

Natijaviylikni tahlil qilish: O'quvchilar natijasi (bilim, ko'nikma, kompetensiyalar) barqaror chiqsa, ta'lim jarayonining samaradorligi yilma-yil takrorlansa, o'qituvchilar faoliyatida umumiy maqsadlar doimiy saqlansa – tizim barqarorligi ilmiy asosda tasdiqlanadi. Pedagogik tizim strukturasi nisbatan barqaror deb aniqlash tartibi – uning asosiy elementlarini ajratib olish, ularning o'zaro bog'lanishini tahlil qilish, tashqi omillarga moslashuvchanligini baholash, vaqt mezonini asosida barqarorlikni kuzatish va natijaviylikni tekshirish orqali amalga oshiriladi. Shu jihatlar tizimning vaqtincha o'zgarishlarga qaramay o'z funksional yaxlitligini saqlash qobiliyatini ko'rsatadi.

Psixologik-pedagogik tadqiqotlarni o'rganishda bo'lajak o'qituvchining kasbiy tayyorgarligi tarkibiga bilim, ko'nikma va malakalar, shuningdek, mutaxassisning shaxsiy xususiyatlari kiritilgani aniqlandi. Bo'lajak o'qituvchining kasbiy tayyorgarligi tarkibida o'zaro bog'liq uch jihat:

Shaxsiy, kognitiv va aksiologik uchun ma'naviy-psixologik, nazariy va amaliy tayyorgarlik talab etiladi. Birinchi jihatda bo'lajak o'qituvchining ichki tayyorgarligi, ikkinchi va uchinchi jihatda tashqi protsessual va faoliyat shaklining namoyon bo'lishi murakkab va alohida-alohida tegishli xususiyatlarini aks ettiradi.

Geografiya fani o'qituvchilarining pedagogik va kasbiy faoliyatiga qo'yiladigan talablar bir necha yo'nalishda belgilanadi. Ular nafaqat fan bo'yicha chuqur bilimga ega bo'lishi, balki zamonaviy metodlar yordamida darsni samarali tashkil eta olishi, o'quvchilarda mustaqil va tanqidiy fikrlashni shakllantirishi zarur. Quyidagilar asosiy talablar hisoblanadi:

Pedagogik talablar: Didaktik tayyorgarlik – darsni rejalashtirish, maqsad va vazifalarni belgilash, ta'lim jarayonini samarali tashkil etish. Metodik mahorat –

geografiya fanini turli usullar (klaster, keys, GIS texnologiyalari, loyihaviy ishlar, interfaol metodlar) orqali o'qitish. Tarbiya berish vazifasi – o'quvchilarni ekologik madaniyatga, vatanparvarlikka, tabiatni asrashga o'rgatish. Individual yondashuv – o'quvchilarning yosh va psixologik xususiyatlarini hisobga olgan holda darsni tashkil etish. XXI asr ko'nikmalarini shakllantirish – tanqidiy, kreativ fikrlash, hamkorlikda ishlash, axborotdan samarali foydalanish ko'nikmalarini rivojlantirish.

Kasbiy talablar: Fan bo'yicha chuqur bilim – geografik qonuniyatlar, tabiat hodisalari, iqtisodiy-geografik jarayonlar haqida mukammal bilimga ega bo'lish. Axborot texnologiyalaridan foydalanish – elektron darsliklar, interaktiv xaritalar, GIS dasturlari, multimedia vositalaridan samarali foydalanish. Tadqiqotchilik qobiliyati – ilmiy-tadqiqot ishlarini olib borish, o'quvchilarda kuzatish, tahlil qilish va umumlashtirish ko'nikmalarini rivojlantirish. Kasbiy etikaga rioya qilish – o'qituvchi odobi, muloqot madaniyati, o'quvchi va ota-onalar bilan samarali aloqa. Innovatsion yondashuv – xalqaro tajribalarni o'rganish, darslarda ilg'or pedagogik texnologiyalarni qo'llash. Shaxsiy sifatlar: Sabrlik, mehribonlik va mas'uliyatlilik, doimiy o'z ustida ishlash va yangiliklarga ochiq bo'lish, o'quvchilarda geografiyaga qiziqish uyg'ota olish va jamoa bilan ishlash va yetakchilik qobiliyatilari yetarlicha shakllangan bo'lishi lozim.

Ta'lim oluvchilarning zamonaviy bilim olishi, mustaqil ishlashi va ijodkorlik qobiliyatlarini rivojlantirishi, ularning ongli faolligi, mustaqilligi hamda ijodkorligi, o'quv bilish faoliyati natijasining sifatini xarakterlaydi.

Bo'lajak o'qituvchi kasbiy faoliyatining o'qituvchilik, ilmiy-metodik, ijtimoiy-pedagogik, tarbiyaviy, madaniy-ma'rifiy, korreksion-rivojlantiruvchi va boshqaruv turlari mavjud.

Ta'lim yo'nalishi bo'yicha tayyorlangan bakalavr-talabalar kasbiy faoliyati turlari ta'lim jarayonining manfaaddor ishtirokchilari bilan oliy ta'lim muassasasi hamkorligi asosida aniqlanadi. Bitiruvchilar kasbiy qayta tayyorlashdan o'tgandan keyin oliy, umumiy o'rta ta'lim tashkiloti, kasb-hunar maktablari, kollejlari va texnikumlarda ta'limning vakolatli boshqaruv organlari tomonidan aniqlanadigan turdosh (sohaga mos) fanlarni o'qitish imkoniyatiga ega bo'ladilar. Zamonaviy o'qituvchisi – bu yangi o'qitish texnologiyalarini egallagan, o'quv jarayonining ijodiy fikrlovchi yaratuvchisi, o'quvchilarning ta'limi va tarbiyasi bilan bog'liq ko'p qirrali vazifalarni yechishga qodir.

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THE STANDARTS OF TEACHING ORAL REASONED SPEECH TO STUDENTS IN GRADES 8-9 IN ENGLISH CLASSES AT SECONDARY SCHOOLS

Annotation: *This article proposes a cognitive-pragmatic approach to teaching oral reasoned speech to students in grades 8–9 at comprehensive secondary schools. It characterizes cognitive or logical pragmatics as the study of cognitive processing mechanisms tied to logical operations and applies this perspective to classroom methodology. The approach foregrounds the dialogical unity of thesis — argument — counterargument — agreement and emphasizes mastering formal and functional features of statements as well as logical methods of constructing arguments through verbal means.*

Key words: *Cognitive-pragmatic approach; oral reasoned speech; argumentation; dialogical unity; thesis-argument-counterargument-agreement; secondary school; grades 8–9; teaching methodology*

This article describes the main features of cognitive or logical pragmatics as "the study of cognitive processing mechanisms (cognitions) directly related to logical operations." Let's make an attempt to apply these ideas to the methodology of teaching oral reasoned speech in grades 8-9 of a comprehensive secondary school. As the main approach to teaching reasoned foreign language speech, we propose to take a cognitive-pragmatic approach.

Thus, the cognitive or logical aspect is expressed during the formulation of a thesis and its interpretation by the speaker for the interlocutor, and for the listener - during the understanding of the statement and on the basis of his experience "acceptance" or "non-acceptance", or the expression of his opinion and counterargument. In addition, it should be noted that the main difficulty of argumentation occurs when combining several structures that perform the function of managing an agreement. It turns out that it is necessary to teach reasoned speech as a combination of several speech acts, where many logical operations and speech actions are involved. Therefore, in the teaching of reasoned speech, both oral and written, the dialog approach has proven itself, which provides for social communication practice. Regarding argumentation itself, the term "conversational turn" is used in this approach [VanDerHeide et. al. 2016, p.289] or turn taking is a sequence [Sacks et.al. 1974]. The metaphorical use of this term is explained by scientists from the conceptual standpoint of the reasoning process, since the four elements "thesis – argument – counterargument – agreement" act as binders or building blocks for the logical construction of statements using "logical connectors" between sentences [Poletaev 2012, pp.25, 29].

Argumentation training involves mastering 1) the formal and functional features of expressing thoughts in the form of statements and arguments; 2) logical methods of constructing arguments through verbal means. Therefore, a formalist approach is proposed that ensures the mastery of the skills of the structural organization of argumentation as a dialogical unity "thesis, argumentation, counterargument, agreement" [Heny Inrahim Musa 2019]. Despite the fact that the formalist approach mainly concerns the teaching of reasoned written speech [Nussbaum & Schraw 2007; Hillocks 2005, 2011], we believe that its combination with cognitive-pragmatic (logical-pragmatic) and dialogical approaches will also be effective for teaching oral reasoned speech [Juzwik et.al 2013; VanDerHeide et. al. 2016, Heny Inrahim Musa 2019; Kulikova 2018].

One of the options for the dialog approach is the discussion-based approach. [Eemeren & Grootendorst 1992; Reznitskaya et.al 2001; Hasibuan et.al. 2020]. Judging by the name, this approach involves a group discussion on the questions asked, where alternative points of view take place, expressing and defending one's opinion, convincing one's communication partner, which undoubtedly practices and improves the quality of argumentative competence in terms of expanding the communicative repertoire of speech formulas and the frequency of use of argumentation elements [Reznitskaya et. al. 2001, Hasibuan et.al. 2020].

In conclusion, nevertheless, there are opinions that even extensive practice of argumentative skills based on real communication situations does not make it possible to fully master the ability to structure arguments in a logical sequence [Hasibuan et.al 2020, p.48], in view of this, a special teaching methodology is required.

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ALISHER NAVOIY G'AZALLARINI SHARHLASH METODIKASI

Annotatsiya: Ushbu maqolada Alisher Navoiyning dostonlarini sharhi va asarlari trahlili metodikasi Va Alisher Navoiy qaysi diniy, dunyoviy manbalardan foydalangani, aynan qaysi kitoblarga tayanib hamd qismlarida ishoraviy g'azallar yozgani aniqlanadi.

Kalit so'zlar: Hamd, munojot, na't, Farhod va Shirin, Allamal inson, Xamsa, G'aroyib us-sig'ar

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METHODOLOGY FOR INTERPRETING ALISHER NAVOI'S POEMS

Abstract: This article analyzes the epic poems of Alisher Navoi and the methodology of analyzing his works. It identifies which religious and secular sources Alisher Navoi used, and based on which books he wrote allusive ghazals in the parts of Hamd.

Keywords: Hamd, munojat, na't, Farhod and Shirin, Allamal insoon, Khamsa, Gharoyib us-sig'ar.

1. Kirish (Introduction).

Bugungi jadal rivojlanib borayotgan zamonda har kimning o'z rivojlanish yo'li, usuli bor. Kimdir treninglarda ishtirok etadi, kimdir psixologik kurslar sotib oladi, kimdir komillikka erishish yo'lini umuman boshqa sohalardan qidiradi. Muhimi, hozirgi globallashuv zamonida insonning ma'naviy kamoloti masalasi, ma'nan komillikka erishish muhim ahamiyat kasb etishini barcha payqab bo'ldi.

Ushbu konsepsiya Alisher Navoiy zamonidayoq dolzarb ahamiyat kasb etgan, komil inson qanday bo'lishi kerak, umuminsoniy qadriyatlar va tushunchalar nimalarda ko'rinadi kabi savollarga shoir ham o'ziga xos, samarali javoblar bergan. Bu qarashlarni maktab o'quvchilariga anglatish, adabiyot darslari shunchaki zerikarli she'rxonlik emas, haqiqiy ma'naviy tarbiyaning manbayi ekanligini bildirish, Navoiy ijodining o'quvchi dunyoqarashi, tasavvur olami, umuminsoniy sifatlari va ma'naviy kamolotini yuksaltirishdagi o'rnini ko'rsatish bugungi adabiyot muallimlarining asosiy vazifalaridan. O'quvchilar orasida Navoiyni tushunmaslik, shoir qo'llagan so'zlar murakkabligi bahonasida o'qishga, uqishga intilmaslik holatlari kuzatiladi. Bu o'qituvchilarga ikki karra mas'uliyat yuklaydi: shoir ijodini chuqur anglash bilan birga o'quvchilarga ham anglati olish.

2.Mavzuga oid adabiyotlarning tahlili (Literature review). Ma'lumki, umumiy o'rta ta'lim tizimining barcha bosqichlarida Alisher Navoiyning hayoti va ijodi o'rganiladi. Jumladan,

5-sinfda "Hayrat ul-abror"dan hikoyat;

6-sinfda ruboiylar, hikmatlari;

7-sinfda qit'a, fard kabi she'rlari;

8-sinfda ruboiy, tuyuq kabi she'rlari;

9-sinfda "Farhod va Shirin"dan parchalar;

10-sinfda "Saddi Iskandariy" dostonidan parchalar va bir g'azali;

11-sinfda "Saddi Iskandariy"dan hikmatlar o'rganiladi.

3.Tadqiqot metodologiyasi (Research Methodology). 5–11-sinf adabiyot darsliklarida Alisher Navoiyning hayoti va ijodi haqidagi sahifa-sahifa ma'lumotlardan ko'ra, shoir haqida hujjatli filmlar tayyorlanib darsliklarda QR kodlar orqali havola qilinishi dars jarayonida o'quvchini zeriktirmaydi.

4.Tahlil va natijalar (Analysis and results).Filmda, avvalo, shoirning shaxs sifatida qanday inson bo'lganligi haqqoniy aks etishi kerak. Shunchaki soxta nigohlar, ma'nosiz qarashlar bilan bugungi kun o'quvchisiga ta'sir qilish oson emas. Ko'zlari ekranga termulib qolgan, Amerika, Koreya multfilmlarini muntazam ko'rib ulg'ayayotgan bolalarni jonsiz tasvirlar qiziqtirmaydi. Buning uchun iste'dodli aktyorlar jamoasi bilan birga navoiyshunos olimlar ishlashi kerak. Navoiy yashagan davr Temuriylar saltanati yemirilishi, toj-u taxt uchun kurashlar shoir hayoti bilan bog'liq yoritilishi zarur. Chunki shoir asarlaridagi aktual masalalar Temuriylar davlati bilan bog'liq. Maktab o'quvchilari uchun mumtoz asarlar lug'ati yaratilishi zarur vazifalardan. Bugungi kungacha Berdaq Yusufning "Mumtoz asarlar lug'ati", "Navoiy asarlari lug'ati", "Bobur asarlarining qisqacha izohli lug'ati" qo'llanmalari yaratilgan. Lekin maktab kutubxonalariga yetib bormagan hisob. Shuning uchun lug'atlarning mobil versiyalarini ishlab chiqish ayni muddao. IT sohasi mutaxassislari bilan hamkorlikda mumtoz asarlar lug'ati bilan bog'liq raqamli videoo'yinlar ixtiro qilinib, ta'limga tatbiq etilishi kerak.

Noan'anaviy darslarda o'quvchilar guruh-guruh bo'lib ishlaydi. Topshiriqlarni ham guruh bilan birgalikda bajaradi. Deylik, notanish so'zlar yuzasidan berilgan topshiriqni videoo'yinlar orqali bajaradi. Bunday o'yinlarni guruhlarda ham yakka o'zi ham o'ynashi mumkin. Agar topshiriqni qoniqarsiz

bajarsa, yana qayta urinib ko‘radi. Raqamli videoo‘yinlar hayotni internetsiz tasavvur qila olmaydigan bugungi avlodni ta‘limga qiziqtirishning eng qulay yechimidir. O‘quvchi videoo‘yinlarni o‘ynash jarayonida interfaol muhit sharoitidan zavqlanadi va murakkab topshiriqlarni bajarib fanlarga oid bilimlarni yaxshi o‘zlashtiradi. Bunday o‘yinlarning ta‘lim jarayonida tatbiq etishning ahamiyatli xususiyati ma‘lum bir maqsadga yo‘naltirilganligidadir. Masalan, o‘quvchi notanish so‘zlar bilan bog‘liq videoo‘yinlarni o‘ynash davomida o‘yin tarkibidagi shartlarni bajaradi. Bu shartlar o‘quvchining maqsadiga aylanadi. O‘yin bosqichma-bosqich oddiydan murakkabga tomon yo‘naltirilgan bo‘ladi.

O‘quvchi keyingi bosqichga ko‘tarilishi uchun biror shartni bajarishi kerak. Deylik, birinchi bosqichda notanish so‘zlar bilan ularning bugungi muqobil variantini moslashtirish (o‘yinining asosiy) shartini to‘g‘ri bajardi. Keyingi bosqichda xuddi shu shartning murakkabrog‘ini o‘ynaydi. Buning uchun o‘yin ichidagi savollarga javob berishi kerak. Savollar mumtoz adabiyotni o‘rgatishga yo‘naltirilgan bo‘ladi. G‘azaldan ikki misra beriladi. Ushbu g‘azalning radifini toping yoki qofiyasini aniqlang kabi bo‘lishi mumkin. O‘quvchi o‘yinni davom ettirib yuqori darajaga ko‘tarilish vazn, qofiya, radif haqidagi bilimlarni ham o‘zlashtirishga harakat qiladi. O‘yin davomida olgan bilimlarini amalda qo‘llash imkoniyatini qo‘lga kiritadi. Amaliyot bilimni qay darajada o‘zlashtirilganligini ko‘rsatuvchi birlamchi unsurlardan biridir Ta‘limning har bir daqiqasida barcha imkoniyatlarni qo‘llab bolaning fikrlash qobiliyatini shu yoshdagi ruhiy va intellektual imkoniyatlari darajasida rivojlantirib borish zarur. Mumtoz adabiyot namunalarini shunchaki, yuzaki o‘rganish ko‘zda tutilgan natijani bermasdan, o‘tmishdagi boy madaniyatni yosh avlod ongiga singdirishda ham bir qancha qiyinchiliklarga olib keladi.

Quyida Navoiy g‘azallarini o‘qitishga doir ba‘zi tavsiyalar taqdim etamiz:

10-sinf “Adabiyot” darsligida “To muhabbat dashti bepoyonida overamen” g‘azali berilgan. Ushbu g‘azalni “Anglash” metodi yordamida tahlil qilish mumkin. “Anglash” metodini qo‘llashdagi asosiy qoidalar:

Matnga ilk yondashuv.

Mazmunni idrok etish.

Shaklni idrok etish.

Matnga ilk yondashuv.

G‘azalni ifodali o‘qiymiz, tushunilishi qiyin so‘zlar izohi bilan tanishamiz.

To muhabbat dashti bepoyonida overamen,

Har baliyat kelsa, ishq oshubidin bechoramen.

El netib topqay menikim, men o‘zimni topmamom,

Bo‘ylakim, ishq-u junun sahrosida overamen.

Qaysi zaxming‘a qilursen chora chun men, ey rafiq,

Tiyr boroni baliyatdin sarosar yoramen.

Oh dudi ichra bir uchqun kibi ko‘rgan meni

Bildikim, hijron tuniga kavkabi sayyoramen.

Kecha o'rtansam, sahar faryod qilsam, ne ajab,
Ishq aro oarvona-vu bulbulg'a chun hamkoramen.

Ey xarobot ahli, gar siz mast o'lub, men bo'lmasam,
Ayb emas, nevchunki siz – mayxora, men xunxoramen.

Ey Navoiy, bordi deb ahhob, ta'jil etma ko'p,
It kibi men erishib ul korvonni boramen.

G'azalning nasriy bayoni, umumiy mazmuni anglashiladi. Mazmunni anglashda o'qituvchining roli katta, lekin bu jarayonni o'qituvchi tamoman o'z qo'liga olishi noto'g'ri. O'quvchilarning o'zlarini fikrlashga, fikrlarini bayon etishga undash kerak. O'qituvchi faqat tushunilishi, anglanishi qiyin bo'lgan so'zlar, ishora qilingan voqea-hodisalarni bildirishi maqsadga muvofiq. Masalan: maqta'dagi "It kibi men erishib ul korvonni boramen" misrasida aynan qaysi voqea ishora qilinayotganini o'qituvchi aytishi mumkin: uch solih yigit zolim hukmdor Daqqiyunus zamonida zulmdan qochib tog' sari bosh olib ketadilar. Ularga Qitmir degan bir it ham ergashadi va hammalari g'orga yashirinadilar. Alloh ularni uyquga cho'mdiradi, 300 yillik uyqudan so'ng ular uyg'onadilar. Navoiy ana shu uch solih yigitga ergashgan it kabi zulmdan qochib, haqiqat sari boraman, fikrini ilgari surgan, deyishi mumkin.

G'azalning umumiy mazmuni: Muhabbatning chek-chegarasiz dashtida sarson holda yurar ekanman, ishq sarosimasidan nimaiki balolar boshimga tushsa, chorasizman. Oshiq muhabbatning poyonsiz dashtida ovora bo'lib yurar ekan, bundan anglashiladiki, ishqning o'zi behududdir. Bu ishq – ilohiy ishq, chunki insoniy ishqning boshi va oxiri, avji va susti, chek-chegarasi bo'ladi, faqat Alloh ishqining poyoni yo'q. Bu ishq tufayli boshga tushadigan balolar qarshisida oshiq chorasiz, zero, qazoga rozi va baloga sobir bo'lish – mo'minning shioridir.

Men o'zimni topa olmayman-u, odamlar meni qanday qilib topsin?

Men shu tariqa ishq va junun sahrosida ovoraman. Bu bayt bugun ayrim adabiyotshunos va ixlosmandlar tomonidan buzib o'qiladi va shunga muvofiq talqin qilinadi. Ularning fikriga ko'ra, shoir "El netib topqay menikim, men o'zimni topmasam" degan, yoki to'g'rirog'i, shunaqa deb yozganida zo'r bo'lar edi. Ana o'shanda "o'zlikni topish, o'zlikni anglash" kabi hozir urf bo'lgan ijtimoiy dunyoqarash Navoiy orqali ham tasdiq etilardi... Uning zimnida "men o'zimni anglasam (botinga nazar), boshqalar ham meni e'tirof etadi, biz o'zimizni topsak, anglasak, o'z qadrimizga o'zimiz yetgandagina o'zgalar (ya'ni boshqa millatlar, dunyo...) ham bizni tan oladi", – degan shior singari bir da'vo yotadi.

Ey do'st, sen yara-chaqalarimning qaysi birini davolamoqchisan?

Tiyr boron balosidan mening butun a'zoi badanim yara-chaqa-ku? Bu tiyr boroni, avvalo, ma'shuqa otgan istig'no o'qlari. Ammo bu – botiniy (ichki) jarohat,

zohiriy tomondan esa ishq jununidan telba bo'lgan odamga bolalar tosh otib hamma yog'ini yarador qiladilar.

Oh tutuni ichida men bir uchqunday bo'lib yotganimni ko'rgan odam
bu hijron kechasidagi yulduz – sayyora ekan, deb gumon qildi. Bu juda mahobatli manzara. Tutun hamma yoqni qoplab, uning zulmatida o'rtanayotgan oshiq bir uchqunday bo'lib arang ko'zga tashlanadi, uni ko'rgan odam hijron tunidagi yulduz va sayyoralarga o'xshatadi.

Tunlari kuyib-yonsam, tong saharlarda yig'lasam, ajablanmang.

Chunki ishqda parvona va bulbul bilan ishim bir xil. Bunda mumtoz adabiyotimizga xos tanosub san'ati qo'llangani diqqatga sazovor, ya'ni o'rtanmoq deganda alangaga o'zini urib kuyadigan parvona, saharda nola qilish esa tongda sayragan bulbulga qiyos qilinadi.

Ey xarobot (mayxona) ahli, siz mast bo'lib, men mast bo'lmasam,
bu ayb emas, negaki sizlar may ichasiz, men esa qon yutaman. Nazarimizda, bu g'azalning ma'no va ishoratga eng to'liq bayti shu. Bunda shoir sirtidan mayxona ahliga murojaat qilgani bilan, aslida mustasiflarga – soxta oshiq, soxta soliklarga xitob qiladi, ularning ishq yo'lida o'zini mast-alast qilib ko'rsatishlarini ma'qullamaydi. Navoiyning e'timodicha, oshqlikning yanada yuqoriroq bir bosqichi bor, bu hushyorlik ila yorga yetishishdir.

Ey Navoiy, do'st-yorlarim ketdi, deb shoshilma, Bu karvon ortidan it kabi ergashib boraman.

Shaklni idrok etish.

To mu-hab-bat/ dash-ti be-po-/yo-ni-da o-/vo-ra-men,
Har ba-li-yat/ kel-sa ish-qo-/shu-bi-din be-/cho-ra-men.

Vazni: ramali musammani mahzuf.

Foilotun foilotun foilotun foilun

v - - / - v - - / - v - - / - v -

Qofiyadosh so'zlar: ovoramen, bechoramen, yoramen, sayyoramen, hamkoramen, xunxoramen, boramen.

Radif ishtirok etmagan. She'riy san'atlar: tashbeh, tanosub, tazod, istiora.

4.Xulosa va takliflar (Conclusion/Recommendations). O'qituvchi vaznning qanday o'qilishini tushuntiradi va ovoz chiqarib o'qiydi. O'quvchilar vaznga solib o'qishni mashq qilishadi. Asar so'zlaridagi har bir bo'g'inga urg'u berish, baland ovozda zo'r berib, ba'zan qichqirib o'qish mumkin emas. Aruzda so'zlardagi tovush va bo'g'inlar ba'zan alohida, ba'zan esa bir-biri bilan qo'shilib talaffuz qilinadi. "Ravon nutq inson ko'rki" shiori ostida nazm daqiqasi tashkil qilinib, o'rganilgan bilimlar mustahkamlanadi. Mumtoz matnlarni ifodali o'qish uchun aslida ularning vaznini bilish talab etiladi. O'quvchilar diqqatini g'azalda aks etgan g'oyalar oqimigagina qaratib qolmay, ana shu voqealar asnosida qo'llanilgan badiiy san'atlar hamda ijodkorning mahoratini namoyon qiluvchi jihatlariga yo'naltirilsa, ularning ko'ngil ko'zi ochiladi. Shunda bolalar so'zning sehrini his etadi, uning badiiy ichki imkoniyatini, yashirin qirralarini topib oladigan bo'lib qoladilar. Dostonda qo'llanilgan badiiy tasviriy vositalarni, dostonning vaznini sharhlash adabiyot darslarida o'quvchiga estetik zavq bag'ishlaydi. San'atni

tushunishga o'rgatadi. Yozuvchining mahorati va asarning qadr-qimmatini asarda so'zning san'at darajasida qanday qo'llanilgani bilan o'lchanishini o'quvchi tushunishi kerak. Matn ostidagi tagma'noni tushunishda asarda qo'llanilgan badiiy tasviriy vositalarning o'rni muhim.

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MAVZU: BOSHLANG'ICH TA'LIMDA LOYIHAGA ASOSLANGAN TA'LIMNING DARSLARDAGI SAMARADORLIGI

***Annotatsiya:** Ushbu maqolada boshlang'ich ta'lim tizimida loyihaga asoslangan ta'lim metodikasini qo'llashning pedagogik va amaliy jihatlari tahlil qilinadi. Loyiha asosida o'qitishning o'quvchilarda mustaqil fikrlash, jamoaviy ishlash, amaliy faoliyatga jalb qilish kabi ko'nikmalarni shakllantirishdagi o'rni ochib beriladi. Misollar asosida loyihaviy ta'limni boshlang'ich sinflarda samarali tashkil etish yo'llari ko'rsatib o'tiladi.*

***Kalit so'zlar:** boshlang'ich ta'lim, loyihaga asoslangan ta'lim, interfaol metod, mustaqil fikrlash, amaliy ko'nikma, innovatsion ta'lim.*

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TOPIC: EFFECTIVENESS OF PROJECT-BASED EDUCATION IN PRIMARY EDUCATION IN LESSONS

***Annotation:** This article analyzes the pedagogical and practical aspects of using project-based learning in the primary education system. The role of project-based learning in developing pupils' skills such as independent thinking, teamwork, and involvement in practical activities is revealed. Examples show approaches to effectively organize project-based learning in primary grades.*

***Keywords:** primary education, project-based learning, interactive method, independent thinking, practical skills, innovative education.*

Zamonaviy ta'lim jarayonining asosiy maqsadi o'quvchining bilim olish jarayonida faolligini oshirish, uni mustaqil fikrlovchi, ijodiy yondashuvga ega shaxs sifatida shakllantirishdan iborat. Ayniqsa, boshlang'ich ta'lim bosqichi – shaxsning asosiy ko'nikmalari, o'rganishga bo'lgan munosabati va hayotiy qarashlari shakllanadigan davr hisoblanadi. Shu sababli, an'anaviy bilim berishdan ko'ra, faoliyatga yo'naltirilgan interfaol metodlarga ehtiyoj kuchaymoqda. Loyiha asosida o'qitish – ana shunday yondashuvlardan biridir. Loyihaga asoslangan ta'limning aniq boshlanish sanasini aniqlash oson emas. Uning asoschilari sifatida ko'pincha amerikalik o'qituvchilar Jon Dyui (loyiha usuli J. Dyui tomonidan ishlab chiqilgan "instrumental pedagogika"ni amalga oshiradi) va Uilyam X. Kilpatrik (bu o'qitish tizimiga birinchi batafsil tavsifni bergan olim) tilga olinadi. [1][2]. Amaliy mashg'ulotlar o'quv loyihalari doirasida amalga oshirildi, ular o'quvchilarning o'zlari maqsad qo'yishlari, yangi bilim va ko'nikmalarni egallash bilan bog'liq ishlarni rejalashtirishlari va amalga oshirishlari kabi harakatlar majmui edi. Ta'lim

va kognitiv faoliyat o'quv mashg'ulotlari tizimi yoki yagona o'quv dasturi atrofida emas, balki aniq loyihalar asosida qurilgan.



Loyiha asosidagi ta'limning nazariy asoslari:

Loyihaga asoslangan ta'lim bilim olishning samarali va qiziqarli usulidir. Unda ta'lim oluvchilar o'z hayotida muvaffaqiyatga erishish uchun zarur bo'lgan kompetensiyalarini chuqurroq egallaydilar. Loyihaga asoslangan ta'limda ta'lim oluvchi passiv emas, faol bo'ladi, loyiha ularning qalbi va ongini o'ziga jalb qiladi va o'rganish uchun real hayotiy muammolar yechimini topishga undaydi. Loyiha so'ngida ta'lim oluvchilar mazmunni chuqurroq tushunishadi, o'rganganlarini eslab qolishadi va uni an'anaviy ta'limga qaraganda uzoqroq saqlashadi. Shu sababli loyihaga asoslangan ta'lim bilan mazmunli bilimga ega bo'lgan ta'lim oluvchilar o'zlari bilgan va qila oladigan narsalarni yangi vaziyatlarda qo'llashlari mumkin. Loyihaga asoslangan ta'limning asosiy g'oyasi – o'quvchilarning o'quv jarayonida mustaqilligini ta'minlash, ularni real muammolar yechimi asosida bilim va ko'nikmalarni egallashga yo'naltirishdan iboratdir. Dastlab, bu metod o'quvchilarning amaliy faoliyatini tashkil etish orqali ularni o'z oldilariga maqsad qo'yishga, rejalar tuzishga va natijalarga erishishga o'rgatishni nazarda tutgan [3]. Ushbu metodning nazariy asoslari shuni ko'rsatadiki, loyihaga asoslangan ta'lim bilim olish jarayonini nafaqat samarali, balki qiziqarli ham qiladi. Unda o'quvchilar passiv emas, balki faol ishtirok etadi, ta'lim esa hayotiy muammolarning echimi asosida amalga oshadi. O'quvchi loyihalar orqali mazmunni chuqurroq tushunadi, eslab qolish darajasi ortadi va bilimlarni yangi vaziyatlarda qo'llashga o'rganadi [4].

Loyihaga asoslangan ta'lim jarayonida o'quvchilarning tanqidiy fikrlash, muammoni hal qilish, hamkorlikda ishlash, taqdimot qilish kabi kompetensiyalari rivojlanadi. Bu metod talabalar faoliyatini mustaqil tashkil etishga, ijodiy fikr yuritishga undaydi va shaxsiy mas'uliyat hissini kuchaytiradi. Mazkur metod o'z ichiga turli xildagi loyihalarni oladi. Ular faoliyat turiga ko'ra tadqiqot, ijodiy, rolli, amaliy va izlanishga yo'naltirilgan loyihalarga bo'linadi. Shuningdek, loyiha bir fanni yoki bir nechta fanlararo mavzularni qamrab olishi, natijasi aniqligiga yoki ko'p yo'nalishliligiga qarab tasniflanishi mumkin [4][5]. Boshlang'ich ta'limda ushbu metodning qo'llanilishi ayniqsa dolzarbdir. Chunki yosh o'quvchilarning psixologik va ijtimoiy rivojlanish xususiyatlari loyihaviy metod orqali samarali rivojlanadi. Loyihaviy faoliyat natijasida o'quvchilarda mustaqil axborot izlash, tahlil qilish, jamoaviy ishlash, muloqot qilish, ijodiy yondashuv va natijaga erishishga intilish singari ko'nikmalar shakllanadi [4].

Loyihalar predmeti va mazmuniga ko'ra, bir fan sohasini qamrab olgan loyihalar, fanlararo izlanishni talab etadigan loyihalarga ajratiladi. Bu loyihalarni shakllantirishda o'qituvchi biologiya sohasidagi muammoli, qiyin mavzularni olishi mumkin. Mazkur loyihalar biologiyani o'qitishda tabiiy fanlar, adabiyot, ma'naviyat, madaniyat, san'at va gumanitar fanlar bilan fanlararo bog'lanishni amalga oshirishga imkon beradi.



Loyihaga asoslangan ta'limning yetti bosqichi. [6].

Quyidagi loyihalarni amaliyotda qo'llash orqali loyihaviy ta'limning samaradorligini asoslash mumkin. "Tabiatni asraymiz" mavzusidagi ekologik loyiha doirasida o'quvchilar maktab atrofini obodonlashtirish ishlari bilan shug'ullanadilar, chiqindilarni qayta ishlash mavzusida taqdimotlar tayyorlaydilar. Ushbu loyiha orqali ularda ekologik bilimlar shakllanadi va tadbirkorlik ko'nikmalari rivojlanadi. "Sog'lom turmush tarzi" loyihasida esa o'quvchilar sog'lom ovqatlanish, jismoniy faollik va shaxsiy gigiyena qoidalari bo'yicha izlanishlar olib boradilar, o'z tadqiqot natijalarini plakatlari orqali ifodalaydilar. "Mening orzu kasbim" loyihasi doirasida o'quvchilar turli kasb egalari bilan suhbatlar uyushtiradilar, kasblar haqida ma'lumot to'plashadi va stendlar yaratish orqali o'z qarashlarini ifoda etadilar. "Mening kichik bog'im" loyihasi esa o'quvchilarning tabiiy fanlarga qiziqishini oshirib, ular xonada yoki bog'da o'simliklar ekish, ularni parvarish qilish bo'yicha amaliy ishlar olib boradilar. "Ranglar va shakllar olami" loyihasi davomida o'quvchilar turli ranglar va geometrik shakllar asosida kollajlar yaratadilar, bu orqali ularning estetik didi va ijodiy fikrlashi rivojlanadi. Ushbu loyihalar orqali o'quvchilarning mustaqil fikrlash, ijodkorlik, jamoada ishlash, amaliy faoliyatga jalb etilish va taqdimot ko'nikmalari shakllanadi.

Boshlang'ich ta'limda loyihaviy metodlardan foydalanish o'quvchilarda 21-asr ko'nikmalari – kreativlik, tanqidiy fikrlash, hamkorlik va kommunikatsiyani samarali shakllantiradi. Bu metod nafaqat o'quvchining bilim olish jarayonidagi faolligini ta'minlaydi, balki uni hayotga tayyorlaydi. O'qituvchilar loyihalarni o'quv dasturlariga integratsiya qilish orqali darslarning mazmunini boyitishi mumkin. Boshlang'ich ta'limda loyihaga asoslangan ta'lim usuli, o'quvchilarning faol ishtirokini ta'minlab, ularga muammolarni hal qilishda yordam beradi. Ushbu ta'lim usuli orqali o'quvchilar o'z fikrlarini ifoda etish, ijodkorlik, va jamoaviy ish ko'nikmalarini rivojlantiradi. Loyihaga asoslangan ta'lim o'quvchilarni dars jarayonida faol ishtirok etishga undaydi, bu esa ularning motivatsiyasini oshiradi. Loyihalar orqali o'quvchilar real hayotdagi muammolarni hal qilish ko'nikmalarini egallaydi. Loyihaga asoslangan ta'lim ijodkorlikni rag'batlantiradi, o'quvchilar o'z g'oyalarini ishlab chiqishga va tanqidiy fikrlashga o'rgatadi. Loyihalar orqali o'quvchilar qaror qabul qilish jarayonini o'zlashtiradi va mas'uliyatni his qiladi. Umuman olganda, loyihaga asoslangan ta'lim boshqalar bilan hamkorlikda ishlash, ijodkorlik va tanqidiy fikrlashni rivojlantirishda muhim rol o'ynaydi, bu esa boshlang'ich ta'limda samaradorlikni oshiradi.

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FOMO (FEAR OF MISSING OUT) SINDROMI: TALABALARDA IJTIMOIY TARMOQQA QARAMLIKNING ASOSIY OMILI SIFATIDA

Annotatsiya: Mazkur maqolada FoMO (Fear of Missing Out – “nimanidir o‘tkazib yuborish qo‘rquvi”) sindromi talabalarda ijtimoiy tarmoqqa qaramlikning asosiy psixologik omili sifatida ilmiy jihatdan tahlil qilingan. DSM-5 va ICD-11 tasniflari asosida internet va ijtimoiy tarmoq qaramligi xulq-atvoriy buzilish sifatida izohlanadi. Xalqaro va mahalliy tadqiqotlar natijalariga tayangan holda FoMO sindromining talabalarning akademik samaradorligi, ruhiy salomatligi hamda ijtimoiy munosabatlariga ta’siri ko‘rsatilgan. Tadqiqot natijalari shuni ko‘rsatadiki, FoMO sindromi talabalar orasida diqqat tarqoqligi, stress va real muloqotning susayishiga sabab bo‘lmoqda. Profilaktika choralari raqamli gigiyena, psixologik xizmatlar, ota-ona va pedagoglar hamkorligi muhim omil sifatida belgilangan.

Kalit so‘zlar: FoMO, ijtimoiy tarmoqlar, qaramlik, talaba, psixologik mexanizm, raqamli gigiyena, ta’lim samaradorligi, profilaktika.

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FOMO (FEAR OF MISSING OUT) SYNDROME: AS A MAJOR FACTOR IN SOCIAL MEDIA ADDICTION IN STUDENTS

Abstract: This article analyzes **FoMO (Fear of Missing Out)** syndrome as a key psychological factor in the development of social network addiction among university students. Based on DSM-5 and ICD-11 classifications, social media dependence is interpreted as a behavioral disorder. Drawing on international and local research findings, the study highlights the impact of FoMO on students’ academic performance, mental health, and social relationships. The results indicate that FoMO increases distraction, stress, and weakens real-life communication among students. Preventive approaches emphasize the importance of digital hygiene, psychological services, and collaboration between parents and educators.

Key words: FoMO, social networks, addiction, student, psychological mechanism, digital hygiene, academic performance, prevention.

Kirish (Introduction)

Bugungi raqamli davrda ijtimoiy tarmoqlar inson hayotining ajralmas qismiga aylanib, yoshlarning turmush tarzini tubdan o'zgartirmoqda. Talabalar uchun ijtimoiy tarmoqlar bilim olish, axborot almashish va ijtimoiy aloqalarni mustahkamlash vositasi bo'lib xizmat qilmoqda. Shu bilan birga, ular haddan tashqari foydalanish natijasida psixologik qaramlikka duch kelmoqdalar. Qaramlikni kuchaytiruvchi asosiy mexanizmlardan biri sifatida FoMO – “Fear of Missing Out” (nimanidir o'tkazib yuborish qo'rquvi) sindromi alohida ahamiyat kasb etadi. FoMO sindromi shaxsda ijtimoiy hodisalardan chetda qolish qo'rquvini yuzaga keltiradi [3.B.1842]. Bu qo'rquv odamni doimiy ravishda telefonini tekshirishga, yangiliklarni ko'rishga, xabarlariga tezkor javob berishga majbur qiladi. Natijada shaxsning vaqtni boshqarish qobiliyati, ta'lim jarayonidagi diqqat va mehnat unumdorligi pasayadi. Shuningdek, doimiy onlayn bo'lish ehtiyoji ruhiy zo'riqish, tashvish va yolg'izlik hissini kuchaytiradi [4.B.512]. Shu sababli talabalarda ijtimoiy tarmoqqa qaramlik fenomenini tahlil qilishda FoMO sindromini markaziy kategoriya sifatida o'rganish dolzarbdir.

Metodlar (Methods)

Maqola quyidagi ilmiy yondashuvlar asosida tayyorlandi:

Nazariy tahlil – ijtimoiy tarmoqlarga qaramlik masalasi DSM-5 ²⁵ hamda ICD-11 ²⁶ tasniflarida xulq-atvoriy buzilish sifatida ko'rib chiqildi.

Xalqaro tadqiqotlarni sharhlash – AQSh, Yevropa va Osiyo mamlakatlarida olib borilgan FoMO sindromi va ijtimoiy tarmoqqa qaramlik bo'yicha ilmiy maqolalar tahlil qilindi [5; 6; 7].

Mahalliy kuzatuvlar – O'zbekiston oliy ta'lim muassasalari talabalari o'rtasida so'rovnomalar o'tkazilib, ularning ijtimoiy tarmoqlardan foydalanish odatlari va FoMO alomatlari o'rganildi [8;9;10]. O'zbekiston oliy ta'lim muassasalari talabalari o'rtasida maxsus so'rovnoma o'tkazildi. Tadqiqotda 323 nafar respondent (turli kurs va fakultetlardan) ishtirok etdi. So'rovnoma quyidagi bloklardan iborat bo'ldi: demografik savollar (yosh, jins, kurs, fakultet), ijtimoiy tarmoqlardan foydalanish odatlari (kunlik vaqt sarfi, kechki va tungi faollik, qaysi platformadan foydalanishi), shuningdek FoMO darajasini o'lchash uchun 10-bandli “Przybylski FoMO shkalasi” qo'llandi. Likert shkalasi asosida (1 — “to'liq rozi emasman”, 5 — “to'liq rozi man”) baholash ishlatildi. Qo'shimcha ravishda uyqu

²⁵ **DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition)** — “Ruhiy kasalliklarning diagnostik va statistik qo'llanmasi, 5-nashr”. Amerika Psixiatriya Assotsiatsiyasi (APA) tomonidan 2013 yilda chop etilgan ushbu qo'llanma butun dunyo bo'yicha ruhiy buzilishlarni tashxislash va ilmiy tadqiqotlarda qo'llanadigan asosiy tasniflardan biridir.

²⁶ **ICD-11 (International Classification of Diseases, 11th Revision)** — “Kasalliklarning xalqaro tasnifi, 11-nashr”. Jahon sog'liqni saqlash tashkiloti (WHO) tomonidan ishlab chiqilgan va 2019 yilda amaliyotga kiritilgan bu hujjat barcha kasalliklar, jumladan, internet va ijtimoiy tarmoqqa qaramlik kabi xulq-atvoriy buzilishlarni ham rasmiy ravishda kodlash va tasniflash uchun qo'llanadi.

sifati (PSQI),²⁷ tashvish (GAD-7),²⁸ depressiya (PHQ-9)²⁹ va yolg'izlik (UCLA Loneliness Scale qisqa shakli)³⁰ ko'rsatkichlari ham yig'ildi. So'rovnoma anonim shaklda, onlayn va qog'oz variantda tarqatildi, ishtirokchilarning roziligi yozma shaklda oldindan olindi. Ma'lumot yig'ish jarayoni uch hafta davom etdi.

Psixometrik yondashuv – FoMO darajasi Likert shkalasi³¹ asosida o'Ichandi, Cronbach Alpha ko'rsatkichi yordamida testlarning ishonchliligi tekshirildi [7]. FoMO darajasi "Likert shkalasi" asosida ballar yig'indisi va o'rtacha qiymatlari bo'yicha hisoblandi. Testning ichki konsistensiyasini baholash uchun "Cronbach Alpha" ko'rsatkichi hisoblandi va natija $\alpha = 0,83$ ni tashkil qildi, bu shkalani ishonchli deb hisoblash imkonini beradi. Har bir bandning item-total korrelyatsiyasi 0,34–0,61 oralig'ida bo'ldi. Shkalaning tuzilishini tekshirish maqsadida "eksplorator faktor tahlili (EFA)"³² o'tkazildi. KMO³³ ko'rsatkichi 0,79 bo'lib, Bartlett testi³⁴ $p < 0,001$ natija berdi, bu esa faktor tahliliga yaroqlilikni ko'rsatdi. Natijada yagona omil modeli aniqlanib, barcha bandlarning yuklamalari $\geq 0,40$ darajada qayd etildi. Validlikni baholashda FoMO darajasi bilan tashvish ($r = 0,42$, $p < 0,01$), depressiya ($r = 0,37$, $p < 0,01$) va yolg'izlik ($r = 0,31$, $p < 0,05$) o'rtasida o'rtacha ijobiy korrelyatsiya aniqlangan bo'lsa, akademik ko'rsatkich (GPA) bilan salbiy korrelyatsiya ($r = -0,29$, $p < 0,05$) qayd etildi. Bu natijalar shkalani talaba populyatsiyasida mos va ishonchli ekanini tasdiqladi.

Natijalar (Results)

Tadqiqot natijalariga ko'ra, O'zbekiston oliy ta'lim muassasalari talabalari orasida ijtimoiy tarmoqlardan foydalanish keng tarqalganligi va FoMO (Fear of Missing Out) sindromi darajasining sezilarli ekanligi aniqlandi. So'rovnomada ishtirok etgan 323 nafar talabaning kunlik ijtimoiy tarmoqlarda o'tkazadigan o'rtacha vaqti **3,8 soatni** tashkil etdi. Respondentlarning 67 foizi kechki va tungi vaqtda ijtimoiy tarmoqlarni tekshirayotganini bildirdi, bu esa uyqu sifati (PSQI – Pittsburgh Sleep Quality Index) pasayishi bilan bog'liq bo'ldi ($r = -0,33$, $p < 0,01$).

²⁷ **PSQI (Pittsburgh Sleep Quality Index)** – "Pittsburgh uyqu sifati indeksi". Talabalarning uyqu sifati o'lchash uchun ishlatiladigan standart psixometrik test. Qisqartirilgan shakli 4–5 savoldan iborat bo'lib, uyqu davomiyligi, tez uxlab qolish va uyqudan qoniqish kabi ko'rsatkichlarni o'lchaydi.

²⁸ **GAD-7 (Generalized Anxiety Disorder – 7 items)** – "Umumiy tashvish buzilishi shkalasi, 7 bandli". Talabalarda tashvish darajasini aniqlash uchun keng qo'llaniladi. 7 ta savol 0 ("umuman emas") dan 3 ("deyarli har kuni") gacha baholanadi.

²⁹ **PHQ-9 (Patient Health Questionnaire – 9 items)** – "Bemorlar salomatligi so'rovnomasi, 9 bandli". Depressiya darajasini baholash uchun mo'ljallangan. Har bir savol so'nggi ikki hafta davomida his qilingan simptomlarni baholashga qaratilgan.

³⁰ **UCLA Loneliness Scale (University of California, Los Angeles Loneliness Scale, short form)** – "Kaliforniya universiteti (Los-Anjeles) yolg'izlik shkalasi (qisqa shakl)". Shaxsning yolg'izlik darajasi va ijtimoiy aloqalar sifati bo'yicha subyektiv bahosini o'lchash uchun qo'llaniladi.

³¹ **Likert shkalasi** — respondentlarning ma'lum bir fikr yoki holatga bo'lgan munosabatini o'lchash uchun ishlab chiqilgan psixometrik usul. Uni amerikalik psixolog **Rensis Likert** 1932 yilda taklif qilgan.

³² **EFA (Exploratory Factor Analysis)** – "Eksplorator faktor tahlili". O'lchov vositasining (so'rovnoma, test) tuzilmasini tekshirish uchun qo'llaniladigan statistik usul. Maqsad – testdagi bandlar qanday umumiy omillar (faktorlar) atrofida guruhlanishini aniqlash.

³³ **KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy)** – "Kaiser-Meyer-Olkin namunaviy yetarlilik o'lchovi". Faktor tahlili uchun ma'lumotlar mos kelishini baholaydi. Ko'rsatkich 0 dan 1 gacha bo'ladi: 0,6 dan yuqori natija tahlil uchun yetarli, 0,8–0,9 oralig'i yaxshi, 0,9 dan yuqori juda yaxshi deb hisoblanadi.

³⁴ **Bartlett's Test of Sphericity** – "Bartlett sferiklik testi". Ma'lumotlar o'zaro bog'liqligi yoki yo'qligini tekshiradi. Agar $p < 0,05$ bo'lsa, ma'lumotlar faktor tahliliga mos keladi degan xulosa chiqariladi.

FoMO shkalasi (Przybylski, 2013) bo'yicha o'rtacha ko'rsatkich $M = 28,4$; $SD = 6,7$ ni tashkil qildi. Bu natija xalqaro tadqiqotlarda (Przybylski va boshq., 2013; Elhai va boshq., 2016) qayd etilgan o'rtacha darajaga mos keladi. Likert shkalasi asosida yig'ilgan ballar talabalarda FoMO sindromining o'rtacha-yuqori darajada ekanini ko'rsatdi.

Psixometrik tahlil natijalari FoMO shkalasining ichki ishonchliligini tasdiqladi. Cronbach Alpha ko'rsatkichi $\alpha = 0,83$ ni tashkil etdi, bu esa yuqori darajadagi ichki konsistensiyani anglatadi. Item-total korrelyatsiyalar 0,34 dan 0,61 gacha oraliqda qayd etildi, barcha bandlar o'lchov vositasiga mazmunan mos kelishini ko'rsatdi. Eksplorator faktor tahlili (EFA – Exploratory Factor Analysis) natijasida yagona faktorli model shakllandi; KMO ko'rsatkichi 0,79, Bartlett testi $p < 0,001$ darajasida ijobiy natija berdi, bu esa o'lchov vositasi faktor tahliliga mos ekanini ko'rsatadi.

Konvergent validlik tekshiruvida FoMO darajasi bilan tashvish (GAD-7) o'rtasida $r = 0,42$, $p < 0,01$, depressiya (PHQ-9) bilan $r = 0,37$, $p < 0,01$, yolg'izlik (UCLA Loneliness Scale) bilan esa $r = 0,31$, $p < 0,05$ o'rtacha ijobiy korrelyatsiyalar aniqlandi. Diskriminant validlik ko'rsatkichlarida esa GPA (akademik ko'rsatkich) bilan salbiy bog'liqlik kuzatildi ($r = -0,29$, $p < 0,05$). Bu talabalarda FoMO sindromi kuchayishi bilan birga akademik samaradorlik pasayishini ko'rsatadi.

Umuman olganda, olingan natijalar FoMO sindromi talabalarda ijtimoiy tarmoqlarga qaramlikning markaziy psixologik mexanizmi sifatida namoyon bo'layotganini, shuningdek ularning ruhiy salomatligi va ta'limdagi muvaffaqiyatiga bevosita ta'sir qilayotganini tasdiqladi.

Munozara (Discussion)

Ushbu tadqiqot natijalari xalqaro ilmiy izlanishlarda olingan dalillarni tasdiqlaydi. Xususan, Przybylski va hammualliflari (2013) tomonidan ishlab chiqilgan FoMO nazariyasi ham talabalar orasida ushbu sindromning ijtimoiy tarmoqlardan foydalanishning asosiy sabablaridan biri ekanini ko'rsatgan edi [3]. Bizning kuzatuvlar ham O'zbekiston sharoitida FoMO sindromi talabalarining psixologik farovonligi va ta'limdagi muvaffaqiyatiga salbiy ta'sir qilayotganini ko'rsatdi.

Natijalarda aniqlangan FoMO va tashvish (GAD-7), depressiya (PHQ-9) hamda yolg'izlik (UCLA Loneliness Scale) ko'rsatkichlari o'rtasidagi ijobiy korrelyatsiyalar Elhai va hammualliflari (2016) hamda Blackwell va boshqalar (2017) izlanishlari bilan uyg'unlikda chiqdi [4; 6]. Bu shuni anglatadiki, FoMO sindromi nafaqat ijtimoiy tarmoqlarga qaramlikni kuchaytiradi, balki kengroq ruhiy salomatlik muammolari bilan ham uzviy bog'liqdir.

Shuningdek, GPA (akademik ko'rsatkich) bilan salbiy bog'liqlik aniqlanishi Alt (2015) tomonidan keltirilgan dalillar bilan mos keldi [5]. Ya'ni, ijtimoiy tarmoqlarda ortiqcha vaqt o'tkazish va FoMO sindromining yuqoriligi talabalarda diqqat tarqoqligi, vaqtni samarasiz boshqarish va natijada o'qishdagi muvaffaqiyatsizliklarga sabab bo'lmoqda.

Mahalliy kuzatuvlar natijalari ham muhimdir. Talabalarining 67 foizi tungi vaqtda ijtimoiy tarmoqlardan faol foydalanishini bildirgan, bu esa uyqu sifatiga

(PSQI) salbiy ta'sir qilmoqda. Mazkur holat yoshlar salomatligi va ularning kunlik kognitiv faoliyati uchun xavf tug'diradi. Bu natijalar Shannon va boshqalar (2022) olib borgan metaanalitik tahlillar bilan hamohangdir, ularda ham uyqu buzilishlari ijtimoiy tarmoqlarga qaramlikning doimiy oqibatlaridan biri sifatida qayd etilgan [7]. Shu bilan birga, tadqiqot natijalari ayrim cheklovlariga ham ega. Birinchidan, olingan ma'lumotlar o'zini-o'zi hisobot shaklida to'plangani uchun subyektivlik xavfi mavjud. Ikkinchidan, tanlangan namuna 323 nafar talaba bilan chegaralangan bo'lib, natijalarni barcha O'zbekiston talabalari populyatsiyasiga to'liq umumlashtirish mumkin emas. Uchinchidan, tadqiqot kesimiy (cross-sectional) shaklda olib borilgani sababli sabab-oqibat munosabatlarini qat'iy aniqlash imkoni yo'q. Shunga qaramay, tadqiqot ijtimoiy tarmoqlarga qaramlikning psixologik mexanizmlaridan biri sifatida FoMO sindromini O'zbekiston sharoitida empirik dalillar asosida tasdiqladi. Kelgusida ushbu yo'nalishda ko'proq longitudinal tadqiqotlar, eksperimental aralashuv dasturlari va psixologik treninglarning samaradorligini baholash zarur.

Xulosa (Conclusion)

O'zbekiston oliy ta'lim muassasalari talabalari orasida o'tkazilgan tadqiqot natijalari shuni ko'rsatdiki, ijtimoiy tarmoqlardan foydalanish odatlari bilan bog'liq FoMO (Fear of Missing Out – "nimanidir o'tkazib yuborish qo'rquvi") sindromi sezilarli darajada tarqalgan. Talabalar orasida ijtimoiy tarmoqlarga kuniga o'rtacha 3–4 soat vaqt sarflanishi, tungi faoliyatning yuqoriligi hamda uyqu sifati pasayishi ushbu muammoning jiddiyligini ochib berdi.

FoMO shkalasi bo'yicha o'rtacha ko'rsatkichlarning yuqoriligi talabalarda ijtimoiy tarmoqlarga qaramlikning shakllanish jarayonida ushbu sindromning markaziy psixologik mexanizm ekanini tasdiqladi. Psixometrik tahlillar (Cronbach Alpha $\alpha=0,83$; KMO=0,79; Bartlett testi $p<0,001$) shkalani ishonchli va valid ekanini ko'rsatdi. Bundan tashqari, FoMO darajasi bilan tashvish (GAD-7), depressiya (PHQ-9) va yolg'izlik (UCLA Loneliness Scale) ko'rsatkichlari o'rtasidagi o'rtacha darajadagi ijobiy korrelyatsiyalar, shuningdek akademik ko'rsatkichlar (GPA) bilan salbiy bog'liqlik aniqlanishi talabalarning psixologik va ta'limiy farovonligiga jiddiy xavf mavjudligini ko'rsatdi.

Ushbu natijalar asosida quyidagi xulosalarga kelindi:

1. FoMO sindromi talabalarda ijtimoiy tarmoqlarga qaramlikni kuchaytiruvchi asosiy omil bo'lib, ruhiy salomatlikka (tashvish, depressiya, yolg'izlik) bevosita ta'sir qiladi.

2. Akademik samaradorlik FoMO darajasi yuqori bo'lgan talabalar orasida sezilarli darajada pasaymoqda.

3. Tadqiqot ijtimoiy tarmoqlarga qaramlikning oldini olishda raqamli gigiyena, psixologik xizmatlar va ta'lim muassasalarida profilaktik dasturlarni joriy etish zarurligini ko'rsatadi.

Shunday qilib, FoMO sindromining talabalarda kuzatilishi ijtimoiy tarmoqlarga qaramlik muammosini yanada chuqurlashtiradi hamda uni bartaraf etish uchun kompleks psixologik va pedagogik yondashuvlarni ishlab chiqish zarur.

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IMPROVING THE PREPARATION OF FUTURE ENGINEERS FOR PROFESSIONAL ACTIVITY BASED ON MEDIA EDUCATIONAL MEANS

Annotation: *This in the article media education of tools the essence of them engineering in education place and future engineers professional to activity in preparation efficiency illuminated. Also, innovative pedagogical technologies, modern information and communication tools, virtual environment and digital from platforms use through education quality increase according to offers working released.*

Key words: *media studies, engineering education, information technologies, professional preparation, virtual lab, digital platforms, simulators.*

Introduction. Today on the day digital technologies intense developed going one under the circumstances engineering education quality increase current to the point became. Future engineers modern technologies, software supply, digital simulations, automated systems and engineering in design effective work can at the level professional to competencies has to be necessary.

Media education from the means use engineering in education new opportunities open gives. In this students theoretical knowledge practice with interactive, interactive methods using their professional skill is developed. Therefore media education engineering in the direction of education in the process good quality of teaching main from the conditions one is considered.

1. Media education of tools essence and importance.

Media education is information and communication technologies, digital platforms, interactive resources and from various multimedia tools using education process effective organization is to reach.

Modern media education teacher and students between two one-sided communication providing, education process technologizes and practical skills in formation important importance profession Especially in engineering in education media education from the means use professional preparation quality in increasing important place holds.

ENGINEERING IN SCIENCES DIGITAL OF TECHNOLOGIES ADVANTAGES

Engineering in education digital from technologies use one row advantages provides:

- **Efficiency** – for students complicated engineering processes visual explanation opportunity.
- **Interactivity** – student and teacher between communication strengthens.

• **Flexibility** – remote education, learning at the pace suitable methods application.

• **Innovative competencies** – digital tools through engineering startups creation, prototyping and automated systems working exit skills develops.

Engineering in education digital technologies application future engineers **professional to activity preparation** in the process important importance profession Digital technologies using students theoretical knowledge strengthened, practical skills takes shape and innovative thoughts It also develops digitally. education environment expansion through international to standards suitable, competitive, high qualified engineers preparation opportunity is created.

Simulators – realistic technological processes in a virtual environment exercise to do opportunity giver programs. These tools using students engineering to the sciences was interest increases, theoretically knowledge deepens and professional skills is strengthened.

Globalization and digital technologies in the century engineering to education The demand is significant. at the level exceed Engineering in the field modern working release processes high accuracy, speed and requires flexibility. Therefore, the future engineer's professional readiness only theoretical knowledge with not limited, but practical skills, independent thinking, technologies analysis to do and application qualifications justification necessary.

this process media education tools important place Media education technologies through students practical skills formation, real production release processes modeling, virtual experiences transfer and remote also effective in the environment education organization to grow opportunity is created.

Technological progress during working release processes increasingly becoming complicated Today 's engineer modern software supply, automated systems, robotics, artificial intellect technologies with work to receive Therefore, engineering in the direction of supreme education in institutions studying students theoretical knowledge with together practical also has skills to be necessary . In this process **media education tools** important place Media education using theory and practice is harmonized, students work in real release to the conditions zoomed in in the environment taught in virtual laboratories experiments conducts simulations through technological processes analysis does.

Future engineers professional to activity in preparation media education of tools place Virtual laboratories, multimedia resources, AR/ VR technologies and simulation systems realistic work for students release processes safe and effective study opportunity gives. Media education using in students independent thinking, technological processes modeling and problems solution skills is formed.

Engineering in education media education technologies application modern engineers preparation the most important from factors They are one. using students not only theoretical knowledge, but practical They also acquire skills. Media education technologies wide on a scale current to do engineering in the field high competent, competitive and innovative thinker experts in preparation big opportunities creates.

Current time technologies development as a result education in the process media education tools and technologies place incomparable at the level increased. Especially in engineering education in the field media education technologies not only theoretical knowledge, but practical skills also effective in shaping tool as service Engineering in the field future experts in preparation modern media education from technologies use their professional competencies develops, creative thinking ability strengthens and problems analysis to do and solution find skills increases .

Digital technologies development, industry automation, artificial intellect and "smart" work release processes wide application engineering education time requirements adaptation necessity This perspective from the perspective **of media education from the means effective use** future engineers professional to activity preparation process further improvement main from directions is one.

Media education based on professional to prepare improvement engineering education quality to improve, modern technologies deep domesticated, practical to skills has and competitive experts to prepare service Media education technologies wide on a scale current to grow through, students professional competencies develops. Modern in the period digital technologies all to sectors deep enter is progressing, including engineering education the system is also except not. Engineering in the direction of studying from students not only theoretical knowledge, maybe practical skills, modern software from supply use qualification and digital competencies are required. Therefore engineering in education digital technologies wide current education, media education from the means effective use and interactive study methods application important importance has.

Engineering in education students many complicated calculations, design works and technological processes absorption need. Traditional education methods this in process enough not. Media education tools following opportunities creates:

- **Virtual laboratories** - students are exposed to real conditions close in the environment experiments transfer to the possibility has For example, electronic schemes assembly or mechanic forces analysis to do.

- **3D modeling and visualization** – complex engineering objects clear imagination to do help CAD, SolidWorks, AutoCAD, etc. programs this the process supports.

- **Simulation technologies** – production release processes, flows management or energy systems in a virtual environment from the test transfer opportunity gives.

- **Multimedia content** – video lessons, animations, interactive graphics through complicated topics easier to understand help gives.

Engineering in education media education technologies application students for theoretical knowledge practical skills with to harmonize opportunity creates. Virtual laboratories, 3D modeling, simulation systems and online study platforms through students future professional to the activity further thorough As a result, modern media education approaches engineering education quality increases, innovative thinking develops and competitive experts to cultivate service does.

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O'ZBEKISTONDA AYOLLAR MEHNATI VA GENDER TENGLIGI: QONUNYIY MEXANIZMLAR VA IJTIMOYIY AHAMIYATI

Annotatsiya: Ushbu maqolada O'zbekiston Respublikasida ayollar mehnati va gender tengligini ta'minlash masalalari tahlil qilinadi. Maqolada gender tengligi kontseptsiyasi va uning xalqaro huquqiy asoslari, shuningdek, O'zbekiston konstitutsiyasi hamda Mehnat kodeksida ayollarning mehnat huquqlarini himoya qiluvchi normalar batafsil yoritilgan. Shuningdek, gender tengligini mustahkamlash bo'yicha amaliy takliflar berilgan. Maqola zamonaviy qonunlar va xalqaro standartlar doirasida O'zbekistonda ayollarning teng huquqli va samarali mehnat faoliyatini ta'minlash zaruriyatini ta'kidlaydi.

Kalit so'zlar: Gender tengligi, strategiyasi, ayollar mehnati, O'zbekiston Respublikasi Konstitutsiyasi, mehnat kodeksi, xalqaro huquqiy normalar, mehnat huquqlari, ijtimoiy himoya, mehnat bozorida ayollar, ish haqi tengligi, mehnat sharoitlari, Davlat siyosati, kamsitishni taqiqlash, ayollar huquqlari, gender stereotiplari, mehnat qonunchiligi.

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WOMEN'S LABOR AND GENDER EQUALITY IN UZBEKISTAN: LEGAL MECHANISMS AND SOCIAL SIGNIFICANCE

Abstract: This article analyzes the issues of women's work and ensuring gender equality in the Republic of Uzbekistan. The article describes in detail the concept of gender equality and its international legal basis, as well as norms protecting women's labor rights in the Constitution of Uzbekistan and the Labor Code. Practical suggestions on strengthening gender equality were also given. The article emphasizes the need to ensure equal rights and effective labor activity of women in Uzbekistan within the framework of modern laws and international standards.

Key words: Gender equality, strategy, women's work, Constitution of the Republic of Uzbekistan, labor code, international legal norms, labor rights, social protection, women in the labor market, wage equality, working conditions, State policy, prohibition of discrimination, women's rights, gender stereotypes, labor legislation.

So'nggi to'rt yilda xotin-qizlar va erkaklar uchun teng huquq hamda imkoniyatlarga erishish, jamiyat va davlat ishlarini boshqarishda ularning teng ishtirok etishini ta'minlash, xotin-qizlarni ijtimoiy-huquqiy jihatdan qo'llab-quvvatlash, shuningdek, xotin-qizlarni tazyiq va zo'ravonliklardan himoya qilishga qaratilgan keng ko'lamli islohotlar amalga oshirilish salmogi tubdan kengaydi. O'zbekiston tarixida ilk marotaba parlamentda xotin-qizlar soni BMT tomonidan belgilangan tavsiyalarga mos darajaga yetib, parlamentdagi xotin-qizlar soni qariyb 32 foizga yetdi va dunyodagi 190 ta parlament orasida 37-o'ringa ko'tarildi. Boshqaruv lavozimidagi xotin-qizlar ulushi 27 foizga, partiyalarda 44 foizga, oliy ta'limda 40 foizga, tadbirkorlikda 35 foizga yetdi. Xotin-qizlarni ijtimoiy-iqtisodiy qo'llab-quvvatlash, ular bilan manzilli ishlash maqsadida "Ayollar daftari" tizimi joriy etilib, Davlat budjetidan har yili 300 mlrd so'm mablag' ajratib borish yo'lga qo'yildi. Ota-onasi yoki ularning biridan ayrilgan muhtoj qizlar, boquvchisi yo'q yolg'iz ayollarning o'qish to'lovlarini qoplab berish tizimi joriy etilib, oliy o'quv yurtlariga qabul qilishda ehtiyojmand oilalar qizlari uchun grantlar soni ikki baravarga ortdi. Ayollar tadbirkorligini rivojlantirish maqsadida 224 mingdan ortiq xotin-qizga jami 6,9 trln so'm miqdorida imtiyozli kredit ajratildi. Sohada olib borilayotgan islohotlar xalqaro reytinglardagi mamlakatimiz o'rniga ijobiy ta'sir ko'rsatib, Jahon bankining Ayollar, biznes va qonun indeksida O'zbekiston 2020-yilda xotin-qizlar huquqlari va gender tenglik bo'yicha ahamiyatga molik islohotlarni amalga oshirgan 27 ta davlat qatoriga kiritildi va 5 pog'onaga yuqorilab, 190 ta davlat orasida 134-o'rinni egalladi va Gender tenglik masalasi davlat siyosati darajasiga ko'tarilib, sohaga oid 25 ta qonunchilik hujjati, shu bilan birga, 2030 Yilga Qadar O'zbekiston Respublikasida Gender Tenglikka Erishish Strategiyasi (O'zbekiston Respublikasi Oliy Majlisi Senatining 2021-yil 28-maydagi SQ-297-IV-sonli Qarori) 3-bob, qabul qilindi. Gender strategiyasining asosiy maqsadi - irqi, millati, tili, dini, ijtimoiy kelib chiqishi, e'tiqodi, shaxsiy va ijtimoiy mavqeidan qat'iy nazar xotin-qizlar va erkaklarning haqiqiy tengligini ta'minlashdan iborat.

Ayollar mehnati va gender tengligi masalalari zamonaviy huquqshunoslik va ijtimoiy nazariyada alohida o'rin tutadi. Inson huquqlari global platformalarida ayollar huquqlarini himoya qilish va gender asosidagi kamsitishlarni yo'qotish muhim vazifa sifatida belgilangan. O'zbekiston Respublikasi Konstitutsiyasining bir qator moddalarida ayollar huquqlari himoyalangan bo'lib, Mehnat kodeksi va boshqa normativ-huquqiy hujjatlarda gender tengligi tamoyillari asosida ayollar mehnatini tartibga solish nazarda tutilgan.

Gender tengligi kontsepsiyasi va xalqaro huquqiy asoslari. Gender tengligi tushunchasi zamonaviy huquqshunoslikda va ijtimoiy fanlarda inson huquqlarining ajralmas qismi sifatida qaraladi. U - erkaklar va ayollar o'rtasidagi huquqiy, ijtimoiy, iqtisodiy va siyosiy imkoniyatlarning tengligi demakdir. Gender tengligi nafaqat kamsitishlarni bartaraf etish, balki barcha fuqarolarning ijtimoiy faolligini ta'minlashga qaratilgan. Xalqaro huquqiy platformalarda gender tengligi masalalari muhim o'rin tutadi. BMTning "Inson huquqlari umumjahon deklaratsiyasi" (1948) hamda "Ayollarning barcha shakldagi kamsitilishlarini yo'qotish to'g'risidagi" (CEDAW, 1979) konventsiyasi bu sohada asosiy hujjatlardir. Masalan, 100-sonli

konventsiya (1979) ish joyida teng maosh tamoyilini belgilaydi. Shuningdek, 111-sonli konventsiya (1958) kamsitishning barcha shakllarini taqiqlaydi. O‘zbekiston Respublikasi esa 1995-yildan boshlab CEDAW konventsiyasini ratifikatsiya qilgan va uning normalarini milliy qonunchiligiga integratsiya qilish jarayonini boshlab yuborgan. Shunday qilib, gender tengligi O‘zbekistonda nafaqat xalqaro standartlarga mos keluvchi huquqiy tushuncha, balki davlat siyosatining muhim tarkibiy qismi hisoblanadi. O‘zbekistonda ayollar mehnatini himoya qiluvchi qonuniy bazalar. O‘zbekiston Respublikasi Konstitutsiyasi – mamlakatning eng oliy qonuniy hujjati sifatida, ayollar mehnati va gender tengligini ta’minlashda asosiy normativ poydevor hisoblanadi. Konstitutsiyaning bir qator moddalari aynan inson huquqlari, xususan, ayollarning ijtimoiy va mehnat huquqlarini kafolatlashga bag‘ishlangan. Konstitutsiyadagi ayollar huquqlarining kafolatlari, modda 18: “Har bir inson, jinsidan qat’i nazar, teng huquqlarga ega.” Bu band davlat tomonidan jinsiy diskriminatsiyani taqiqlash va barcha fuqarolar uchun teng imkoniyatlar yaratishni belgilaydi. Modda 37: “Mehnat erkinligi kafolatlanadi, har kim o‘z ixtiyori bilan mehnat qilish huquqiga ega.” Shu jumladan, ayollarga ham teng shartlarda ishga kirish, ish sharoitlarini yaxshilash, mehnatni muhofaza qilish kafolatlanadi. Modda 41: “Davlat ijtimoiy davlat sifatida, fuqarolarning ijtimoiy himoyasini ta’minlaydi.” Bu mehnat sohasida, ayniqsa, ayollarning ijtimoiy himoyasini ta’minlash uchun huquqiy asos bo‘lib xizmat qiladi. Mehnat kodeksidagi gender tengligi va ayollar mehnati bo‘yicha moddalari. O‘zbekiston Respublikasi Mehnat kodeksi gender tengligini ta’minlashni, ayollarning mehnat huquqlarini muhofaza qilishni aniq tartibga soladi. Modda 9 (Mehnat shartnomasida kamsitishni taqiqlash): Ish beruvchi ayollar yoki erkaklarga jinsiy asosda kamsitish qo‘llash mumkin emas. Modda 94 (Maxsus himoya choralari): Ayollar uchun zararli va og‘ir sharoitlarda ishlash taqiqlanadi, maxsus sog‘liqni saqlash kafolatlari beriladi. Modda 134 (Ta’til berish tartibi): Homilador ayollarga va yosh onalarga maxsus ta’til berish huquqi kafolatlangan. Modda 202 (Maoshdagi tenglik tamoyili): Ayollar va erkaklar uchun teng ish uchun teng maosh belgilash majburiydir.

Amaliy chora-tadbirlar va davlat siyosati: gender tengligini ta’minlash yo‘lidagi qadamlar, O‘zbekiston Respublikasi davlat siyosatida ayollar mehnati va gender tengligini ta’minlash masalalari alohida ahamiyatga ega. So‘nggi yillarda davlat tomonidan gender tengligini mustahkamlashga qaratilgan ko‘plab dastur va tashabbuslar amalga oshirilmoqda.

Xulosa shuki, gender tengligini yanada mustahkamlash uchun qonunlarni ijro etish mexanizmlarini kuchaytirish, huquqiy madaniyatni oshirish, shuningdek, maxsus ijtimoiy dasturlarni joriy etish zarurati mavjud. Natijada, ayollar mehnatiga oid huquqiy normalarni samarali amalga oshirish orqali O‘zbekiston jamiyatining ijtimoiy adolati va barqaror rivojlanishiga katta hissa qo‘shish mumkin. Gender tengligini ta’minlash – milliy taraqqiyotning muhim omili bo‘lib, davlat va jamiyatning doimiy e’tiborini talab qiladi.

Takliflar. Qonunlarning ijrosini kuchaytirish: Gender tengligini ta’minlovchi qonunlarni amalda mustahkamlash uchun nazorat va javobgarlik mexanizmlari

kuchaytirilishi zarur. Ta'lim va madaniyatni rivojlantirish kerakligi: Gender tengligi kontseptsiyasini jamiyatda keng targ'ib qilish, stereotiplarni yo'qotishga qaratilgan ta'lim dasturlarini ishlab chiqish. Ayollar uchun xavfsiz va sog'lom ish joylarini ta'minlash, zararli ishlarni cheklash.

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YANGI TAHRIRDAGI O‘ZBEKISTON RESPUBLIKASI KONSTITUTSIYASI – HUQUQIY MODERNIZATSIYANING FUNDAMENTAL ASOSIY MANBAI SIFATIDA

Annotatsiya: Ushbu maqola yangi tahrirdagi O‘zbekiston Respublikasi Konstitutsiyasining huquqiy modernizatsiya jarayonidagi o‘rni va ahamiyatini ilmiy-tahliliy nuqtai nazardan o‘rganadi. Konstitutsiyaning jamiyat hayotidagi o‘zgarishlarga ta’siri, uning ijtimoiy davlat konsepti va inson huquqlari kafolatlarini mustahkamlashi, shuningdek, sud mustaqilligi va davlat boshqaruvining shaffofligini ta’minlashdagi roli batafsil tahlil qilinadi. Shuningdek, maqolada talaba yoshlarning konstitutsiyaviy ongini shakllantirish, huquqiy madaniyatni yuksaltirish hamda bilimli avlodni yetishtirish orqali demokratik jamiyat barqarorligini mustahkamlash masalalari muhokama qilinadi.

Kalit so‘zlar: O‘zbekiston Respublikasi Konstitutsiyasi, Yangi tahrir, Huquqiy modernizatsiya, Konstitutsiyaviy islohotlar, Huquqiy davlat, Inson huquqlari va erkinliklari, Ijtimoiy davlat, Fuqarolik ong, Talabalar va huquqiy madaniyat, Demokratik jamiyat, Sud mustaqilligi, Davlat boshqaruvi, Huquqiy madaniyat, Fuqarolik faolligi, Konstitutsiyaviy ong.

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"THE NEW CONSTITUTION OF THE REPUBLIC OF UZBEKISTAN AS A FUNDAMENTAL SOURCE OF LEGAL MODERNIZATION"

Abstract: This article examines the role and importance of the new version of the Constitution of the Republic of Uzbekistan in the process of legal modernization from a scientific and analytical point of view. The influence of the constitution on changes in the life of society, its strengthening of the social state concept and guarantees of human rights, as well as its role in ensuring judicial independence and transparency of state administration are analyzed in detail. The article also discusses the issues of forming the constitutional consciousness of students, raising the legal culture, and strengthening the stability of the democratic society by raising an educated generation.

Key words: Constitution of the Republic of Uzbekistan, New edition, Legal modernization, Constitutional reforms, Rule of law, Human rights and freedoms, Social state, Civic consciousness, Students and legal culture, Democratic society,

Yangi davrda davlatni yangicha tafakkur bilan boshqarish, uning bosh qonuni -Konstitutsiyani tubdan qayta ko'rib chiqish zaruratini yuzaga keltirdi. Inson huquqlari va erkinliklarini oliy qadriyat sifatida e'tirof etish, adolat va qonun ustuvorligi tamoyillarini hayotga chuqur singdirish, shuningdek, ochiq fuqarolik jamiyati va ijtimoiy davlat qurish yo'lidagi islohotlar Yangi O'zbekistonning siyosiy konsepsiyasini belgilab bermoqda. Mamlakatimizda 2023-yil 30-aprel kuni o'tkazilgan referendumda ishtirok etgan fuqarolarning 90,21 foizi yangi tahrirdagi Konstitutsiyamizni yoqlab ovoz bergani ham bu fikrni yaqqol tasdiqlaydi, shu bilan bir qatorda, Bosh qomusimizda xalqimizning Yangi O'zbekistonni barpo etish bo'yicha orzu-umidlari va intilishlari o'z aksini topganini ifoda etish bilan ahamiyatli. Yangi tahrirdagi Konstitutsiya 6 bo'lim, 27 bob va 155 ta moddadan iboratdir.

Konstitutsiya - bu shunchaki normativ-huquqiy hujjat emas. U-jamiyat ijtimoiy ongining kodlashgan shakli, xalqning tarixiy xotirasi va kelajakka yo'naltirilgan huquqiy va ma'naviy irodasining jamlanmasidir. O'zbekiston Respublikasining 2023-yilda umumxalq referendumini asosida qabul qilingan yangi tahrirdagi Konstitutsiyasi esa ana shunday suveren irodaning zamonaviy shakldagi ifodasidir.

Ushbu maqolada biz Konstitutsiyaning yangi tahririni ilmiy-nazariy asosda tahlil qilamiz: u qanday huquqiy modernizatsiyani nazarda tutadi, jamiyatda qanday konstitutsiyaviy o'zgarishlarni boshlab berdi va u talabalar, ayniqsa texnik tafakkur egalari uchun qanday ahamiyatga ega? Konstitutsiya davlat va jamiyat o'rtasidagi huquqiy-madaniy bitim bo'lib, uning har bir moddasida xalq suverenitetining qonuniy ifodasi mujassam. Konstitutsiyaning yangi tahriri esa bu bitimni zamon talablari va global me'yorlarga mos holga keltirdi.

Yangi tahrirda:

✓ **“Ijtimoiy davlat” konsepti** birinchi marta muhim normativ tamoyil sifatida mustahkamlandi.

✓ **Insonning sha'ni va qadr-qimmatini oliy ijtimoiy qadriyat** sifatida huquqiy jihatdan mustahkamlab qo'yildi.

✓ **Konstitutsiyaviy shaxs – subyekt sifatida**, ya'ni faol fuqaro modeli sifatida namoyon bo'ldi.

“Konstitutsiya – bu xalq irodasining yuridik shakllanishi, jamiyat ongining yuksak darajadagi kodifikatsiyasidir.” Bu fikr shundan dalolat beradiki, davlat hokimiyatining barcha tarmoqlari (qonun chiqaruvchi, ijro etuvchi va sud) o'z faoliyatida Konstitutsiyadan tashqariga chiqishi mumkin emas. Konstitutsiya, bu ma'noda, huquqiy kompas – yo'nalish beruvchi yadro hujjatidir. Yangi tahrirdagi O'zbekiston Respublikasi Konstitutsiyasi nafaqat milliy qonunchilikning yuqori palatasi, balki mamlakatimizning demokratik modernizatsiya jarayonining huquqiy poydevori sifatida ham namoyon bo'lmoqda. Bu hujjatda jamiyat va davlat munosabatlari yangi nazariy konsepsiyalarga muvofiq qayta shakllantirildi,

shuningdek, inson va fuqarolarning huquqiy kafolatlari kengaytirildi. “Huquqiy modernizatsiya” atamasi konstitutsiyaviy-huquqiy sohada tizimli o‘zgarishlarni anglatadi, bu esa o‘z navbatida demokratik institutlarni rivojlantirish, ijtimoiy adolatni ta’minlash va davlat boshqaruvida shaffoflikni kuchaytirish bilan bog‘liqdir. Yangi tahrirdagi Konstitutsiya mana shu jarayonlarni huquqiy jihatdan asoslab beradi.

Ushbu modernizatsiyaning eng muhim yo‘nalishlari quyidagilar:

➤ **Ijtimoiy davlatning qonuniy asoslari** - davlat tomonidan barcha fuqaro ijtimoiy huquqlarining kafolatlanishi, xususan, ta’lim, sog‘liqni saqlash va ijtimoiy himoya sohalarida.

➤ **Fuqarolarning huquq va erkinliklarini mustahkamlash** - siyosiy, iqtisodiy va madaniy erkinliklar kengaytirilgan.

➤ **Sud mustaqilligi va adolat tizimining takomillashuvi** - sud hokimiyatining konstitutsiyaviy kafolatlari oshirilgan.

➤ **Davlat boshqaruvining ochiqqligi va javobgarligi** - davlat organlari faoliyati qonuniylik va shaffoflik tamoyillari asosida tashkil etiladi.

Yangi tahrirda ko‘rsatilgan ushbu tamoyillar nafaqat huquqiy-mexanik shaklda ifodalangan, balki mamlakat siyosiy madaniyatining tubdan o‘zgarishini, fuqarolarning jamiyat hayotida faolligini yanada oshirishni ko‘zda tutadi. Shuningdek, bularning barchasi mamlakatni jahon hamjamiyatida mustahkam o‘rin egallashiga zamin yaratadi. “Bugungi Konstitutsiya - bu tarixiy tajriba, zamonaviy tafakkur va kelajak strategiyasining yuridik manifestidir.” Shunday qilib, yangi tahrirdagi Konstitutsiya O‘zbekistonni huquqiy demokratik davlat sifatida barqaror rivojlantirishga xizmat qiluvchi asosiy normativ-huquqiy manbaga aylangan. Yangi O‘zbekiston taraqqiyotining eng muhim omillaridan biri - yosh avlodning siyosiy, huquqiy va ijtimoiy ongini yuksaltirishdir. Bu borada oliy ta’lim muassasalari, xususan politexnika institutlari ayniqsa katta mas’uliyatni o‘z zimmasiga oladi. Talaba yoshlarning konstitutsiyaviy bilimlari nafaqat ularning fuqarolik pozitsiyasini shakllantirishga, balki kelajakda davlat boshqaruvida, iqtisodiy va ijtimoiy sohalarda faol yetakchilar bo‘lib yetishishiga asos yaratadi.

Konstitutsiyaviy ong - bu faqat qonun matnini yodlash yoki uning moddasini tushunish emas, balki uni shaxsiy hayotda va jamiyatdagi ijtimoiy munosabatlarda amaliy tarzda qo‘llay olishdir. Shu sababdan, konstitutsiyaviy bilim talabalarda huquqiy madaniyatning ajralmas qismiga aylanishi lozim.

Yangi tahrirdagi Konstitutsiya talabalarga quyidagi imkoniyatlar va mas’uliyatlarni beradi:

➤ **Fuqarolik huquqlari va erkinliklari haqida to‘liq ma’lumot** - bu, o‘z navbatida, fuqarolik faolligini oshiradi.

➤ **Huquqiy himoya va ijtimoiy adolat prinsiplarini chuqur tushunish** - bu yoshlarni jamiyatda mustahkam va adolatli pozitsiya egasi qiladi.

➤ **Jamiyat va davlat boshqaruviga faol ishtirok etish zarurati** - ayniqsa demokratik davlatlarda yoshlarning roli katta.

“Huquqiy madaniyatning yuksakligi - bu faqat qonunni bilish emas, balki uni insoniy qadriyatlar bilan uyg‘unlashtirishdir.” Talabalar yangi Konstitutsiyani

o'rganishda nafaqat o'z shaxsiy manfaatlarini, balki jamiyatlardagi keng ko'lamli ijtimoiy jarayonlarni ham tushunishga intilishi kerak. Bu esa, o'z navbatida, ijtimoiy barqarorlikni mustahkamlashga, qonun ustuvorligini ta'minlashga xizmat qiladi.

Xususan, texnik ta'lim oluvchi talabalar uchun bu huquqiy bilimlar ularning kasbiy faoliyatida ham muhim ahamiyat kasb etadi. Masalan, yangi texnologiyalarni joriy etish, muhandislik yechimlar yaratishda ijtimoiy mas'uliyat, qonuniy me'yorlarga rioya qilish kabi jihatlar konstitutsiyaviy tamoyillar bilan chambarchas bog'liqdir.

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SHAMOL VA QUYOSH ENERGIYASINI BIRGALIKDA QO‘LLASH TEKNOLOGIYALARI

Annotatsiya: Barqaror bo‘lmagan bino va inshootlarni elektr energiyasi bilan ta‘minlash uchun muqobil energiya manbalari sifatida quyosh energiyasi, shamol energetikasi va kichik gidroyenergetika eng mos keladi, muqobil energiyaning qolgan turlari katta miqdordagi elektr energiyasini ishlab chiqarishda eng samarali hisoblanadi.

Kalit so‘zlar: Muqobil energiya, shamol generatori, gelioenergetika, quyosh kollektori, atrof-muhitni muhofaza qilish.

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TECHNOLOGIES FOR COMBINING WIND AND SOLAR ENERGY

Abstract: Data on the costs of electricity production by various alternative energy sources are presented. The main methods of obtaining alternative energy are considered from the point of view of the possibility of using independent buildings and structures as energy sources. Recommendations on the joint use of alternative energy sources are given.

Keywords: Alternative energy, wind turbine, solar energy, solar collector, environmental protection.

Bugungi kunda bu muqobil energiyaning eng keng tarqalgan manbalaridan biri bo‘lib, turli manbalarga ko‘ra uning global elektr energiyasini ishlab chiqarishdagi ulushi 2% ga yetishi mumkin. Yevropa ittifoqining ba‘zi mamlakatlarida shamol generatorlari yordamida ishlab chiqariladigan energiya ulushi 40% dan ortiq.

Mustaqil bino va inshootlarning elektr energiyasi manbai sifatida maishiy ehtiyojlar uchun kam quvvatli (10 kVtgacha) muqobil energiya (elektr, issiqlik va bio - yoki boshqa yoqilg‘i shaklida) olish usullarini ko‘rib chiqishga bag‘ishlangan.

Energiya olishning asosiy alternativ usullari orasida quyidagilarni

ajratib ko'rsatish mumkin:

- shamol energetikasi;
- gelioyenergetika;
- gidroyenergetika;
- bioyenergetika.

Shamol elektr stansiyasi - shamolning kinetik energiyasini elektr energiyasiga aylantirishga asoslangan energiya sanoati [4]. Energiyani konvertatsiya qilish, qoida tariqasida, shamol generatorlarining turli xil konstruksiyalari tomonidan amalga oshiriladi.

Shamol generatorining ishlashining asosiy sharti 3 m/s dan yuqori tezlikda harakatlanadigan havo massalarining mavjudligi, shuning uchun, qoida tariqasida, ularning joylashgan joyi qirg'oq zonalari, tepaliklar, tokchalar (qirg'oq zonasida joylashgan).

Zamonaviy shamol generatorlari balandligi 100 m dan oshishi mumkin va pichoqlarning diametri bir necha o'n metrga yetadi. Nominal ish rejimlarida chiqish quvvati (shamol tezligi 10 m/s) 10 Mvtgacha yetadi.

Dizayn bo'yicha shamol generatorlarini gorizontallik va vertikalga bo'lish mumkin. Ikkinchi tur yanada istiqbolli, chunki u shovqinsizroq va shamol massasi tezligiga nisbatan kamroq talabchan (1 m/s dan), ammo bazi sabablarga ko'ra shamol generatorlarining gorizontallik konstruksiyalari ko'proq tarqalgan. Vertikal shamol generatorlarining ishlash muddati 20 yilgacha bo'lishi mumkin [5].

Shamol generatorlari yordamida olingan elektr energiyasining narxi

an'anaviy energiya yordamida olingan elektr energiyasining narxi 1,5-2 so'm/(kVt*soat) bilan taqqoslanadi..

Shamol generatorlarining kamchiliklari orasida shovqinning nisbatan yuqori darajasi (shamol generatorining rotorini yaqinida 100 db gacha va 300 m masofada 45 db dan oshmasligi kerak), katta tebranish yuklari ham qayd etilishi kerak. Shu sababli, shamol generatorlarini turar-joy binolaridan 300 m dan kam bo'lgan masofada o'rnatish tavsiya etilmaydi.

Shamol energiyasidan foydalanishning yana bir usuli-bu bino va inshootlarni isitish uchun uni issiqlik energiyasiga aylantirish, bu yondashuv bilan shamol generatorining ulanish sxemasi va uni boshqarish ancha soddalashtirilgan hisoblanadi.

Shamol qurilmasining tuzilishi generator, generator joylashgan ustun, pichoqlar, batareyalar, inverterni o'z ichiga oladi.

10 kVtgacha bo'lgan kam quvvatli shamol generatorlari

ko'pincha avtonomdir, ya'ni.energiya tarmoqlariga ulanmagan holda bo'ladi. Bioyenergetika

Bugungi kunda chorvachilik chiqindilarini qayta ishlash orqali elektr energiyasini ishlab chiqarish texnologiyalari allaqachon keng qo'llanilmoqda, Volga mintaqasida, shu jumladan 40 kVt dan 5 mvtgacha bo'lgan qurilmalar mavjud. 1 kubometrning energiya samaradorligi biogaz (55-70 % - CH_4 , 45-30 % - CO_2) 6 kVt / soatgacha bo'lishi mumkin va undan foydalanganda ichki yonish

dvigatelining elektr energiyasini olish uchun energiyaning 45% elektr energiyasi va 55% issiqlik energiyasi shaklida chiqariladi. Biogazning hosildorligi 20 (qoramol go'ngi) dan 600 gacha (pekmez) kamdan-kam hollarda 1 tonna substrat uchun 1300 kubometrni tashkil qiladi [9].

Yana bir yo'nalish – biogazni CO₂ dan tozalash orqali donni qayta ishlash chiqindilaridan tayyor bioyoqilg'ini, masalan, biometanni, mahalliy gazning analogini olish.

Ushbu texnologiyani rivojlantirishning navbatdagi bosqichi maishiy chiqindilarni qayta ishlash bilan bog'liq bo'lib, unda ikkita juda muhim vazifa hal qilinadi, elektr energiyasini olish va maishiy va sanoat chiqindilarini xavfsiz yo'q qilish, ya'ni ekologik vaziyatni yaxshilash [10].

Qoida tariqasida, yuqoridagi qurilmalar 40-100 kVt / s dan ortiq quvvatga ega va ishlab chiqarish asosida yaratilgan bo'lib, ular faoliyati natijasida ko'p miqdordagi energiya tejaydigan biomassa, ya'ni chorvachilik, oziq-ovqat ishlab chiqarish va boshqalardan ajralib chiqadi.

Muqobil energiya olishning deyarli barcha usullarining umumiy muammolari quyidagilardan iborat:

- misol tariqasida, bu tartibga solinmagan energiya manbalari, ya'ni. elektr energiyasini ishlab chiqarish yorug'lik nurlanishining intensivligiga, ob-havo sharoitlariga, mavsumga, atrof-muhit haroratiga, shamol tezligi va yo'nalishiga va boshqalarga bog'liq bo'lib, bu ularning umumiy elektr tarmoqlariga integratsiyasini sezilarli darajada murakkablashtiradi va ishlab chiqarilgan muqobil energiya narxini oshiradi;

- qabul qilingan elektr energiyasini 220 V, 50 Gts sanoat standartiga etkazish zarurati, buning uchun qimmat inverterlar (olingan energiyaning elektr parametrlarini o'zgartirgichlar) ishlatiladi, ularning narxi muqobil energiya olish uchun barcha uskunalarning narxining 50 foizigacha yetishi mumkin, shu bilan birga ularning ishlashi paytida elektr energiyasining katta qismi issiqlik hosil bo'lishiga sarflanadi;

- avtonom tizimlarda o'zgaruvchan energiya ishlab chiqarilmasa, elektr energiyasini to'plash zarurati tufayli akkumulyator batareyalaridan foydalanish zarurati (ularning narxi butun kompleksning umumiy qiymatining 25 foizigacha yetishi mumkin).

Yuqoridagilardan xulosa qilishimiz mumkinki, muqobil energiya olishning universal usuli yo'q. Ularning afzalliklari va kamchiliklarini birlashtirib, bir necha usullardan foydalanish kerak. Kam miqdordagi elektr energiyasini ishlab chiqarish uchun bunday muvaffaqiyatli kombinatsiyaga misol sifatida inverter va batareyalar bilan birgalikda ishlaydigan past quvvatli elektr energiyasi va shamol generatoridan iborat kompleksni keltirish mumkin. Bugungi kunda bunday kompleks ancha yuqori narxga ega, ammo kelajakda qayta tiklanmaydigan energiya manbalari narxining oshishi bilan u an'anaviy energiya manbalariga haqiqiy alternativi bo'lishi mumkin.

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NATURAL BACKGROUND RADIATION AND ITS IMPACT ON HUMAN HEALTH

Annotation. *The effect of radiation on living nature is associated with damage to the living organism and damage to the genetic apparatus. Radiation enters the human body through the consumption of plant and animal products that contain various types of radiation. Radionuclides can accumulate mainly in different parts of the human body - thyroid, liver, bone and muscle tissue.*

Key words: *radionuclide, radiation effect, somatic effects, genetic effects, radioactive element, human organism.*

There are finite difference (deterministic) and stochastic effects. The first occurs when the number of cells that die as a result of radiation, lose their ability to reproduce or function normally, reaches a critical value, and the functions of the affected organs are significantly impaired. Table 2 shows that the function of the affected organs depends on the severity of the disorder and the size of the radiation dose [3].

The effects of radiation on humans are generally divided into two categories. These are:

- 1) Somatic (bodily) - appears in the body of a person exposed to radiation.
- 2) Genetic - is associated with damage to the genetic apparatus, manifested in subsequent generations: these are manifested in the children, grandchildren and more distant descendants of the person exposed to radiation [1,2].

1 Table.

Effects of different doses of radiation on the human body	
Dose (amount of radiation) , Gr	Cause and effect of radiation exposure
$(0.7 - 2) \cdot 10^{-3}$	Annual dose from natural sources
0.05	The maximum permissible dose of occupational radiation per year
0.1	A doubling of the probability of a gene mutation
0.25	A single dose of reasonable risk in an emergency
1.0	A dose that causes acute radiation sickness
3-5	Without treatment, 50% of those affected will die within 1-2 months due to impaired bone marrow cell function.
10 - 50	Death occurs within 1-2 weeks, mainly due to damage to the gastrointestinal tract.
100	Death occurs after a few hours or days due to damage to the central nervous system

The whole population includes not only general healthy working employees, but also all people (children, elderly, etc.) Cosmic of rays intensity of the earth magnet area is also affected does North and southern poles the equator regions than more radiation takes Sea level medium in widths space of rays equivalent dose 4-5 km high space of rays about 10 % organize does Contemporary of airplanes height in flights space radiation the sea from the level one how many ten even high will be (Fig. 1). But, from the sound fast flying on airplanes flight during of speed significant difference because of passenger less to radiation subject [4].

Radionuclides accumulate unevenly in organs. In the process of metabolism in the human body, they exchange atoms of stable elements in various cell structures, biologically active compounds, which leads to high local doses [5-8].

The effect of radiation exposure can manifest itself in a completely different place exposed to radiation. Exceeding the dose of radiation causes the body's immunity to decrease and makes it prone to various diseases. Radiation also increases the likelihood of malignant tumors [9].

Radionuclides enter the body (respiratory and digestive organs), the most strongly irradiated organs, as well as the thyroid gland and liver. The doses absorbed in them are 1-3 times higher than in other organs and tissues. According to the ability to concentrate absorbed decomposition products, the main organs can be placed in the following order [10]:

thyroid > liver > skeleton > muscles

Thus, up to 30% of absorbed decay products, mainly radioisotopes of iodine, accumulate in the thyroid gland.

According to the concentration of radionuclides, the second place after the thyroid gland is the liver. The radiation dose received by this organ mainly depends on ^{99}Mo , ^{132}Te , ^{131}I , ^{132}I , ^{140}Ba , ^{140}La radionuclides [11].

In conclusion, we can say that various radionuclides accumulate in different parts of the human body. Radionuclides accumulate mostly in the thyroid gland, liver, bones and muscles of the human body. Radionuclides enter the body mainly through consumption of irradiated plant and animal products. Changes and swellings appear in different parts of the body under the influence of radiation. Under the influence of this, the immunity of a person decreases, which leads to the appearance of various diseases, including thyroid cancer and breast cancer.

Iodine isotopes deserve special attention among man-made radionuclides. They have high biological activity, are able to actively participate in the biological cycle and move along biological chains, one of whose links can be a person.

In recent years, the processes of interaction of ionizing radiation with tissues of the human body have been studied in detail. As a result, radiation safety standards are being developed that reflect the actual radiation effects in terms of harm to human health.

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NATURAL RADIATION BACKGROUND AS AN ENVIRONMENTAL FACTOR AND ITS IMPACT ON LIVING ORGANISMS

***Annotation.** All living organisms develop under the constant influence of natural radiation, and radiation plays an important role in the vital activity of living organisms. The natural background of radiation (the amount of radiation in nature) is an integral factor of the environment, such as gravity and electromagnetic fields. In addition, the quantitative value of radiation varies significantly in different parts of the world.*

***Keywords:** Natural radiation background, radionuclide, uranium, radon, cosmogenic radionuclides, emanation.*

Galactic space rays interstellar from the environment when passed harvest will be Theirs average age 10^6 - 10^7 year Such long process different from sources coming space of rays to interfere possibility gives, of this as a result radiation isotropic will be Cosmic rays Earth atmosphere enter, own contained light element nuclei and protons land atmosphere the air atoms nuclei with will collide and slows down. As a result primary space rays almost the sea to the level reached doesn't go However, this collisions land to the surface reached going collision from energy come next nuclear changes cascade because of secondary space radiation cause emits [2].

Natural radiation background land on the surface and in the depths, in the atmosphere, all alive of beings in organisms and in plants spread out is radiation space rays under the influence of and land of the shell radionuclides by is created . Natural radiation sources by created of radiation less part space to the rays right will come. Primary and secondary space radiations from each other are different.

Primary space radiation-interstellar from space straight away land atmosphere entering high energetic particles is the flow. Primary space of radiations most of them our in our galaxy star explosions and very new of the stars appear to be on time of matter eruption and radiation as a result appear will be Such galactic space of particles energy the sun flashes as a result appear to be of particles from energy much high will be [1,2,6-9]. Contains according to such of radiation almost 90% - ini protons, about 7 % α - particles, about 1 % neutrons , photons , electrons and light element nuclei organize does [1].

Sea 45 km above sea level space rays basically primary from the rays organize finds 20-25 km high secondary space of rays maximum intensity observed, secondary space rays energy of height decline with decreases and the sea level to a

minimum is enough Tall mountainous regions population of space of rays to the greatest effect subject to will be [3] .

Theirs each in one initial radionuclide and final decay product (usually of lead stable of isotopes one) exists will be Har all three in the family decay from products one gas (from radon isotopes one) is called emanation. Emanation in the air , in the water and in the soil significant amount decay of products to existence take will come . Uranium-radium in the family initial nuclide ^{238}U , final decay product ^{206}Pb and emanation of radon ^{222}Rn isotope belongs.

Cosmic of rays intensity of the earth magnet area is also affected does North and southern poles the equator regions than more radiation takes Sea level medium in widths space of rays equivalent dose 4-5 km high space of rays about 10 % organize does Contemporary of airplanes height in flights space radiation the sea from the level one how many ten even high will be (Fig. 1). But, from the sound fast flying on airplanes flight during of speed significant difference because of passenger less to radiation subject to will be [4].

Earth of the shell radionuclides are both terrestrial and cosmogenic come exit can On the ground face giving natural radionuclides radioactive to families belongs to radionuclides and DI Mendeleev elements periodic of the system medium part of the elements to radionuclides is divided. Everything being in nature three radioactive family available: uranium-radium thorium and actinium [5]. of families each one radionuclides the chain harvest does then it is a nuclide of the previous one decay to the product becomes [6].

Thorium of the family initial nuclear ^{232}Th , final decay product ^{208}Pb and emanation thoron ^{220}Rn isotope belongs to will be Actinium of the family initial nuclear ^{235}U , final decay product ^{207}Pb and emanation action ^{219}Rn isotope belongs to will be Radon is his radioactive decay products with together population by land over radiation from sources removable annual individual equivalent radiation of the dose to about $\frac{3}{4}$ and all natural radiation from sources received dose by half right will come . Radon radioactive effect its α -radioactivity and radioactive volatile didn't happen decay products - Po, Bi and Pb with depends they are very difficulty with from the body is issued. breath get for biological dangerous isotope ^{218}Po is his decay product α - active isotopes and decay last product is lead [7].

But medicine and bolneology (bolneology this of cardiology one department of mineral waters come exit and physicist chemical properties , patients treatment and prevention in order to external and internal in use apply methods , of them to use medical instructions teaches), nerve and heart blood vein systems , breathing get and food digestion to do bodies , support movement system , gynecological diseases and metabolic diseases in the treatment of radon air , radon water and mud baths as well the air inhalation and emanation radon is wide in form used [8].

DI Mendeleev elements periodic of the system medium such as: ^{40}K , ^{48}Ca , ^{87}Rb , ^{96}Zr , ^{115}In , ^{138}La , ^{142}Ce , ^{144}Nd , ^{149}Nd , ^{147}Sm , ^{176}Lu radionuclides on our planet happen has been primary radiations harvest 12 elements that do own into takes [9].

Cosmogenic radionuclides basically space of radiation the atmosphere

organize doer atoms nuclei with mutually effect as a result harvest will be Cosmogenic of radionuclides small one part space of radiation of the earth on the surface located atomic nuclei with mutually under the influence of harvest will be In general in fact , cosmogenic radionuclides emits radiation natural radiation sources to radiations irrelevant contribution they add On the ground background radiation level basically two radioactive family: earth of the shell natural radionuclides ^{40}K , ^{97}Rb and uranium-radium-thorium at the expense of is formed . of these elements concentration different in places changed stands and therefore for on the ground background radiation the level also changes. This is the population point sands rich in thorium on located in Iran radium- rich springs flowing Ramser city in the area 400 mSv per year until radiation level note done [10].

Summary by doing in other words , radiation in nature occurring different radioactive of the elements harvest to be radiations and space rays under the influence of harvest will be Radiation everyone in the place in air , water , soil and in the mountains there is will be Radiation of the earth different in places differently will be , so places there is radiation very high will be Cosmic rays under the influence of radiation harvest to be to the equator relatively at the poles stronger will be , that is space rays to the equator relatively to the poles more falls However natural of radiation space rays in effect harvest to be not worth it part organize.

On the ground so places they have of the earth radiation level background from radiation much high will be Such from places one of Brazil Pocos de Caldas city nearby is located is there radiation level average 800 barabar from the indicator high and 250 mSv per year to enough.

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TO‘LQIN ENERGIYASINI QAYTA TIKLANUVCHI ENERGIYA MANBALARI BILAN KOMBINATSIYADA QO‘LLASH ISTIQBOLLARI

Annotatsiya: *Turli xil muqobil energiya manbalari tomonidan elektr energiyasini ishlab chiqarish xarajatlari to'g'risidagi ma'lumotlar keltirilgan. Muqobil energiya manbalarini almashish bo'yicha tavsiyalar berilgan. Muqobil energiya olishning asosiy usullari energiya manbalari sifatida mustaqil bino va inshootlardan foydalanish imkoniyati nuqtai nazaridan ko'rib chiqiladi.*

Kalit so'zlar: *Muqobil energiya, shamol generatori, gelioenergetika, quyosh kollektori, atrof-muhitni muhofaza qilish.*

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PROSPECTS FOR THE APPLICATION OF WAVE ENERGY IN COMBINATION WITH RENEWABLE ENERGY SOURCES

Abstract: *Data on the costs of electricity production by various alternative energy sources are presented. The main methods of obtaining alternative energy are considered from the point of view of the possibility of using independent buildings and structures as energy sources. Recommendations on the joint use of alternative energy sources are given.*

Keywords: *Alternative energy, wind turbine, solar energy, solar collector, environmental protection.*

To‘lqin energiyasidan foydalanuvchi gidroyelektr stansiyalar bugungi kunda eng ko‘p tarqalgan, to‘lqin balandligi 13 metrgacha bo‘lishi mumkin bo‘lgan katta to‘lqin mavjud bo‘lgan joylarda qurilmoqda. Suv toshqini energiyasidan to‘g‘onlar o‘rnatish orqali foydalanish mumkin, bu ekologik jihatdan juda xavfsiz emas, shuningdek, to‘g‘onlarni ishlatmasdan dengiz tubidagi suv oqimlari bo‘lgan joylarda past tezlikli turbinalarni o‘rnatish orqali foydalanish mumkin. Bunday turbinalar dengiz florasi va faunasiga deyarli zarar etkazmaydi. Bugungi kunda suv toshqini elektr stansiyalarining quvvati bir necha yuz Mvtgacha bo‘lishi mumkin.

To‘lqin energiyasidan foydalanish biroz murakkabroq va qimmatroq elektr

energiyasini olish imkonini beradi. To‘lqinli gidroyelektrostansiya-bu dengiz tubiga birlashtirilgan stasionar platforma bo‘lib, unga diametri bir necha metr gacha bo‘lgan katta suzgichlar qo‘llarga (shpallarga) o‘rnatiladi, ular dengiz to‘lqinlarida yuqoriga va pastga siljiydi, gidravlik silindrlar orqali elektr energiyasini ishlab chiqaruvchi generatorlarni boshqaradi. Bugungi kunda shu tarzda ishlab chiqarilgan elektr energiyasining nisbatan kichik miqdoriga qaramay, ushbu turdagi qayta tiklanadigan energiya manbalarining umumiy energiya potentsiali deyarli cheksizdir.

Mini va mikroGES daryolar, kichik daryolar, sharsharalardagi suv massalarining kinetik energiyasidan foydalangan holda o‘z miqdorda, bir necha o‘nlab kVtgacha elektr energiyasini ishlab chiqarishga imkon beradi. Balandlik farqi 1,3 m dan va suv sarfi 1 m³/s mikroGES girdob prinsipiga ko‘ra 10 kVt / soatgacha elektr energiyasini olish imkonini beradi. Ular suv massalarining kinetik energiyasidan maksimal darajada foydalanishga imkon beradigan maxsus shakldagi pervanelli generatorlardan iborat [7].

Kichik gidroyenergetikaning asosiy afzalligi shundaki, u ob-havo sharoitlariga bog‘liq emas va yilning istalgan vaqtida elektroyenergetika ishlab chiqarishni barqaror ravishda ta‘minlaydi [8].

Ushbu turdagi muqobil energiya kamchiliklari sayyoramizning aylanish tezligiga ta‘sir qiladi, hisob-kitoblarga ko‘ra, bu ta‘sir sayyoramizning aylanish davri sekinlashishi bilan taxminan 10⁻⁹ ni tashkil qiladi, bu to‘lqin oqimlari ta‘siridan 5 daraja past.

Bugungi kunda chorvachilik chiqindilarini qayta ishlash orqali elektr energiyasini ishlab chiqarish texnologiyalari allaqachon keng qo‘llanilmoqda, Volga mintaqasida, shu jumladan 40 kVt dan 5 mvtgacha bo‘lgan qurilmalar mavjud. 1 kubometrning energiya samaradorligi biogaz (55-70 % - CH₄, 45-30 % - CO₂) 6 kVt / soatgacha bo‘lishi mumkin va undan foydalanganda ichki yonish dvigatelining elektr energiyasini olish uchun energiya 45% elektr energiyasi va 55% issiqlik energiyasi shaklida chiqariladi. Biogazning hosildorligi 20 (qoramol go‘ngi) dan 600 gacha (pekmez) kamdan-kam hollarda 1 tonna substrat uchun 1300 kubometrni tashkil qiladi [9].

Yana bir yo‘nalish – biogazni CO₂ dan tozalash orqali donni qayta ishlash chiqindilaridan tayyor bioyoqilg‘ini, masalan, biometanni, mahalliy gazning analogini olish.

Ushbu texnologiyani rivojlantirishning navbatdagi bosqichi maishiy chiqindilarni qayta ishlash bilan bog‘liq bo‘lib, unda ikkita juda muhim vazifa hal qilinadi, elektr energiyasini olish va maishiy va sanoat chiqindilarini xavfsiz yo‘q qilish, ya‘ni ekologik vaziyatni yaxshilash [10].

Qoida tariqasida, yuqoridagi qurilmalar 40-100 kVt / s dan ortiq quvvatga ega va ishlab chiqarish asosida yaratilgan bo‘lib, ular faoliyati natijasida ko‘p miqdordagi energiya tejaydigan biomassa, ya‘ni chorvachilik, oziq-ovqat ishlab chiqarish va boshqalardan ajralib chiqadi.

Muqobil energiya olishning deyarli barcha usullarining umumiy muammolari quyidagilardan iborat:

- misol tariqasida, bu tartibga solinmagan energiya manbalari, ya'ni. elektr energiyasini ishlab chiqarish yorug'lik nurlanishining intensivligiga, ob-havo sharoitlariga, mavsumga, atrof-muhit haroratiga, shamol tezligi va yo'nalishiga va boshqalarga bog'liq bo'lib, bu ularning umumiy elektr tarmoqlariga integratsiyasini sezilarli darajada murakkablashtiradi va ishlab chiqarilgan muqobil energiya narxini oshiradi;

- qabul qilingan elektr energiyasini 220 V, 50 Gts sanoat standartiga etkazish zarurati, buning uchun qimmat inverterlar (olingan energiya uchun elektr parametrlarini o'zgartirgichlar) ishlatiladi, ularning narxi muqobil energiya olish uchun barcha uskunalarning narxining 50 foizigacha yetishi mumkin, shu bilan birga ularning ishlashi paytida elektr energiyasining katta qismi issiqlik hosil bo'lishiga sarflanadi;

-avtonom tizimlarda o'zgaruvchan energiya ishlab chiqarilmasa, elektr energiyasini to'plash zarurati tufayli akkumulyator batareyalaridan foydalanish zarurati (ularning narxi butun kompleksning umumiy qiymatining 25 foizigacha yetishi mumkin).

Yuqoridagilardan xulosa qilishimiz mumkinki, muqobil energiya olishning universal usuli yo'q. Ularning afzalliklari va kamchiliklarini birlashtirib, bir necha usullardan foydalanish kerak. Kam miqdordagi elektr energiyasini ishlab chiqarish uchun bunday muvaffaqiyatli kombinatsiyaga misol sifatida inverter va batareyalar bilan birgalikda ishlaydigan past quvvatli elektr energiyasi va shamol generatoridan iborat kompleksni keltirish mumkin. Bugungi kunda bunday kompleks ancha yuqori narxga ega, ammo kelajakda qayta tiklanmaydigan energiya manbalari narxining oshishi bilan u an'anaviy energiya manbalariga haqiqiy alternativi bo'lishi mumkin. Barqaror bo'lmagan bino va inshootlarni elektr energiyasi bilan ta'minlash uchun muqobil energiya manbalari sifatida quyosh energiyasi, shamol energetikasi va kichik gidroyenergetika eng mos keladi, muqobil energiya qolgan turlari katta miqdordagi elektr energiyasini ishlab chiqarishda eng samarali hisoblanadi.

Shamol generatorining ishlashining asosiy sharti 3 m/s dan yuqori tezlikda harakatlanadigan havo massalarining mavjudligi, shuning uchun, qoida tariqasida, ularning joylashgan joyi qirg'oq zonalar, tepaliklar, tokchalar (qirg'oq zonasida joylashgan).

Zamonaviy shamol generatorlari balandligi 100 m dan oshishi mumkin va pichoqlarning diametri bir necha o'n metr ga yetadi. Nominal ish rejimlarida chiqish quvvati (shamol tezligi 10 m/s) 10 Mvtgacha yetadi.

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QAYTA TIKLANUVCHI ENERGIYA MANBALARINING SANOATDA QO‘LLANISHIDA IQTISODIY SAMARADORLIK TAHLILI

Annotatsiya: *Muqobil energiya olishning asosiy usullari energiya manbalari sifatida mustaqil bino va inshootlardan foydalanish imkoniyati nuqtai nazaridan ko'rib chiqiladi. Turli xil muqobil energiya manbalari tomonidan elektr energiyasini ishlab chiqarish xarajatlari to'g'risidagi ma'lumotlar keltirilgan. Muqobil energiya manbalarini almashish bo'yicha tavsiyalar berilgan.*

Kalit so'zlar: *Muqobil energiya, shamol generatori, gelioenergetika, quyosh kollektori, atrof-muhitni muhofaza qilish.*

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ECONOMIC EFFICIENCY ANALYSIS OF THE USE OF RENEWABLE ENERGY SOURCES IN INDUSTRY

Abstract: *The main methods of obtaining alternative energy are considered from the point of view of the possibility of using independent buildings and structures as energy sources. Data on the costs of electricity production by various alternative energy sources are presented. Recommendations on the joint use of alternative energy sources are given.*

Keywords: *Alternative energy, wind turbine, solar energy, solar collector, environmental protection.*

Elektr energiyasiga bo‘lgan talab kundan-kunga ortib bormoqda. Shu bilan bir qatorda elektr energiyasini uzatish, taqsimlash va ishlatish jarayonlaridagi energiya yuqotishlarni hisobga olish va uni kamaytirish borasida tinimsiz ilmiy va amaliy ishlar olib borilmoqda. Bu borada energiya iste’moli juda katta bo‘lgan har bir ishlab chiqarish korxonalarida reaktiv quvvatlarni kompensatsiyalovchi qurilmalar o‘rnatish zarurligini hukumatimiz tomonidan nazoratga olinganligi katta iqtisodiy samara beradi[1, 2, 3].

Ushbu ish mustaqil bino va inshootlarning elektr energiyasi manbai sifatida maishiy ehtiyojlar uchun kam quvvatli (10 kVtgacha) muqobil energiya (elektr,

issiqlik va bio - yoki boshqa yoqilg'i shaklida) olish usullarini ko'rib chiqishga bag'ishlangan.

Energiya olishning asosiy alternativ usullari orasida quyidagilarni ajratib ko'rsatish mumkin:

- shamol energetikasi;
- gelioyenergetika;
- gidroyenergetika;
- bioyenergetika.

Shamol energetikasi - shamolning kinetik energiyasini elektr energiyasiga aylantirishga asoslangan energiya sanoati [4]. Energiyani konvertatsiya qilish, qoida tariqasida, shamol generatorlarining turli xil konstruksiyalari tomonidan amalga oshiriladi. Bugungi kunda bu muqobil energiya uchun eng keng tarqalgan manbalaridan biri bo'lib, turli manbalarga ko'ra uning global elektr energiyasini ishlab chiqarishdagi ulushi 2% ga yetishi mumkin. Yevropa ittifoqining ba'zi mamlakatlarida shamol generatorlari yordamida ishlab chiqariladigan energiya ulushi 40% dan ortiq.

Shamol generatorining ishlashining asosiy sharti 3 m/s dan yuqori tezlikda harakatlanadigan havo massalarining mavjudligi, shuning uchun, qoida tariqasida, ularning joylashgan joyi qirg'oq zonalar, tepaliklar, tokchalar (qirg'oq zonasida joylashgan).

Zamonaviy shamol generatorlari balandligi 100 m dan oshishi mumkin va pichoqlarning diametri bir necha o'n metr ga yetadi. Nominal ish rejimlarida chiqish quvvati (shamol tezligi 10 m/s) 10 Mvtgacha yetadi.

Dizayn bo'yicha shamol generatorlarini gorizont va vertikalga bo'lish mumkin. Ikkinchi tur yanada istiqbolli, chunki ushuvqinsizroq va shamol massasi tezligiga nisbatan kamroq talabchan (1m/s dan), ammo bazi sabablarga ko'ra shamol generatorlarining gorizont konstruksiyalari ko'proq tarqalgan. Vertikal shamol generatorlarining ishlash muddati 20 yilgacha bo'lishi mumkin [5].

Shamol generatorlari yordamida olingan elektr energiyasining narxi an'anaviy energiya yordamida olingan elektr energiyasining narxi 1,5-2 so'm/(kVt*soat) bilan taqqoslanadi..

Shamol generatorlarining kamchiliklari orasida shovqinning nisbatan yuqori darajasi (shamol generatorining rotor yaqinida 100 db gacha va 300 m masofada 45 db dan oshmasligi kerak), katta tebranish yuklari ham qayd etilishi kerak. Shu sababli, shamol generatorlarini turar-joy binolaridan 300 m dan kam bo'lgan masofada o'rnatish tavsiya etilmaydi.

Shamol energiyasidan foydalanishning yana bir usuli-bu bino va inshootlarni isitish uchun uni issiqlik energiyasiga aylantirish, bu yondashuv bilan shamol generatorining ulanish sxemasi va uni boshqarish ancha soddalashtirilgan hisoblanadi.

Shamol qurilmasining tuzilishi generator, generator joylashgan ustun, pichoqlar, batareyalar, inverterni o'z ichiga oladi.

Gidroyenergetika energiya ishlab chiqarish uchun harakatlanuvchi suv massalarining kinetik energiyasidan (to'lqinlar, oqim to'lqinlari, sharsharalar,

okean, issiqlik energiyasidan foydalanish) foydalanadi. An'anaviy ravishda muqobil gidroyenergetikani to'liq va to'liqlik elektr stansiyalari, mini - va mikro GES, sharshara elektr stansiyalariga bo'lish mumkin.

To'liq energiyasidan foydalanuvchi gidroyelektr stansiyalar bugungi kunda eng ko'p tarqalgan, to'liq balandligi 13 metrgacha bo'lishi mumkin bo'lgan katta to'liq mavjud bo'lgan joylarda qurilmoqda. Suv toshqini energiyasidan to'g'onlar o'rnatish orqali foydalanish mumkin, bu ekologik jihatdan juda xavfsiz emas, shuningdek, to'g'onlarni ishlatmasdan dengiz tubidagi suv oqimlari bo'lgan joylarda past tezlikli turbinalarni o'rnatish orqali foydalanish mumkin. Bunday turbinalar dengiz florasi va faunasiga deyarli zarar etkazmaydi. Bugungi kunda suv toshqini elektr stansiyalarining quvvati bir necha yuz Mvtgacha bo'lishi mumkin.

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To'liq energiyasidan foydalanish biroz murakkabroq va qimmatroq elektr energiyasini olish imkonini beradi. To'liqlik gidroyelektrostansiya-bu dengiz tubiga birlashtirilgan stasionar platforma bo'lib, unga diametri bir necha metrgacha bo'lgan katta suzgichlar qo'llarga (shpallarga) o'rnatiladi, ular dengiz to'liqlarida yuqoriga va pastga siljiydi, gidravlik silindrlar orqali elektr energiyasini ishlab chiqaruvchi generatorlarni boshqaradi. Bugungi kunda shu tarzda ishlab chiqarilgan elektr energiyasining nisbatan kichik miqdoriga qaramay, ushbu turdagi qayta tiklanadigan energiya manbalarining umumiy energiya potentsiali deyarli cheksizdir.

Mini va mikroGES daryolar, kichik daryolar, sharsharalardagi suv massalarining kinetik energiyasidan foydalangan holda o'z miqdorda, bir necha o'nlab kVtgacha elektr energiyasini ishlab chiqarishga imkon beradi. Balandlik farqi 1,3 m dan va suv sarfi 1 m³/s mikroGES girdob prinsipiga ko'ra 10 kVt / soatgacha elektr energiyasini olish imkonini beradi. Ular suv massalarining kinetik energiyasidan maksimal darajada foydalanishga imkon beradigan maxsus shakldagi pervanelli generatorlardan iborat [7].

Kichik gidroyenergetikaning asosiy afzalligi shundaki, u ob-havo sharoitlariga bog'liq emas va yilning istalgan vaqtida elektroyenergetika ishlab chiqarishni barqaror ravishda ta'minlaydi [8].

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SOCIAL AND ECONOMIC DEVELOPMENT TRENDS OF TASHKENT REGION

Abstract: *This article provides a systematic analysis of the processes of social-economic development in Tashkent region. The study highlights the growth of industrial production, the increase in the number of small business entities, the expansion of export potential, the development of social infrastructure, and positive demographic changes as the main objects of research. The analysis reveals that the diversification of the regional economy and the improvement of the investment climate contribute to regional stability. At the same time, the study identifies certain problems such as disparities in the levels of development among districts, bureaucratic barriers, and inefficiencies in resource utilization. Using statistical data, official sources, and modern analytical approaches, the research presents a comprehensive assessment of regional development dynamics.*

Key words: *Tashkent region, social-economic development, industry, small business, exports, investment, demography, infrastructure, services sector, agriculture, stability, economic growth, regional disparities.*

Introduction.

Tashkent region is one of the leading regions in the economy of Uzbekistan, demonstrating stable growth in both social and economic spheres. As of June 2024, the population of the region reached 3.08 million, which shows a significant increase compared to the previous year. Statistical analyses across different sectors of economic activity also confirm notable growth. In the first half of 2024, the Gross Regional Product (GRP) amounted to 58.1 trillion soums, reflecting a 7.4% increase compared to the same period in 2023. Industrial output reached 59.9 trillion soums with 7.1% growth, while construction, agriculture, and services reported growth rates of 113.1%, 104.1%, and 113.1% respectively. These trends indicate strengthened inter sectoral diversification within the region.

Demographic changes also enrich the picture of social development. The birth rate stands at 24.8‰, the mortality rate at 5.0‰, and natural growth at 19.8‰, highlighting the predominance of a young and economically active population structure. Such demographics contribute to the expansion of the labor force base.

On the national scale, the role of the region is significant: Uzbekistan's overall GDP growth in 2024 was 6.5%, showing that the region's economy positively contributes to national indicators. For 2025–2027, several development trajectories are projected. Firstly, capital

inflows within infrastructure and investment projects are expected to increase, potentially boosting GRP growth by around 8%. Secondly, digital economy integration is anticipated. Initiatives such as the Digital Inclusion Projects launched by the World Bank and IT Park Uzbekistan are expected to create up to 25,000 IT-sector jobs in the region, with at least 50% allocated to women. These dynamics create opportunities for workforce skill development and attracting foreign investment.

The article further provides statistical analysis of these trends, emphasizing the interconnection between economic health, demographic changes, infrastructure projects, digital transformation, and social stability in the region.

Literature Review

The analysis of scientific and practical literature on the social-economic development of Tashkent region provides a basis for assessing the region's economic situation in a regional and macroeconomic context. Literature highlights determinant factors of regional development such as infrastructure potential, industrial production, foreign investment flows, and human capital indicators.

Economist A. Akhmedov emphasizes in his study on regional economic growth that the share of industry in Tashkent region's GDP is higher compared to other regions. According to him, industrial sectors in the region are integrated with both domestic and external market-oriented production centers.

The World Bank's 2023 "Uzbekistan Country Economic Update" report identifies the role of small and medium-sized businesses as a key factor in the economy of Tashkent region. In 2022, the share of small businesses in the region's total industrial production amounted to 49.3%.

Reports of the Center for Economic Research and Reforms highlight the distribution of investments, noting that Tashkent region attracted 18–21% of all direct foreign investments in Uzbekistan during 2020–2023. According to statistical data, in the first quarter of 2024 the GRP of the region amounted to 21.4 trillion soums, a 6.9% increase compared to the previous year. The main drivers of this growth were an 8.3% rise in industrial output, the launch of new production capacities, and rapid growth in the services sector.

Demographic changes are also an important factor. In particular, the UN's population projections for Uzbekistan estimate that by 2030 the population of Tashkent region will reach 3.4 million, which will increase economic activity and demand for infrastructure.

Studies in the digital economy field evaluate Tashkent region as a central hub for the IT sector. According to IT Park Uzbekistan, by 2025 more than 500 IT companies will operate in the region, creating nearly 25,000 new jobs. Environmental stability and rational use of resources are also noted in the literature. Challenges such as industrial location, and imbalances in water and energy consumption are considered problematic, demonstrating the necessity of accounting for ecological factors in regional development policies.

Thus, literature shows that the social-economic development of Tashkent region is a complex, multi-factor process interconnected with industry, services,

demographic trends, and modern technologies. A deeper study of these processes provides opportunities to develop more accurate forecasts for the region's future economic development.

DISCUSSION AND RESULTS

Between 2020 and 2024, Tashkent region demonstrated stable social-economic development. Increases in gross output, industrial and service production volumes confirm the growing economic potential of the region. Population growth has expanded labor resources, thereby increasing demand for services and social infrastructure.

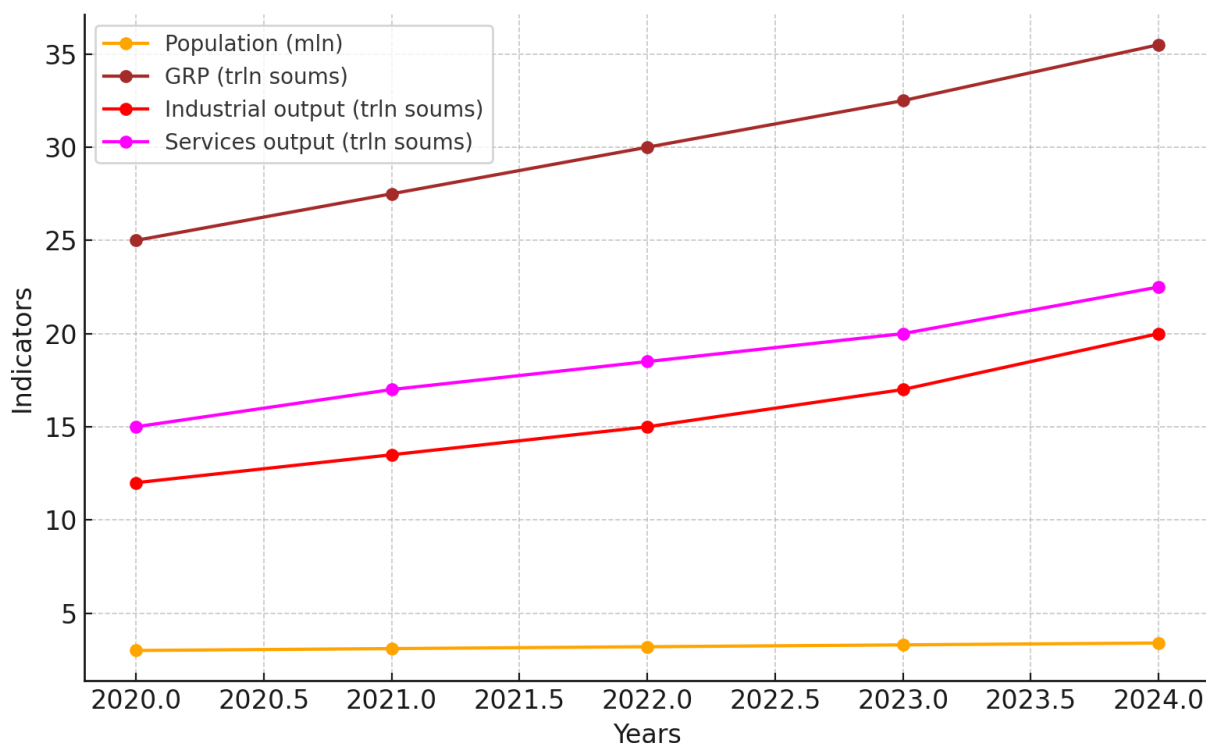


Figure 1. Social-economic indicators of Tashkent region (2020-2024)

According to specialists, as of April 1, 2021, the Office of the Prime Minister of Uzbekistan for reviewing entrepreneurs' appeals received a total of 1,195 applications from Tashkent region. Many entrepreneurs' appeals were related to bureaucratic barriers and delays, which led to repeated complaints.

Table 1

The indicators for 2024 are based on specific statistical facts based on available data

Indicators	2021	2022	2023	2024	2025 (Forecast)
Population (mln)	2.95	3.00	3.04	3.08	3.12
GRP (trillion soums)	43.1	47.5	52.8	58.1	63.4
GRP growth (%)	+6.4%	+6.6%	+6.8%	+7.4%	+7.9%
Industrial output (trillion soums)	32.3	36.8	42.7	48.1	53.6
Agriculture output (trillion soums)	27.6	30.1	35.0	41.2	45.7
Foreign trade turnover (mln \$)	982	1,100	1,247	1,390	1,580
Export volume (mln \$)	156	211	265	318	375
New enterprises (thousand)	7.1	7.8	8.5	9.1	9.8
Investments (trillion soums)	11.2	13.9	16.5	18.8	21.4
Unemployment rate (%)	9.5%	9.1%	8.6%	8.1%	7.5%

The forecast values for 2025 are based on data from the World Bank, the Center for Economic Research, the Statistical Agency, and IT Park Uzbekistan. In 2021–2023, Tashkent region achieved a significant expansion of its industrial base. This pace is expected to continue in 2024–2025, with the digital economy, agriculture, and export-oriented manufacturing becoming the main drivers. The share of digital services is expected to increase annually and account for 6% of GDP by 2025. In the face of demographic pressure, the rate of new job creation has averaged around 25-30 thousand per year since 2021, which is helping to consistently reduce the unemployment rate.

TABLE 2

Growth Rates of Gross Regional Product (GRP) per Capital

Regions	2010	2015	2020	2021	2022	2023	2024
Republic of Uzbekistan	104.1	105.4	99.6	105.9	103.8	104.1	104.4
Republic of Karakalpakstan	110.3	108.8	100.2	104.8	102.4	100.4	104.9
Andijan region	105.6	101.5	100.2	103.4	106.6	102.7	104.4
Bukhara region	106.9	106.7	100.7	105.1	103.6	102.9	104.8
Jizzakh region	105.9	106.2	101.3	106.7	102.2	104.0	103.1
Kashkadarya region	100.0	104.2	99.9	105.7	104.5	103.1	104.2
Navoi region	101.8	102.3	104.2	105.6	104.2	104.6	105.8
Namangan region	106.4	105.6	102.5	108.0	106.1	104.4	105.3
Samarkand region	107.1	106.3	98.9	108.1	104.2	104.1	104.6
Surkhandarya region	107.3	104.9	100.6	107.0	101.8	102.6	103.4
Syrdarya region	106.5	105.3	99.0	107.4	103.5	103.5	102.6
Tashkent region	106.9	104.6	101.1	112.3	104.3	104.0	104.7
Fergana region	103.2	105.4	102.9	106.7	104.0	103.5	104.6
Khorezm region	104.2	107.0	98.0	109.4	105.3	102.9	104.4
Tashkent city	109.6	108.3	97.6	109.7	105.3	105.7	107.6

The table shows that among all regions, the growth rate in Tashkent region declined until 2020, rose sharply in 2021, and then decreased slightly again in subsequent years. This was influenced by the Covid-19 pandemic in 2020, government support policies, as well as the increase in industrial production and export volumes.

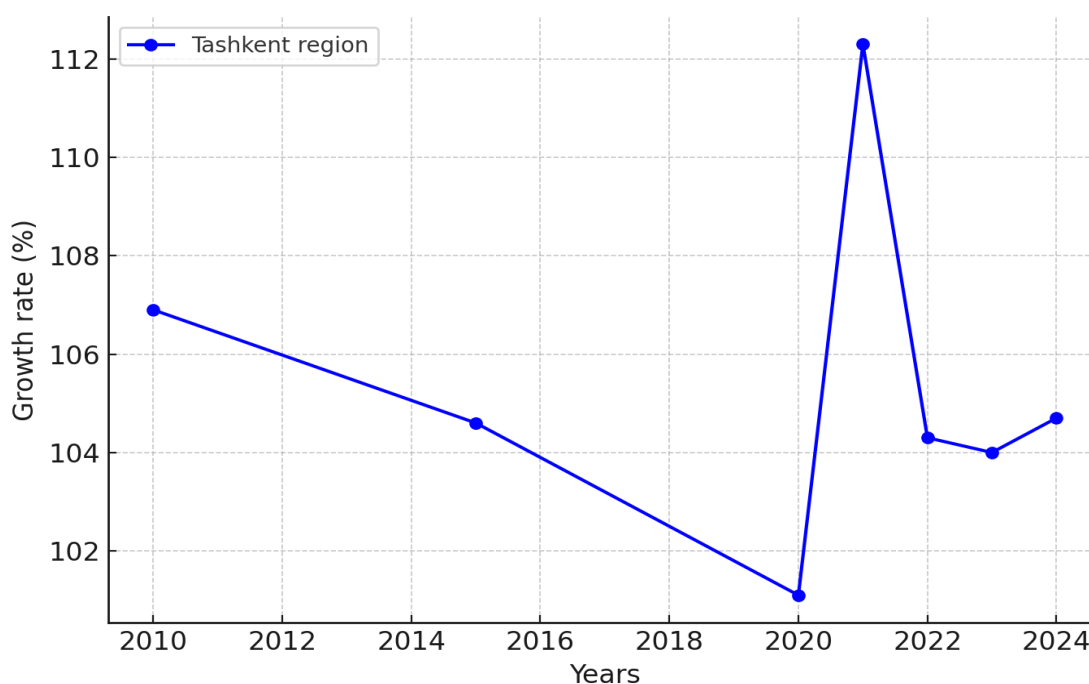


FIGURE 2. GRP PER CAPITA GROWTH RATE IN TASHKENT REGION (2010–2024)

Due to the Covid-19 pandemic, economic activity declined in 2020: production, foreign trade, services, and investment flows decreased. Therefore, GRP growth rates fell in almost all regions in 2020 (in Tashkent region, it dropped to 101.1%). By 2021, this indicator rose again, showing a sharp 'jump' in statistical terms. In recent years, however, the indicator has remained relatively stable.

CONCLUSION

The study concludes that Tashkent region, as one of the leading economic territories of Uzbekistan, is consistently pursuing a path of growth and modernization. Between 2021 and 2025, the main directions of social-economic development in the region include the expansion of industrial production, modernization of agriculture, diversification of the services sector, formation of the digital economy, and growth of external trade potential.

The integration of digital technologies, especially through IT Park and digital services, has redirected the region's economy toward new vectors. By 2025, the share of digital services in GRP is expected to reach 6%, with 25,000–30,000 new jobs created in the IT sector.

Ecological stability, rational use of resources, and infrastructural disparities remain crucial policy priorities. Despite differences in economic growth rates across districts, strategic programs are aimed at reducing these imbalances.

Overall, during 2021–2025, Tashkent region has positioned itself as a priority area of regional economic development, and this dynamic is expected to continue on a more stable and innovative basis in the coming years.

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THE IMPORTANCE OF THE AUDIT SERVICE IN ENSURING OCCUPATIONAL SAFETY

Annotation: This article analyzes the role of auditing services in shaping the culture of occupational safety at industrial enterprises. Through internal and external audit mechanisms, industrial risks are identified, the effectiveness of existing safety systems is evaluated, and recommendations for their improvement are developed. Auditing services play an important role not only as a control tool but also as a means of prevention and strategic planning.

Keywords: occupational safety, industrial audit, risk analysis, technical inspection, audit, labor protection.

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MEHNAT XAVFSIZLIGINI TA’MINLASHDA AUDITORLIK XIZMATINING AHAMIYATI

Annotatsiya Ushbu maqolada ishlab chiqarish korxonalarida mehnat xavfsizligi madaniyatini shakllantirishda auditorlik xizmatlarining tutgan o‘rni tahlil qilinadi. Ichki va tashqi audit mexanizmlari orqali ishlab chiqarishdagi xavf-xatarlar aniqlanadi, mavjud xavfsizlik tizimlarining samaradorligi baholanadi hamda ularni takomillashtirish bo‘yicha tavsiyalar ishlab chiqiladi. Auditorlik xizmatlari nafaqat nazorat, balki profilaktika va strategik rejalashtirish vositasi sifatida ham muhim ahamiyat kasb etadi.

Kalit so‘zlar: mehnat xavfsizligi, sanoat auditi, xavf tahlili, texnik tekshiruv, audit, mehnat muhofazasi.

Ensuring Occupational Safety in Modern Manufacturing Enterprises

Ensuring occupational safety in modern manufacturing enterprises is one of the pressing global issues. Every year, thousands of people suffer serious injuries or fatalities due to production failures or insufficient control. Preventing such cases requires not only technical means but also management mechanisms, in particular, audit services, which play a crucial role.

Occupational safety audit is a systematic inspection carried out to assess the state of the safety system in production processes, identify risk factors, and develop measures to address them. Audits can be conducted internally (within the enterprise) and externally (by independent organizations).

A safety audit is a form of risk analysis and assessment, where a systematic review is conducted to determine whether the conditions necessary for developing and implementing an effective safety policy are in place. Therefore, each audit simultaneously sets the objectives to be achieved and identifies the best organizational conditions for their implementation.

The most appropriate influence strategy in a given situation depends not only on initial assumptions but also on the actual circumstances and existing organizational culture. From this perspective, it is essential to know what types of behavior should be influenced. A well-known model developed by Danish risk specialist Rasmussen (1988) distinguishes the following three types of behavior:

- **Routine actions (skill-based behavior):** automatically following a linked signal. These actions are performed without conscious attention – for example, shifting gears manually while driving.

- **Rule-based actions:** require more conscious attention, as there is no automatic response to a signal, and choices must be made between different instructions or rules. These actions can often be expressed in “if...then” sequences, such as, “If the gauge rises to 50, then this valve must be closed.”

- **Knowledge-based actions:** carried out after consciously interpreting and evaluating various problem signals and possible alternative solutions. Such actions assume a higher level of knowledge and understanding of the relevant process and the ability to interpret unusual signals.

The **main tasks of audit services** include:

- Identifying and assessing risk factors
- Checking compliance with occupational safety laws and standards
- Providing recommendations to improve safety
- Monitoring the condition of technical equipment
- Evaluating staff knowledge levels

The **advantages of the audit approach** can be summarized into three main points:

1. Preventive approach
2. Systematic approach
3. Objectivity

For instance, in European countries, large industrial enterprises conduct internal safety audits quarterly. This practice has proven highly effective in Germany, where annual statistics show a 25–30% reduction in workplace injuries.

The foundation of effective management in occupational safety is a systematic approach. Through audit services, it is possible to identify hazardous situations, evaluate compliance with legislation, and develop concrete recommendations for improvement. Therefore, every production entity should regard audit control as an essential tool for strengthening occupational safety.

Continuous improvement is a key condition for every safety audit system striving for lasting success in today's rapidly developing society. The best guarantee of continuous improvement and adaptability lies in the full commitment of competent employees who grow along with the organization. Their efforts are regularly evaluated, and they are given opportunities to develop and update their skills. The best assurance of consistent results in the safety audit process is the development of a learning organization where both employees and the enterprise continue to learn and grow.

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BULLYING, MIGRANT FAMILIES, AND INDIVIDUAL APPROACHES IN WORKING WITH AT-RISK STUDENTS

Abstract: *This article explores the adaptation challenges faced by students from migrant families, focusing on pedagogical work with difficult-to-educate children and the phenomenon of bullying. It highlights the impact of family environment, psychological conditions, and social adaptation factors on students' personality, behavior, and academic development. The study also provides practical recommendations for strengthening teachers' professional capacity, fostering student resilience, and enhancing collaboration between family, school, and community to build a safe and supportive educational environment.*

Key words: *students with behavioral difficulties, migrant families, adaptation, educational methods, social factors, personality, individual approach, bullying.*

Introduction

In modern school education, working with difficult-to-educate students remains an urgent issue. At the same time, the socio-demographic changes taking place in society, particularly the increase in migrant families, significantly affect the formation and upbringing of students' personalities. As a result of migration, children often experience psychological instability, problems of social adaptation, and feelings of loneliness. These situations frequently lead to deviations in upbringing, passivity or aggressiveness during lessons, and social isolation.

In this context, the role of teachers and specialist-organizers in working with difficult-to-educate students becomes even more important. They must help students develop a need for self-education, the ability to clearly envision their future, seek ways to achieve it, and strive toward high ideals. Especially through individualized approaches, it is crucial to take into account each student's psychological state, family circumstances, and personal needs. Indeed, individuality serves as an example of both national and human values and becomes one of the main driving mechanisms of progress.

Literature review and research methodology.

How is the technology for forming and developing the universal human values or positive qualities of a perfect person, as well as the positive traits of the Uzbek character, constructed?

According to Prof. B. Ziyomukhammadov, universal human creative qualities and virtues that belong to proper upbringing can be imagined as follows:

First, qualities and virtues of *entrepreneurship and diligence*: industriousness, perseverance, meticulousness, activeness, responsibility, honesty, fairness, skillfulness, flawlessness, quality orientation, agility, resourcefulness,

neatness, orderliness, initiative, accuracy, thriftiness, perfection, disinterestedness, and others.

Second, qualities and virtues of *intellect and wisdom*: intelligence, meaningfulness, calmness, sound reasoning, wisdom, validity, discernment, sensitivity, wit, ingenuity, conciseness, argumentativeness, efficiency, literacy, curiosity, passion, and others.

Third, qualities and virtues of *steadfastness*: activity, determination, promptness, ardent zeal, enthusiasm, quick temper, perseverance, keeping one's word, stability, bravery, courage, discipline, love of freedom, seriousness, self-restraint, composure, self-demand, modesty, sociability, willpower, and others.

Fourth, *general qualities and virtues of personality*: attractiveness, elegance, charm, charisma, dignity, majesty, development, respectability, poetic spirit, inspiration, nobility, uniqueness, maturity, seriousness, cultural refinement, good upbringing, and others.

Fifth, *moral qualities and virtues*: humaneness, friendship, care, devotion, sincerity, compassion, kindness, love of children, faithfulness, selflessness, politeness, courtesy, attentiveness, openness, forgiveness, hospitality, good manners, generosity, and others.

Sixth, *emotional and passionate qualities and virtues*: optimism, elation, solemnity, cheerfulness, melancholy, trustfulness, dreaminess, confidence in the future, kindness, absence of resentment, tenderness, nobility, fervor, sensitivity, shyness, modesty, chastity, and others.

Research results and discussion migration and its impact on child upbringing

When children from migrant families enter the education system, they face various adaptation difficulties due to differences in their family, social, and cultural environments. The lack of stability in such families, economic hardships, frequent changes of residence, parents' preoccupation with work, or their departure abroad often lead to psychological and emotional instability in children.

These situations are especially reflected in the school environment: children may be reluctant to participate in the learning process, show passivity in communicating with peers, lose interest in lessons, and experience social isolation.

For example, when a child feels left out in the school setting, he or she may respond with indifference to classroom activities or with defiance. At times, these behaviors manifest as passive resistance, aggressive attitudes, refusal to join the group, or disruption of lessons. Teachers often interpret such behavior as a deviation in upbringing. In reality, however, these actions stem from the child's inner needs — a thirst for affection, a demand for an atmosphere of trust, and a need for emotional security.

Therefore, when evaluating the problems of children from migrant families, educators must thoroughly analyze their background, cultural characteristics, family factors, and individual psychological conditions. Instead of labeling them as "difficult children," it is necessary to provide socio-psychological support, create a trustworthy communicative environment, and apply individualized approaches.

Through such student-centered approaches, children develop greater self-confidence, form a positive attitude toward education, and strive to establish stable interactions with their environment. This contributes not only to their personal success but also to the overall social climate of the classroom.

Migrant families may also have their own unique methods of upbringing. For teachers, it is important to understand and respect these cultural differences and to establish cooperative relationships with families. Building trust-based communication with parents plays a decisive role in correctly assessing the student's condition and providing effective support.

Conclusion

A thorough analysis of the influence of migrant families in working with difficult-to-educate students and taking into account the psychological state of children from such families is an important direction of modern pedagogical approaches. Through individualized methods tailored to each student's needs, it is possible to increase their activity during the learning process, facilitate their social adaptation, and help them feel like equal members of society.

Representatives of the education system and teachers should not limit their work to the mere transmission of knowledge, but should also act as mentors who support each child's personal development, upbringing, and socialization. Only in this way can we provide genuine assistance to those students who are left out of the educational process — often labeled as “difficult,” but in reality in need of attention and care.

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THE INTERPLAY OF BRAND IMAGE AND CONSUMER BEHAVIOR: THE INTERMEDIARY ROLE OF PRICE PERCEPTION

Abstract: *Future profitability in the current competitive environment depends on the capacity of an enterprise to comprehend how price perception, buyer behavior, as well as brand image are related. This article makes the case that although actual goods have been significant, what really affects the choices people make to buy depends on the invisible psychological connections they have with a brand.*

The paper distinguishes between brand identity, that represents a business's intentional strategy, as well as brand image, that represents the client's emotional and mental initial impression. Through establishing personal connections, raising perceived superiority, and motivating devotion to the company, a solid image of the company may possess a big influence on customer decisions. Importantly, the study emphasizes how perception of prices acts as a mediator. It refers to the consumer's personal judgment of a good's worth, that could vary than the price of the item.

Keywords: *Brand image, Brand identity, Customer buying behavior, Price perception, Marketing strategy, Consumer loyalty, Emotional connection, Advertising influence, Perceived value, Customer perception*

Introduction

Every company hoping to achieve long-term profitability in the present fiercely contested marketplace must comprehend the complex link that exists between a company and its customers. The present overview of the scientific research explores the intricate relationships between customer buying habits and brand image, paying particular attention to the crucial but frequently disregarded intermediary function of price perception. Although a business's physical goods and offerings have been significant, what really influences individual choices to buy and cultivate enduring allegiance happen to be the invisible connections, sentiments, and opinions that people have towards a brand. In order to differentiate brand image from brand identity and examine the immediate effect on customer behavior, this overview will methodically examine the conceptual basis of brand image. The article offers an in-depth examination of the way an excellent brand image may increase the perceived worth of a good and affect buyer preferences by combining thoughts from conventional marketing strategists and current promotional techniques. Additionally, it emphasizes the critical intermediary role of price perception, showing how the buyer's personal assessment of the expense of a good frequently has a greater impact as opposed to the item's real price tag. With the help of this investigation, we shall demonstrate the way companies may effectively

employ a solid image of brand to draw in clients, defend their price policies, establish confidence, and eventually develop a devoted clientele in a highly competitive environment.

Literature Review. A key idea regarding marketing includes brand image, which encompasses all of a customer's opinions, emotions, and behaviors toward a specific brand. One It is a complicated, multifaceted phenomenon whose existence is "set off by mental processes, sentiments, narratives, signs, principles and views of buyers" rather than just a brand's logo or tagline(Romano, 2022). Either via marketing, goods use, or referrals, this understanding is the "client's net takeaway" gathered from each of their encounters and dealings with the business. As a result, brand image is not a set, outward fact within the ownership of the business, instead being an inner, mental picture in the mind of the customer(Saxena and Dhar, 2017). A brand has to first appear in the customer's choice collection, which commences with brand awareness, in order to build a positive brand image. Customers start to develop a thorough impression of an entity whilst they learn regarding it, encompassing their behaviors, emotions, and opinions concerning it. Through this complex approach, a brand evolves from an ordinary good into an important asset that serves as a primary influence on advertising and decision-making(Allen, 2024). The fundamental ideas of brand image concept represent a special combination of work from two different domains: academic marketing and innovative advertising. The secret to comprehending the idea's long lasting impact represents its combination of methodical theory and tactical implementation. Many people consider the renowned marketing strategist David Ogilvy to be the "Father of Advertising" because he was the initial person to promote the significant brand image idea. Ogilvy had been brilliant in realizing that a brand encompasses much more than just its goods or services; it also reflects the feelings, ideals, and opinions that people have about it(JMC STudy Team, 2025). By focusing on emotional appeal and strategic narrative, he transformed marketing and established enduring relationships with consumers via advertising initiatives for companies like Rolls-Royce and Dove. His accomplishments demonstrated how important it is to have a strong and enduring brand identity in order to establish a lasting connection with customers.

Philip Kotler, a marketing scholar, supplied the theoretical, essential basis, but Ogilvy became the first to implement it practically. According to Kotler's research, brand image is a branding notion that methodically explains the way these customer opinions and views are influenced by encounters and relationships. He established brand image as a key component in marketing science through doing this. Brand image philosophy serves as a form of art plus a science, a synthesis of tactical leadership and cognitive understanding, as demonstrated by this double creation story, which has its roots in Ogilvy's creative work and Kotler's scholarly institutionalization(Romano, 2022).

Brand Image vs Brand Identity. The variation between brand identity versus brand image—two concepts that are occasionally utilized incorrectly interchangeably—is an essential component of differentiation in branding. The way

a business deliberately builds its brand alongside the values it stands for is known as its brand identity(Huddle Creative, 2025). It serves as the cornerstone of a brand's strategy and is established by the individuals that create and select its distinctive, genuine qualities. The combination of a brand's title, background, logo, coloring scheme, layout, aesthetic and vocal voice, and mission constitutes its identity(Marion, 2023). On the other hand, the public's perception of a brand is its image. It is not constant; rather, it evolves over the years due to outside influences that are out of the business's immediate control, like public perception, press coverage, and how clients feel. A brand's identity guides everything of its company and advertising choices, and its effective execution of this identity contributes to the development of a favorable brand image in the eyes of customers. This interaction connecting the two is a crucial feedback circuit. The brand image, which is determined by the " fundamental connection to the brand and perceptions generated by the eye of the target consumers," represents the outcome of a solid brand identity(Eloveera, 2023). One important measure of a brand's strategic efficacy can be the discrepancy between its planned identity and its true image. A failure to communicate or implementation is indicated whenever the perception does not align with the intention. By employing a uniform brand identity to bridge the disparity and cultivate a desirable brand image, brand leadership seeks to take control of the connection(MasterTech, no date).

The interplay Between Brand Image And Consumer Behavior. One intricate yet crucial factor that influences customer behavior and brand image involves the interaction between the two. A business's favorable brand image may drastically affect the purchasing patterns of the intended consumers, making it an effective instrument for increasing market dominance. More buyers are basing their choice on a company's image over the actual goods in a congested market with a surge of competitors(Investopedia, 2023). Although the decision someone makes is influenced by the characteristics and aspects of the goods, the more fundamental deciding factor is how the brand is perceived. prior to reaching the ultimate decision, buyers frequently evaluate brands by considering their image whenever presented with options. Decisions like this cannot be always centered only on logic; instead of just optimizing financial savings, they are also frequently influenced by feelings, previous usage, and the possible benefits of buying something. Customers' preexisting ideas concerning a brand and the legitimacy consumers attach to it are important psychological drivers(Dada, 2021). For example, based on the situation, a favorable brand image may have a good impact on a customer's views and intents to buy. Brands intentionally employ sentimental narrative and visual aspects including logos and color palettes to sway these ideas and mold buyer actions and preference for a brand(Investopedia, 2023). Perceived quality along with brand loyalty are significantly influenced by brand image. A positive perception of a brand enables people develop positive sentiments regarding it, and that in turn promotes loyalty. A robust brand image is essential for building consumer loyalty and promoting repeat customers in a cutthroat industry. According to study, the appetite of customers to spend more for a company's goods and brand loyalty may both be

affected by brand image. A favorable brand image, for example, can convince a customer to keep purchasing from a company they have already made an investment in, such as an iPhone, as well as switch to the following model (Dada, 2021). A favorable brand image also improves perceived quality, which is the consumer's assessment of the advantages of a product in comparison to its price. Businesses must control its perceived value since it may end up in devoted customer behavior (García-Salirrosas et al., 2024).

The Mediating Role of Affordability and Price Perception. Two important factors influencing buyer decisions and use of products are affordability and pricing perception. Price perception is a personal mental evaluation of how valuable a good is in relation to its cost, whereas affordability relates to a buyer's financial capacity to buy a certain thing. In combination, both influence consumer behavior, therefore both shouldn't be separate from one another (Zhao et al., 2021). Buying choices are directly influenced by the customer's financial situation. Since customers are presented with numerous options and might not be capable or prepared to pay the higher price, raising the price for an item may result in a sharp decline in revenue in an extremely competitive marketplace. On the other hand, in a crowded market, cutting a price may end in a significant boost in revenue. A recession or a global epidemic, for example, might also increase customers' price sensitivity thus making them less lavish and careful with their buying (Levrini and Dos Santos, 2021).

Affordability represents a conditional economic limitation that refers to a customer's power to buy a thing without experiencing financial pressure, whereas price is the intended numerical worth of an item. Affordability serves as a moderator, establishing the parameters of what a buyer might contemplate. Price perception, a mental and subjective construct which describes what a consumer believes they are spending or the amount they believe a good is of value, has become the primary purpose of this study. It is frequently different from the item's actual cost. Brand image, societal comparisons, and previous interactions all affect this personal evaluation. Since perception of prices greatly influences buying motives, it acts as a vital facilitator, spanning the disparity between actual pricing methods and final consumption results (dealhub, no date). Price perception is a key mediating factor in the intricate interaction between a company's prices and how customers behave. The buyer's ultimate decision to buy is influenced by the price perception that results from a certain pricing approach. Proof for this comes from an examination on supermarket consumer buying habits, which discovered that the link between a customer's price sensitivity and their propensity to buy is partly affected by their view of inexpensiveness. This mediating function affects long-term devotion and goes beyond only one buy. For example, a research of cheap hotels revealed that patrons that thought the prices seemed reasonable expressed greater happiness and had been more inclined to suggest or come back, indicating a clear connection between long-term loyalty and the sense of reasonable pricing (Cakici and Tekeli, 2022). To illustrate this point, the difference between "cheap" and "affordable" is very potent. Although they indicate that prices are low, "cheap" is frequently linked to inferior merchandise and might draw in a price-conscious and

easily swayed consumer base. On the other hand, marketing an item as "affordable" conveys a greater value offering by implying excellent quality at a reasonable cost. By making this contrast, the customer sees a connection built on common values rather than merely an exchange. This strategic decision establishes whether a company seeks a sustainable, interpersonal approach that relies on a sense of superior value and affordability or a large-volume, inexpensive approach motivated by transactional pricing impression (Crayons & marketers, no date). Brands do more than just establish pricing; they use psychological strategies to intentionally influence how those prices are perceived. Price anchoring influences a consumer's readiness to spend by introducing an early, greater "anchor" price which causes later, less expensive alternatives seem like a good deal in comparison. A typical instance is a jeweler that display a client a \$18,000 ring prior to showing a \$15,000 ring, resulting in the second sound more realistic. Charm pricing, that means establishing costs somewhat lower than a round number, like \$9.99 rather than \$10.00, is additional successful strategy. By taking advantage of the left-digit bias, this approach makes customers think the price is nearer to \$9 rather \$10, that may result in a significant boost in transactions when in comparison with rounded prices (Azhar, 2025). The framing effect illustrates how the visual aspect of an offer may impact the way it is perceived, whereas other strategies like decoy pricing offer a less-than-ideal third choice that makes an intended item appear more appealing. A "save \$10" offer, for example, would not seem as appealing as a "get 10% off" offer.

4. Transparent pricing may additionally foster confidence and keep repeat purchasing from declining. Customers seem additionally inclined to express more confidence and keep generating purchases again and again, particularly within busy times, whenever businesses openly communicate the rationale for flexible or price increases. This illustrates that a key element of the mediating process has become the perception of fairness (O'Brien, 2024).

Research Methodology. This research study analyzes and synthesizes the body of previously published professional and academic literature using a methodical qualitative investigation strategy. This method is perfect because it enables a thorough and organized analysis of ideas, hypotheses, and proven results from multiple sources, going deeper than a straightforward synopsis to an in-depth understanding of the subject. The article is especially well-suited to the qualitative design since it emphasizes analyzing and relating data that is not numerical, in this instance written material, in order to create an argument that is logical regarding the relationship among pricing perception, customer actions, and brand image.

To guarantee a comprehensive and objective examination of the available material, the data collection procedure remained systematic and comprehensive. It started with an organized examination of scholarly resources, such as Google Scholar and JSTOR, to find literature, papers from conferences, and publications that have undergone peer review. In order to incorporate both fundamental concepts from academia and contemporary practical viewpoints, the findings were enhanced using hunts on reliable marketing-related web pages, professional journals, and white papers. In order to maintain a concentration on the core issues of brand image,

brand identity, customer buying habits, and price perception, essential search phrases were thoughtfully chosen to be both sufficiently broad to encompass the relevant piece of information and specialized enough to do so. After subsequently, each resource underwent an extensive review procedure, with accuracy, relevance, and reliability being given top priority in meeting the eligibility standards. This made certain that the assessment included the most current findings and advances in the subject in addition to important books by authors like David Ogilvy in addition to Philip Kotler. The approach used for analysis utilized a thematic synthesis. This approach provides a thorough kind of qualitative examination that goes beyond simple literature summarization. Analyzing and carefully reviewing each chosen article was the first step in the method of selection. Important knowledge was methodically retrieved throughout that stage, including descriptions, conceptual frameworks, and evidence from empirical studies. Following that, all of these information points were organized and categorized into sub-themes and recurrent motifs. The "Brand Image" topic, for instance, included all material pertaining to public image, but the "Brand Identity" topic included specifics about a business's intentional approach. This made it possible to directly and thoroughly compare the viewpoints and conclusions of many experts. Finding fundamental connections, including whether a favorable brand image affects perceived quality and retention of clients, was made possible by the thematic synthesis. By pointing up points of consensus, disagreement, and possible holes in the current research—like the key moderating function of price perception—it additionally made it easier to critically analyze the available evidence. The last piece of writing offers a cogent and solidly defended viewpoint that rationally progresses from fundamental ideas to their intricate, use in practice by structuring the assessment according to such assembled themes: Brand Image Theory, Brand Image vs. Brand Identity, and The Interplay with Consumer Behavior and affordability and Price Perception.

Analysis and Results. After performing a thorough analysis of the body of research, this qualitative study shows a strong and intertwined connection among pricing perception, customer behavior, as well as brand image. To show the way all three of these aspects work together, the evaluation integrates significant ideas from scholarly and academic literature.

Brand Image's Effect on Consumer Decisions

The results demonstrate that brand image has become an emotional connection created in the brain of the buyer via a variety of encounters and is more than simply a trademark or a slogan. This view serves as a strong cognitive motivator that exerts a big impact on choices about what to buy. A favorable brand image results in:

Enhanced consideration: While considering a buying decision, end users are far more inclined to think about a company with a solid, favorable image in their evaluation list.

Emotional connection: Instead of relying solely on rational, characteristic-based assessments, brand image frequently relates to sentiments, principles, and feelings.

A client may choose an item depending more on feelings instead on reduced expenses as a result of this psychological attraction overriding logical judgment.

Perceived quality and brand loyalty: Repeated business and consumer loyalty are encouraged by a positive brand image. Additionally, it improves perceived quality—the buyer's own opinion of a good's worth in relation to its cost. Customer loyalty as well as readiness to spend more are significantly influenced by this idea of superior quality.

Price Perception's Mediating Function

Price perception serves as an essential intermediary in the connection between brand image and customer behavior, even though brand image is the primary trigger, according to the study. Price perception, which differs from the real price, is the buyer's personal assessment of the cost and the worth of an item. It fills the void behind a business's price plan and the ultimate choice made by the customer.

The results show that:

Perception over reality: Customers' perceptions of prices frequently have a greater impact on what they buy compared to the actual prices. For instance, if the brand image conveys outstanding value, a customer might consider a product to be a "excellent bargain" regardless of whether it costs greater than a other brands'.

Strategic pricing approaches: To influence how consumers perceive prices, businesses employ psychological methods such price anchoring, charm pricing, and the framing impact. Such approaches significantly impact the buyer's inclination to purchase by making particular prices appear more affordable or tempting. For example, an elite brand's costly pricing is frequently seen to be an indication of its excellence and uniqueness, which strengthens the brand's reputation. Fairness and trust: Establishing enduring devotion and confidence requires that a price be seen as reasonable. Even during difficult financial circumstances, a business that practices fair pricing—openly explaining price rises—may keep customers' trust and keep earnings from declining.

Essentially, a favorable brand image can improve a consumer's assessment of a merchandise's price by giving them the impression that it is reasonably priced. The final buying choice is subsequently affected by this positive pricing perception, strengthening the bond between the company and the customer. Because buyers tend to be more likely to embrace and possibly spend extra for a brand they have confidence and value, this dynamic shows how a powerful brand image may allow a business additional price adaptability.

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ORGANIZATION OF HIGH-QUALITY EDUCATION OF ITS STUDENTS IN THE CONTEXT OF GLOBALIZATION

***Abstract:** The article addresses the provision of quality higher education amidst globalization and labor market demands in the Republic of Uzbekistan. The authors identify methods such as Problem-Based Learning, Case Study Method, among others, emphasizing their role in fostering critical thinking and intercultural competence among students.*

***Keywords:** globalization; labor market; teaching methods; critical thinking;*

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GLOBALLASHUV SHAROITIDA TALABALARINING SIFATLI TA'LIM OLISHINI TASHKIL ETISH

***Annotatsiya:** maqolada O'zbekiston Respublikasida globallashuv va mehnat bozori talablari sharoitida sifatli oliy ta'lim berish masalalari ko'rib chiqilgan. Mualliflar talabalar o'rtasida tanqidiy fikrlash va madaniyatlararo kompetentsiyani rivojlantirishdagi rolini ta'kidlab, muammoli ta'lim, amaliy tadqiqotlar usuli va boshqalar kabi usullarni aniqlaydilar.*

***Kalit so'zlar:** globallashuv; mehnat bozori; o'qitish usullari; tanqidiy fikrlash.*

Introduction In the context of globalization and the rapid development of science and technology, ensuring quality education is one of the most important tasks for any country striving for sustainable growth and increased competitiveness in the world. As an active participant in international processes, the Republic of Uzbekistan is also paying great attention to reforming and modernizing higher education in order to train highly qualified specialists who meet the modern requirements of the labor market.

Relevance The issue of organizing quality education for students in Uzbekistan under conditions of globalization is relevant for the following reasons:

• **Global educational environment and integration:** To ensure the success of Uzbek graduates and leaders in the global labor market and strengthen their competitiveness, it is necessary to harmonize educational programs and standards with advanced international practices [1, 2].

• **Development of human capital:** Quality education is a key factor in developing human capital, which in turn contributes to the country's economic growth and innovative development [3, 4].

• **Adaptation to rapidly changing conditions:** In the face of fast technological change and global competition, it is necessary to ensure students' competencies, help them quickly adapt to new conditions, and continuously improve their qualifications [5, 6].

• **International cooperation:** Expanding cooperation in science, technology, and innovation improves the quality of education, opening new opportunities for exchanging experiences and practices [7, 8].

Considering these factors, the higher education system of Uzbekistan is actively introducing innovative approaches and reforms aimed at improving the quality of education and aligning it with international standards.

Purpose of the Study To ensure quality higher education for students in the Republic of Uzbekistan in the context of globalization, modern labor market requirements, and international standards.

Objectives

• To integrate educational programs with the global educational space to enhance the competitiveness of Uzbek graduates in the international labor market.

• To develop human capital through quality education as a factor in the country's economic growth and innovative development.

• To provide students with the ability to adapt to rapidly changing conditions and technological shifts through continuous professional development.

• To expand international cooperation in science, technology, and innovation for exchanging advanced techniques and experiences in higher education.

Research Methods

• Analysis of standards and program development (Source: *Methodological Recommendations for the Development and Renewal of Higher Education Programs*).

• Assessment of graduates' competencies.

• Labor market analysis.

• Identifying employers' requirements for graduates' qualifications.

The study examines the goals, objectives, and methods of organizing quality education for students in Uzbekistan under globalization, along with its results and solutions.

Some Pedagogical Methods for Organizing Quality Education under Globalization (based on literature):

• **Problem-Based Learning (PBL):** Encourages students' independent work and develops critical thinking. This method focuses on solving scientific problems

and can be combined with other approaches such as case studies and reflective essays.

- **Case Study Method:** Involves solving problem situations, developing practical skills close to real-life scenarios. It fosters creativity, intellectual flexibility, and soft skills.

- **Project-Based Learning:** A form of PBL focused on solving scientific problems through project work.

- **Flipped Classroom:** Engages each student in every class, activates the learning process, and supports motivation.

- **Blended Learning:** Combines traditional classroom methods with digital resources. Particularly effective in improving educational quality under globalization and ICT development.

- **Intercultural Education:** Helps students adapt to rapidly changing conditions and develop global collaboration and intercultural competence.

- **Virtual Mobility:** Expands international cooperation in science, technology, and innovation, supporting experience exchange in higher education.

- **Online Collaboration:** Improves educational quality in the digital era, enhances teamwork, and builds skills for processing large amounts of information.

Conclusion. Based on modern pedagogical research and advanced practices, these methods help develop critical thinking, problem-solving skills, intercultural competence, and global collaboration among students.

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THE IMPORTANCE OF CHANGING THE QUALITATIVE INDICATORS OF THE WATER RESOURCES OF THE AIDAR-ARNASAI LAKE SYSTEM IN THE USE OF NATURAL RESOURCES OF THE LAKE SYSTEM

***Annotation.** The study of AALS variations for many years based on programs of statistical and geographical information systems plays an important role in the use of natural resources in the region. At present, the AALS has a significant impact on the environment, hydrology, hydrogeology, social and economic situation and is of strategic importance for Uzbekistan and Kazakhstan.*

***Key words:** lake systems, water level, hydrochemistry, quality indicators, natural resources*

Aydar-Arnasay Lake System (AALS) The Aydar-Arnasay Lake System (AALS) is the largest artificial water body in the Aral Sea basin. AALS consists of the merging of three lakes: Arnasay, Aydarkul, and Tuzkan. It is located on the saline lands of the Arnasay plain of the Kyzylkum desert in the southeast of Uzbekistan.

Since 1969, when the outflow of Aydarkul Lake exceeded the capacity of the Chardarya Reservoir, it has regularly received water from the Syrdarya River. This gradually filled the natural depression of the Arnasay lowland, creating the second largest closed water body in the region.

In the newly formed hydro-ecosystem, very favorable conditions for the rapid development of flora and fauna were created. However, in subsequent years, due to the absence of river water inflows and a complete transition to feeding mainly from collector-drainage waters (Central Golodnostep Collector (CGC), Arnasay collector, Kly, Akbulak, etc.), salinization and pollution of AALS waters occurred. The main inflow in the water balance of the Arnasay lake system from 1973 to 1993 was collector-drainage discharge of about 2.5 km³/year [1].

Water mineralization. The mineralization of AALS fluctuates depending on the hydrological regime. By 1978, the water level had dropped by 5 m, and mineralization increased to 7–8 g/l. It was then decided to reconstruct the lake system. A dam and a regulating water passage between Tuzkan and Aydar Lakes were built, along with a bridge over the Arnasay channel and a feeder canal. After the formation of a single system, practically until 1993, no fresh water entered the lakes, only collector-drainage water. As a result, mineralization rose significantly

and by the early 1990s reached 10–11 g/l in Tuzkan Lake and 14–15 g/l in Aydar Lake (the final water body) [2, 3].

If the lake system does not receive annually a strictly defined amount of fresh water, mineralization will soon rise, and the reservoir may turn into a “second Aral.” According to estimates by Uzhydromet, water inflows exceeding 1.5 km³ will flood new pasture areas; each additional cubic kilometer will raise the level by 0.2–0.3 m and flood 50–70 km². Inflows of more than 3.0 km³ will raise the level by at least 0.5 m, flooding up to 200 km². The main flooding areas are the northeastern parts of Tuzkan and Aydar Lakes [4].

Oxygen content ranged between 7.8–9.1 mg/l. Depending on temperature, oxygen saturation varied between 74.8–102%, with the lowest values observed in August, which is considered ecologically acceptable.

Fish species composition and its formation. The ichthyofauna of AALS formed on the basis of Syrdarya River fauna. Later, with the establishment of fish-farming enterprises, it was enriched with cultivated species such as silver and bighead carps, grass carp, common carp, and crucian carp.

It is also necessary to strengthen the food base of the Aydar-Arnasay system by introducing brackish-water crustaceans and mollusks. This could significantly increase the overall fish productivity of the reservoir. For example, while fish productivity in such mesotrophic (medium-nourished) water bodies as AALS is usually around 0.2–0.3 centners/ha, in ponds it reaches 50–100 centners/ha, and in cage farming – up to 10,000 centners/ha.

Results obtained. Observations have shown that in most of the lake system, water mineralization exceeded the threshold level of 10 g/l. According to chemical analyses carried out in the certified ANIDI laboratory, in the summer–autumn period of 2021, mineralization in the central part of Aydarkul Lake was 10.2 g/l. In the western part it rose to 10.5 g/l, while in the eastern part it was about 10 g/l.

In the Arnasay Lakes, at the border with Aydarkul, salinity was 9.8 g/l; in the center of Tuzkan Lake – 9.5 g/l; and in its eastern part near the influence zone of the Kly and Akbulak collectors – 8.8 g/l. The lowest mineralization was observed in the Arnasay Reservoir (1.5 g/l), although in the southern bays added to the reservoir in 2010, mineralization reached 5 g/l.

In Aydarkul and Tuzkan Lakes, during summer in shallow coastal waters and isolated ponds, mineralization was 15–20% higher than in deep-water areas, reaching 11–15 g/l (measured in August–September 2021). Coastal ponds that lost connection with the main lake system showed salinity of 15–20 g/l.

In groundwater-fed water bodies, salinity in summer rose to 50 g/l, and in salt marsh samples taken near AALS, it exceeded 200 g/l.

Conclusions. The low volume of commercial fish catch is caused by uncontrolled, unregulated fishing by dozens of private enterprises renting sections of the water area, in violation of all fishing rules. These tenants fail to fulfill requirements on preserving and reproducing fish resources, annual restocking, and fishery reclamation measures. As a result, fish catches have dropped significantly, and now mainly low-value roach and other small fish are being harvested.

In this situation, it is urgently necessary to establish an association of lessees, and possibly government participation, in the management of the biological resources of the Aydar-Arnasay system. Only such an association could ensure fish restocking, introduction of new species, and reclamation works. The closed hydrological regime of AALS will eventually lead to further salinization, which may play a limiting role in the development of freshwater aquatic species.

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THE URGENCY AND PROSPECTS OF DEVELOPING ENVIRONMENTAL EDUCATION IN UZBEKISTAN

Annotation: *This article discusses the role of environmental education in modern society and its inextricable link with sustainable development. The importance of forming environmental awareness in the younger generation, developing a responsible attitude towards nature, and taking into account environmental factors in socio-economic development is analyzed. Through practical recommendations, effective mechanisms of environmental education in achieving sustainable development are shown.*

Keywords: *environmental education, sustainable development, environmental awareness, environmental culture, education system.*

In today's era of globalization and industrialization, the negative impact of human activity on nature is steadily increasing. Air pollution, the reduction of drinking water resources, the problem of waste, and climate change are emerging as pressing environmental issues. The importance of environmental education in preventing and addressing these problems is invaluable. This is because sustainable development can only be achieved through conscious young people who feel ecological responsibility.

The content and tasks of environmental education are as follows: Environmental education is a learning process aimed at consciously managing the relationship between humans and nature. Its main tasks include:

- developing ecological knowledge and skills among students;
- fostering a careful attitude toward the environment;
- increasing ecological responsibility in practical activities;
- raising environmental culture to the level of society as a whole.

Sustainable development means ensuring the economic growth of society in harmony with ecological security and social well-being. In this regard, the education system should focus on three main directions:

1. **Ecological awareness** – teaching young people to protect nature;
2. **Innovative approach** – promoting the use of renewable energy sources;
3. **Practical activity** – supporting ecological projects and initiatives in schools, colleges, and universities.

In Finland's education system, ecological projects are included as a core part of the school curriculum.

In our country, raising ecological culture in society can be achieved through the effective organization of a continuous environmental education system. The fact is that without shaping ecological awareness and culture among students and young people studying in the system of continuous education, it is impossible to eliminate environmental problems regardless of the amount of funds spent on ecology and environmental protection. Therefore, as emphasized by the head of our state, it is necessary to nurture in the younger generation a love for Mother Nature and a sense of responsibility towards it in a timely manner.

In this regard, relevant measures have been determined by the head of state and our government. In particular, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated May 27, 2019, *“On the approval of the Concept for the Development of Environmental Education in the Republic of Uzbekistan”*, outlines measures for the effective organization of a continuous environmental education system in preschool education, general secondary and secondary specialized education, vocational education, higher education, postgraduate education, retraining and professional development of personnel, and extracurricular education. Similarly, in the Presidential Decree of October 30, 2019, *“On approval of the Concept of Environmental Protection of the Republic of Uzbekistan until 2030”*, specific tasks were identified, including the incorporation of ecology, environmental protection, and sustainable development issues into curricula at all levels of education, the introduction and improvement of new general and specialized curricula in ecology to help deepen the understanding of environmental problems and the need for proper use of nature.

In Uzbekistan, within the framework of the nationwide program *“Green Space”*, the active participation of students in ecological initiatives is ensured. The implementation of this program, aimed at protecting and restoring ecosystems, accelerating landscaping, and expanding green areas, has become an important step. Within the framework of this initiative, it is planned to plant 200 million trees and shrubs annually, thereby increasing green areas in cities from the current 8 percent to 30 percent. The project also envisions transforming cities into environmentally friendly and comfortable places to live, increasing the level of greening to 30 percent, and creating “public parks” for every 50–100 thousand residents in urban and district centers.

In the United Nations’ Sustainable Development Goals (SDGs) for 2030, environmental education is identified as an important direction.

In conclusion, it can be said that environmental education is the foundation of sustainable development. By shaping ecological awareness and responsibility among students, society ensures ecological security and strengthens activities aimed at protecting nature. Therefore, the broad application of ecological components at all stages of the educational process, supporting ecological initiatives, and actively engaging young people in environmental issues are urgent tasks.

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O‘ZBEKISTONDA EKOLOGIK TA’LIMNI RIVOJLANTIRISHNING ZARURIYATI VA ISTIQBOLLARI

Annotatsiya: Ushbu maqolada ekologik ta’limning zamonaviy jamiyatdagi o‘rni va uning barqaror rivojlanish bilan uzviy bog‘liqligi yoritiladi. Yosh avlodda ekologik ongni shakllantirish, tabiatga mas’uliyatli munosabatni rivojlantirish hamda ijtimoiy-iqtisodiy taraqqiyotda ekologik omillarni hisobga olishning ahamiyati tahlil etiladi. Amaliy tavsiyalar orqali barqaror rivojlanishga erishishda ekologik ta’limning samarali mexanizmlari ko‘rsatib beriladi.

Kalit so‘zlar: ekologik ta’lim, barqaror rivojlanish, ekologik ong, ekologik madaniyat, ta’lim tizimi.

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THE URGENCY AND PROSPECTS OF DEVELOPING ENVIRONMENTAL EDUCATION IN UZBEKISTAN

Annotation: This article discusses the role of environmental education in modern society and its inextricable link with sustainable development. The importance of forming environmental awareness in the younger generation, developing a responsible attitude towards nature, and taking into account environmental factors in socio-economic development is analyzed. Through practical recommendations, effective mechanisms of environmental education in achieving sustainable development are shown.

Keywords: environmental education, sustainable development, environmental awareness, environmental culture, education system.

Bugungi globalashuv va sanoatlashtirish davrida inson faoliyatining tabiatga salbiy ta’siri tobora ortib bormoqda. Atmosfera havosining ifloslanishi, ichimlik suv manbalarining kamayishi, chiqindilar muammosi hamda iqlim o‘zgarishi ekologik muammolar sifatida kun tartibiga chiqmoqda. Bu muammolarning oldini olish va ularni bartaraf etishda ekologik ta’limning ahamiyati beqiyosdir. Chunki barqaror

rivojlanishga faqatgina ongli, ekologik mas'uliyatni his qiladigan yoshlar orqali erishish mumkin.

Ekologik ta'limning mazmuni va vazifalari quyidagilardan iborat: Ekologik ta'lim – bu inson va tabiat o'rtasidagi munosabatni ongli ravishda boshqarishga qaratilgan ta'lim jarayonidir. Uning asosiy vazifalari quyidagilardan iborat:

- O'quvchilarda ekologik bilim va ko'nikmalarni shakllantirish;
- Atrof-muhitga ehtiyotkorona munosabatni tarbiyalash;
- Amaliy faoliyatda ekologik mas'uliyatni oshirish;
- Ekologik madaniyatni umumjamiyat darajasiga ko'tarish.

Barqaror rivojlanish – bu jamiyatning iqtisodiy o'sishini ekologik xavfsizlik va ijtimoiy farovonlik bilan uyg'un holda ta'minlash demakdir. Bunda ta'lim tizimi uch asosiy yo'nalishga e'tibor qaratishi zarur:

1. Ekologik ong – yoshlarni tabiatni asrashga o'rgatish;
2. Innovatsion yondashuv – qayta tiklanuvchi energiya manbalaridan foydalanishni targ'ib qilish;
3. Amaliy faoliyat – maktab, kollej va oliygohlarda ekologik loyihalar va tashabbuslarni qo'llab-quvvatlash.

Finlyandiya ta'lim tizimida ekologik loyihalar maktab dasturining asosiy qismiga kiritilgan.

Mamlakatimizda uzluksiz ekologik ta'lim tizimini samarali yo'lga qo'yish orqali aholining, jamiyatning ekologik madaniyatini oshirish mumkin. Gap shundaki, aholining, birinchi navbatda, uzluksiz ta'lim tizimida tahsil olayotgan o'quvchi va talaba yoshlarda ekologik ong va madaniyatni shakllantirmasdan, ekologiya va atrof-muhit muhofazasi sohasiga sarflanayotgan har qancha mablag'lar bilan muammolarni bartaraf etib bo'lmaydi. Shunday ekan, davlatimiz rahbari ta'kidlaganidek, yosh avlod qalbida Ona tabiatga mehr-muhabbat, unga daxldorlik hissini o'z vaqtida tarbiyalashimiz lozim.

Bu borada davlatimiz rahbari va hukumatimiz tomonidan tegishli chora-tadbirlar belgilab berildi. Xususan, O'zbekiston Respublikasi Vazirlar Mahkamasining 2019 yil 27 maydagi “O'zbekiston Respublikasida ekologik ta'limni rivojlantirish konsepsiyasini tasdiqlash to'g'risida”gi qarorida maktabgacha ta'lim va tarbiya, umumiy o'rta va o'rta maxsus ta'lim, professional ta'lim, oliy ta'lim, oliy ta'limdan keyingi ta'lim, kadrlarni qayta tayyorlash va ularning malakasini oshirish hamda maktabdan tashqari ta'lim turlarida uzluksiz ekologik ta'lim tizimini samarali tashkil etish chora-tadbirlari, O'zbekiston Respublikasi Prezidentining 2019 yil 30 oktyabrdagi “2030 yilgacha bo'lgan davrda O'zbekiston Respublikasining atrof-muhitni muhofaza qilish konsepsiyasini tasdiqlash to'g'risida”gi Farmonida barcha darajalardagi ta'lim o'quv dasturlariga ekologiya, atrof-muhitni muhofaza qilish va barqaror rivojlanish masalalarini kiritish orqali uzluksiz ekologik ta'lim tizimini takomillashtirish, xususan, ekologiya, atrof-muhitni muhofaza qilish va barqaror rivojlantirish masalalarini ta'limning barcha bosqichidagi o'quv dasturlariga joriy etish, ekologik muammolarni va tabiatdan to'g'ri foydalanish zaruratini yanada chuqur anglab yetishga yordam beruvchi

ekologiya bo'yicha yangi umumta'lim va maxsus o'quv rejalari (dasturlari) ni joriy etish va mavjudlarini yaxshilash chora-tadbirlarida aniq vazifalar belgilab berildi.

O'zbekistonda "Yashil makon" umummilliy dasturi doirasida o'quvchi-yoshlarning ekologik tashabbuslarda faol ishtiroki ta'minlanmoqda. Respublikada ekotizimlarni himoya qilish va tiklash, ko'kalamzorlashtirish ishlarini jadallashtirish va yashil maydonlarni kengaytirish borasida "Yashil makon" umummilliy loyihasini amalga oshirilishi muhim qadam bo'ldi. Ushbu loyiha doirasida yiliga 200 million tup daraxt va buta ko'chatlarini ekish orqali shaharlardagi yashil maydonlarni amaldagi 8 foizdan 30 foizga oshirish reja qilingan. "Yashil makon" umummilliy loyihasi doirasida yiliga 200 million tup daraxt va buta ko'chatlarini ekish, shu orqali shaharlardagi yashil maydonlarni hozirgi 8 foizdan 30 foizga oshirish rejalashtirilgan.

Loyiha doirasida mamlakatimiz shaharlarini aholiga qulay, ekologik toza va yashash uchun barcha imkoniyatlar mavjud bo'lgan hududga aylantirish, ularning ko'kalamzorlashtirish darajasini 30 foizga etkazish, shahar va tuman markazlarida har 50-100 ming aholi uchun "jamoat parklari"ni tashkil etish ko'zda tutilgan.

BMTning 2030-yilgacha bo'lgan barqaror rivojlanish maqsadlarida (SDGs) ekologik ta'lim muhim yo'nalish sifatida belgilangan.

Xulosa qilib shuni aytishimiz mumkuni, ekologik ta'lim – barqaror rivojlanishning asosi hisoblanadi. O'quvchi va talabalarda ekologik ong va mas'uliyatni shakllantirish orqali jamiyat ekologik xavfsizlikni ta'minlaydi, tabiatni asrab-avaylashga qaratilgan faoliyatni kuchaytiradi. Shu bois, ta'lim jarayonining barcha bosqichlarida ekologik komponentlarni keng qo'llash, ekologik tashabbuslarni qo'llab-quvvatlash va yoshlarni ekologik masalalarga faol jalb qilish dolzarb vazifadir.

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INTEGRATION OF COMPUTER SCIENCE BASED ON THE STEAM APPROACH

Annotation: *This paper delves into the practical relevance of the STEAM (Science, Technology, Engineering, Art, Mathematics) approach in modern education, focusing on the integration of computer science with other disciplines. In today's digital era, computer science plays a pivotal role not only in teaching programming but also in developing problem-solving abilities, algorithmic thinking, and creativity. The integration of computer science lessons with subjects such as mathematics, physics, technology, and art fosters a multidisciplinary environment where students can apply their knowledge through real-life projects and interactive tasks. This STEAM-driven framework encourages collaborative learning, critical thinking, and innovation—skills essential for the 21st-century learner. The article also emphasizes how this approach increases student engagement and helps bridge the gap between theoretical knowledge and its real-world applications.*

Keywords: *STEAM approach, computer science integration, innovative education, problem-solving, algorithmic thinking, interdisciplinary teaching, hands-on learning, practice-based education, future-ready skills*

Introduction. The Importance of STEAM Education and Interdisciplinarity. To determine the significance of STEAM education, it is essential to first focus on the core principles upon which the STEAM approach is based. One of these key principles is interdisciplinary integration, which involves the unification of knowledge from computer science, mathematics, physics, the arts, and engineering. Interdisciplinarity refers to the combination of various academic disciplines, the exploration of their interconnections, and the application of this integrated knowledge in practical, project-based contexts. Within the STEAM (Science, Technology, Engineering, Arts, Mathematics) framework, it plays a vital role in providing learners with complex, interconnected knowledge and skill sets.

The Connection Between Computer Science and Mathematics. One prominent example of interdisciplinarity in STEAM is the connection between computer science and mathematics. The foundational concepts of computer science are largely based on mathematics. This relationship is manifested in several key areas:

Algorithms and Discrete Mathematics – Programming is used to solve mathematical problems (e.g., Euler's or Dijkstra's algorithms).

Logical reasoning – Boolean algebra is applied in programming, particularly in conditional operations.

Graph theory – Relevant to network algorithms used in social networks and navigation systems.

Algorithm design – Programming is applied to solve mathematical problems (e.g., Euler's or Dijkstra's algorithms).

Logical reasoning – Boolean algebra (logical operations) is used in programming, especially in working with conditional operators.

Graph theory – Related to network algorithms (e.g., social networks, navigation systems).

Data Analysis and Statistics

Statistical models – Analysis of large datasets using programming languages such as Python (NumPy, Pandas) or R.

Probability theory – Applied in artificial intelligence and machine learning (e.g., Bayes' theorem).

Cryptography and Number Theory

RSA encryption – Based on prime numbers and modular arithmetic.

Blockchain technology – Involves hash functions and cryptographic algorithms.

The Connection Between Computer Science and Physics

Modeling of Physical Processes

Traffic simulation – Visualizing transportation flow in software based on physical laws (e.g., speed, acceleration).

Quantum computing – A new field combining quantum physics and computer science (quantum bits, quantum algorithms).

Sensor Systems and Robotics

Arduino projects – Processing physical measurements (motion, temperature, light) using sensors.

Computer vision – Analyzing images based on optical laws (e.g., with OpenCV).

The Connection Between Computer Science and Engineering

Software Engineering

IoT (Internet of Things) – Smart home systems, automotive diagnostics.

Automation systems – CNC machines and robotics control.

Integration of Hardware and Software

Microcontrollers – Projects using Raspberry Pi or Arduino (e.g., a weather station).

3D printers and CAD software – Engineering design integrated with programming (e.g., AutoCAD, SolidWorks).

The Connection Between Computer Science and Arts (Digital Arts)

Computer Graphics and Animation

3D modeling – Creating animated films using tools like Blender or Maya.

Web design – Developing interactive interfaces with CSS and JavaScript.

Game Development and Virtual Reality (VR)

Unity or Unreal Engine – Game development incorporating physics (e.g., gravity, collisions).

VR/AR technologies – Presenting art exhibitions in virtual environments.
Examples of Interdisciplinary Integration
Project: “Smart Home” System
Computer Science – Python programming.
Physics – Motion and temperature sensors.
Engineering – Control via Arduino.
Art – User interface design (UI/UX).

Rapid advancement of innovative technologies, such as artificial intelligence, programming, and robotics, and their integration into daily life require the adoption of new approaches in modern education, in particular the implementation of the STEAM model (Science, Technology, Engineering, Art, Mathematics) [3]. In this process, the subject of informatics plays a central role. Through informatics, students can acquire not only algorithmic thinking, but also important competencies such as technological literacy, digital culture, and project-based learning [4]. The STEAM approach, by integrating informatics with mathematics, physics, technology, and even the arts, contributes to developing students’ ability to identify, analyze, and solve real- world problems through innovative methods [5]. Applying this approach in primary and secondary education reveals the theoretical, practical, creative, and multidisciplinary potential of the informatics subject. In particular, during informatics classes, students deepen their knowledge through activities such as designing interdisciplinary projects, creating software interfaces, coding, and controlling electronic devices, all of which are carried out in integration with other subjects [6]. When teaching programming, robotics, and artificial intelligence, the practice-oriented approach uses project-based learning, which allows students to gain knowledge through hands-on experience. Project-based instruction in robotics, artificial intelligence, and programming is a component of practice-oriented education. Practical abilities are becoming more and more important in today’s classrooms than just theoretical knowledge.

Practice orientation is one of the main tenets of the STEAM (Science, Technology, Engineering, Arts, and Mathematics) approach. With this approach, students can learn about programming, robotics, and artificial intelligence both conceptually and practically through practical projects. As a result, students acquire knowledge as well as critical thinking, creativity, and teamwork abilities.

Methods

At the same time, existing studies show that the integration of the informatics subject based on the STEAM approach has not yet been widely implemented in educational practice. In most cases, informatics is taught separately and abstractly, which limits the opportunities to connect the subject to students’ everyday lives and other disciplines. This article aims to fill this gap by examining methodological approaches aimed at developing students’ digital skills through the integration of informatics with other natural and social sciences. Within the scope of the study, lessons, observations, interactive methods, and the results of project-based activities conducted with 5th to 8th-grade students in the Tashkent, Bukhara, and

Surkhandarya regions are analyzed. Based on experiments, students' motivation, their level of understanding of interdisciplinary connections, and their practical thinking abilities are examined.

Stages of Skill Development

Skill development within STEAM education is carried out in three main stages:

Programming – Developing algorithmic thinking, writing code, and debugging.

Engineering – Designing hardware and controlling it through software.

Creativity – Designing projects and generating unconventional solutions.

Given the importance of vocational preparation, these stages help students acquire essential skills for future careers such as software developer, data analyst, and AI specialist.

Project-Based Programming Education

Programming is taught through two levels of project-based activities:

Basic Projects (Introductory Level)

"Calculator" – A simple application that performs mathematical operations using Python or JavaScript.

"Correct Answer Game" – An interactive quiz program that engages with the user.

Advanced Projects (Intermediate to Advanced Levels)

"Chess Program" – A computer opponent powered by basic AI logic.

"Website Development" – Creating a portfolio or blog using HTML, CSS, and JavaScript.

Open-source collaboration – Contributing to public codebases via GitHub.

Robotics and Practical Experience

Hands-on robotics involves both building and programming robots, as well as applying them in real-world scenarios:

Robot Building and Programming

Creating simple robots using LEGO Mindstorms or Arduino (e.g., a line-following robot).

Working with sensors – detecting distance, temperature, and light to analyze the environment.

Real-World Applications

"Smart Agriculture" – An automatic irrigation system based on soil moisture sensors.

"Automated Parking" – Parking a vehicle using ultrasonic sensors.

Artificial Intelligence and Machine Learning Projects Beginner AI Projects

"Chatbot" – Developed using Python and NLP libraries (e.g., NLTK, TensorFlow).

"Image Classifier" – Built with a Convolutional Neural Network (CNN) to recognize animal species.

Big Data and Advanced AI Projects

"Medical Diagnosis Model" – Predicting diseases based on symptoms.

"Language Translator" – Translating text using neural networks.

Result

The expected results indicate that the integration of informatics within the STEAM approach enriches the content of students' learning activities, ensures greater engagement during lessons, and helps to develop essential skills needed for future careers. [10]. Through practice-oriented teaching methods, students actively engage in learning fields such as programming, robotics, and artificial intelligence.

Project-based learning provides them not only with technical skills but also enhances creativity, teamwork, and problem-solving abilities.

The STEAM (Science, Technology, Engineering, Arts, Mathematics) approach is considered one of the most effective methods for improving the quality of education and preparing future professionals.

Discussion

Students' engagement and learning results are greatly improved when practice-oriented methodologies are incorporated into STEAM education. Students are better able to make the connection between theory and practice by concentrating on real-world applications through project-based learning. In addition to expanding your knowledge of topics like programming, robotics, and artificial intelligence, this helps you develop critical thinking, creativity, and teamwork, all vital skills for the 21st century. The growth of interdisciplinary thinking is one of the main advantages noted. Students naturally apply knowledge from several disciplines when working on STEAM projects, such as physics in robotics, art in user interface design, and mathematics in algorithms, leading to a more comprehensive grasp of complicated issues.

Additionally, the project-based approach boosts learning ownership and motivation. When students realize how their work relates to real-life scenarios and potential career paths, they are more inclined to take initiative, consider creative solutions, and engage in thoughtful problem solving. In summary, practice-oriented education within the STEAM framework holds great promise in equipping students with both technical expertise and transferable soft skills. As the demands of the modern workforce continue to evolve, educational systems must adapt by prioritizing methods that prepare learners not only to consume knowledge but also to create and innovate within their chosen disciplines. These approaches help foster future-ready skills essential for success in the 21st century job market.

Conclusions

This study demonstrates that a practice-oriented approach in teaching programming, robotics, and artificial intelligence within the STEAM framework significantly enhances students' motivation, creative thinking, and problem-solving skills. By integrating interdisciplinary connections, particularly between computer science and mathematics, students not only acquire technical competencies but also develop critical soft skills such as teamwork and innovation. In conclusion, STEAM education, with its emphasis on practical application and interdisciplinary

integration, provides a solid foundation for preparing future specialists in technology-driven industries.

Data Availability Statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

Conflict of Interest

The author declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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THE ROLE OF LABOR LESSONS IN THE FORMATION OF ENGINEERING THINKING AMONG SCHOOLCHILDREN

Abstract: *This article explores the significance of labor lessons in shaping the foundations of engineering thinking among schoolchildren. Engineering thinking is understood as a combination of analytical, practical, and creative skills that enable learners to conceptualize, design, and apply solutions to real-world problems. The development of these abilities at the school level is crucial for preparing students for the demands of modern society, where innovation, technical literacy, and problem-solving play a central role. Labor lessons, traditionally associated with manual skills and craft, are now viewed as a dynamic pedagogical space where technical knowledge, creativity, and critical thinking are integrated. Through practical tasks such as woodworking, metalworking, design projects, and basic technological processes, students gain not only hands-on experience but also the ability to approach problems systematically, develop prototypes, and test hypotheses. The article emphasizes that engineering thinking is not limited to vocational education but forms an essential part of general education, contributing to the holistic development of learners. It also highlights the role of labor lessons in connecting theoretical knowledge with practical application, fostering innovation, and cultivating responsibility and teamwork. The study suggests that integrating modern technologies, project-based learning, and interdisciplinary approaches into labor lessons enhances their effectiveness in developing engineering-oriented skills. By aligning labor lessons with current educational priorities, schools can create an environment where students acquire essential competencies for future careers in science, technology, engineering, and mathematics. The article concludes that the rethinking of labor lessons as a formative stage for engineering thinking is vital in advancing both personal and professional growth among schoolchildren.*

Keywords: *labor lessons, engineering thinking, school education, practical skills, project-based learning, innovation, creativity, technical literacy, problem-solving, pedagogy.*

Introduction

In contemporary education, the role of labor lessons has undergone significant transformation, moving far beyond their initial purpose of developing basic manual skills. Today, these lessons are increasingly recognized as a platform for cultivating engineering thinking among schoolchildren. Engineering thinking encompasses a set of abilities that include systematic analysis, logical reasoning, problem-solving, creativity, and the application of technical knowledge to practical

situations. It is an essential competency for young learners growing up in a society driven by technological advancements, where innovative approaches and engineering-based solutions are needed in every sphere of life. Schools, therefore, must take responsibility for introducing students to the fundamental aspects of engineering thinking, and labor lessons offer an effective and accessible context for this task.

At the core of labor education lies the connection between theory and practice. Students who engage in labor lessons are required not only to follow instructions but also to make decisions, test hypotheses, and evaluate outcomes. These processes naturally foster an engineering mindset, as learners shift from simple repetition of manual tasks to creative engagement with design and production. For example, when a student creates a small wooden model, they must calculate dimensions, ensure accuracy, and troubleshoot challenges during the process. Such experiences develop both cognitive and practical skills that are central to engineering disciplines. Moreover, labor lessons provide an opportunity for collaborative learning, as students often work in groups, share responsibilities, and solve problems collectively. This cooperative element mirrors real-world engineering practices, where teamwork and communication are as crucial as technical knowledge.

Another critical aspect of labor lessons is their adaptability to modern educational trends. With the integration of digital tools, robotics kits, and design software, traditional labor classes are evolving into multidisciplinary workshops where science, technology, engineering, and mathematics are interconnected. This shift not only keeps the lessons relevant but also equips students with the confidence to engage with complex systems and future innovations. Furthermore, labor lessons help nurture values such as persistence, responsibility, and independence, qualities that underpin both personal growth and professional success. As such, the introduction of engineering thinking through labor lessons is not simply about preparing students for technical professions, but also about fostering a generation capable of creativity, adaptability, and resilience in the face of modern challenges.

Main Part. The formation of engineering thinking in schoolchildren through labor lessons can be analyzed from several interrelated dimensions. First, labor lessons provide a direct link between theoretical concepts taught in subjects such as mathematics, physics, and technology, and their practical application. For example, when students design and construct a simple device or model, they are required to apply mathematical calculations, understand the principles of mechanics, and use technological tools. This cross-disciplinary engagement helps learners to see knowledge not as isolated subjects but as an interconnected system, a perspective that is central to engineering thinking.

Second, labor lessons foster problem-solving skills by presenting students with tasks that involve real-life challenges. Unlike purely theoretical assignments, practical projects often include unexpected difficulties, such as inaccuracies in measurement or limitations in materials. Students are therefore encouraged to analyze problems, explore alternative solutions, and adapt strategies to achieve their

goals. This process mirrors the iterative cycle of engineering design, where ideas are tested, refined, and improved through experimentation and reflection. By working through these challenges, schoolchildren develop resilience and flexibility, qualities that are vital in the modern world of technology and innovation.

Third, labor lessons play an important role in nurturing creativity and imagination. While engineering is often perceived as a technical discipline, it is equally dependent on creative thought. The ability to visualize new solutions, design original models, and integrate artistic elements into functional projects expands the intellectual capacity of learners. In this sense, labor lessons bridge the gap between technical precision and creative expression, showing students that innovation emerges from the balance of both.

Additionally, labor lessons contribute to the development of teamwork and communication skills. Many engineering-related tasks require collaboration, where each member of a group takes responsibility for specific aspects of a project. Through collective effort, students learn to negotiate, share ideas, and coordinate activities, thereby gaining a deeper appreciation of the collaborative nature of engineering work. Furthermore, the role of teachers in guiding labor lessons cannot be underestimated. By encouraging inquiry, providing constructive feedback, and integrating modern technologies, teachers transform the classroom into a space where engineering thinking is continuously developed and refined.

Ultimately, the main contribution of labor lessons lies in their holistic approach to student development. Beyond equipping learners with technical literacy, these lessons cultivate independence, responsibility, and an appreciation for productive work. By integrating hands-on practice with intellectual inquiry, labor lessons serve as an essential foundation for preparing students to succeed in an increasingly technological and innovation-driven world.

Conclusion: The role of labor lessons in the formation of engineering thinking among schoolchildren is fundamental to the modernization of education and the preparation of future generations for a rapidly changing world. By linking theory with practice, these lessons provide an environment where learners can not only acquire manual skills but also cultivate the ability to think critically, solve complex problems, and innovate. Through hands-on projects, students learn to design, construct, test, and evaluate their ideas, processes that directly reflect the essential stages of engineering activity. Such experiences shape their capacity for systematic analysis, logical reasoning, and adaptability, which are indispensable in both academic and professional contexts.

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**MAKTABGACHA TA'LIM YO'NALISHI TALABALARIDA
KREATIVLIKNI SHAKLLANTIRISHDA TABIAT BILAN
TANISHTIRISH METODIKASI FANINI BIOIONIKA ASOSIDA
O'QITISHNING INNOVATSION YONDASHUVLARI**

Annotatsiya: Mazkur maqolada maktabgacha ta'lim yo'nalishi talabalari uchun tabiat bilan tanishtirish metodikasini o'qitishda bioionika elementlaridan foydalanishning nazariy va metodik asoslari yoritilgan. Bioionikaning ta'lim jarayonidagi ahamiyati, kreativlikni shakllantirishdagi o'rni hamda talabalarni ekologik va ijodiy fikrlashga yo'naltirishdagi imkoniyatlari tahlil qilingan.

Kalit so'zlar: bioionika, tabiat bilan tanishtirish, maktabgacha ta'lim, kreativlik, ekologik tafakkur, pedagogik innovatsiya.

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**INNOVATIVE APPROACHES TO TEACHING THE SCIENCE OF
NATURE METHODOLOGY BASED ON BIOIONICS IN FORMING
CREATIVITY IN PRESCHOOL STUDENTS**

Abstract: This article discusses the theoretical and methodological foundations of using bioionics elements in teaching the methodology of introducing nature to preschool students. The importance of bioionics in the educational process, its role in the formation of creativity, and its potential for directing students to ecological and creative thinking are analyzed.

Keywords: bioionics, introducing nature, preschool education, creativity, ecological thinking, pedagogical innovation

Kirish: XXI asr ta'lim tizimining asosiy talabi – ijodkor, yangicha fikrlovchi va ekologik mas'uliyatni his qiladigan mutaxassislarni tayyorlashdir. Shu bois, pedagogika sohasida yangi metod va yondashuvlardan foydalanish zarurati ortib bormoqda.

Maktabgacha ta'lim yo'nalishi talabalari uchun "Tabiat bilan tanishtirish metodikasi" fani nafaqat nazariy bilim, balki ijodiy qobiliyatni ham talab etadi. Bioionika elementlaridan foydalanish orqali tabiat hodisalaridan ilhomlanib, talabalarni kreativ yechimlar topishga yo'naltirish mumkin.

Bioionika va kreativlik tushunchalarining nazariy asoslari

1.1. Bioionikaning mohiyati

Bioionika – tabiatdagi biologik jarayon va mexanizmlarni o‘rganib, ulardan texnika, san‘at va ta’limda foydalanishga asoslangan ilmiy yo‘nalishdir. Qushlarning uchishi, baliqlarning suzishi, o‘simlik barglarining suv yig‘ish xususiyatlari inson uchun innovatsion g‘oyalarga manba bo‘lib xizmat qiladi.

1.2. Kreativlikning pedagogik talqini

Kreativlik – yangicha fikrlash, muammoli vaziyatlarda noodatiy yechim topish, mavjud bilimlarni qayta ishlash va yangi g‘oya yaratish qobiliyati. Maktabgacha ta’lim talabalarida bu qobiliyatni shakllantirish kelgusida bolalarda ijodkorlikni rivojlantirish uchun zamin bo‘ladi.

1.3. Bioionika va kreativ kompetensiya o‘zaro bog‘liqligi

Tabiat hodisalaridan ilhomlanish orqali talabalarda “innovatsion fikrlash”, “ekologik ijodkorlik” va “modellashtirish qobiliyati” rivojlanadi. Bu esa kreativ kompetensiyaning asosiy tarkibiy qismlaridan biridir.

Tabiat bilan tanishtirish metodikasida bioionika elementlaridan foydalanish

2.1. An‘anaviy metodikaning chegaralari

Odatdagi darslarda talabalarga tabiat haqida nazariy ma’lumot beriladi, biroq ular ko‘pincha ijodiy faoliyatga yetarlicha jalb qilinmaydi.

2.2. Bioionik yondashuv asosida innovatsion metodlar

Modellashtirish: Bargning suv yig‘ish xususiyatidan ilhomlanib “suv yig‘uvchi qurilma” modeli yaratish.

Didaktik o‘yinlar: “Ari uyasi” orqali jamoaviy faoliyatni tushuntirish.

Rol o‘ynash: Talabalar o‘zlarini jonivor yoki o‘simlik sifatida tasavvur qilib, ularning hayotiy jarayonlarini tushuntiradilar.

Kuzatish va tahlil: Qushlarning parvozini kuzatib, undan pedagogik xulosalar chiqarish.

2.3. Interfaol metodlar

Aqliy hujum (brainstorming): “Tabiatdan qanday ixtiro qilish mumkin?” savoli asosida kreativ g‘oyalar ishlab chiqish.

Case-study: Ekologik muammoni bioionik yechim asosida hal qilish bo‘yicha vaziyatli topshiriq.

STEAM yondashuvi: Biologiya, texnologiya va san‘atni uyg‘unlashtirib, tabiatdan ilhomlangan loyihalar yaratish.

Talabalarda kreativlik salohiyatini rivojlantirish mexanizmlari

Loyihaviy ta’lim: “Tabiatdan ilhom” loyihasi orqali talabalar ekologik muammoga ijodiy yechim topadilar.

Gamifikatsiya: O‘yin elementlari orqali tabiat mexanizmlarini tushuntirish (masalan, “Qush qanoti” o‘yini).

Virtual texnologiyalar: 3D animatsiyalar yordamida tabiat jarayonlarini kuzatish va ularni pedagogik topshiriqlarga tatbiq etish.

Ijodiy topshiriqlar: Tabiatdan ilhomlanib ertak, she’r, rasm yoki o‘yin ssenariysi yaratish.

Amaliy tavsiyalar

Maktabgacha ta'lim fakultetlarida "Bioionika va pedagogik kreativlik" mavzusida seminar-treninglar tashkil etish.

Har bir talabani "Bioionika burchagi" loyihasiga jalb etish – tabiatdan ilhomlangan ijodiy ishlanmalarni namoyish qilish.

Darslarda eko-loyihalarni amalga oshirish: chiqindilarni qayta ishlash, tabiat resurslaridan oqilona foydalanish bo'yicha ijodiy takliflar ishlab chiqish.

Talabalarda kreativlikni baholash uchun kreativ kompetensiya mezonlari ishlab chiqish.

Xulosa:Tabiat bilan tanishtirish metodikasini o'qitishda bioionika elementlaridan foydalanish maktabgacha ta'lim yo'nalishi talabalarining kreativ salohiyatini rivojlantirishda muhim omil bo'lib xizmat qiladi. Bunday yondashuv talabalarni tabiatni chuqurroq anglashga, ekologik tafakkur bilan birga yangicha pedagogik yechimlar ishlab chiqishga yo'naltiradi. Shu orqali kelajak tarbiyachilar bolalarda tabiatga mehr, ijodiy fikrlash va ekologik mas'uliyatni shakllantira oladilar.

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SOCIO-ECONOMIC DEVELOPMENT CHARACTERISTICS OF FREE ECONOMIC ZONES WITH CHINESE PARTICIPATION IN UZBEKISTAN

Annotation. *China is one of Uzbekistan's key partners in the Asian region. In collaboration with China and several developed countries, free economic zones have been established across the country, where various sectors are rapidly expanding and their efficiency is steadily increasing. The core activities of these zones are primarily linked to the industrial sector, attracting substantial investment flows and making a significant contribution to economic growth.*

Keywords: *Economic zones, foreign investment, industry, pharmaceuticals, agriculture, free economic zones (FEZ), tourism, information and communication technologies (ICT), infrastructure.*

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O'ZBEKISTONDA XITOIY ISHTIROKIDAGI ERKIN IQTISODIY ZONALARNING IQTISODIY-IJTIMOIIY RIVOJLANISH XUSUSIYATLARI

Annotatsiya. *Xitoy O'zbekistonning Osiyo mintaqasidagi eng muhim hamkorlaridan biri hisoblanadi. Mamlakatimiz hududlarida Xitoy hamda boshqa rivojlangan davlatlar ishtirokida tashkil etilgan erkin iqtisodiy zonalarda turli tarmoqlar jadal rivojlanib, ularning samaradorligi muntazam yuksalmoqda. Mazkur zonalarining asosiy faoliyati sanoat sohasi bilan chambarchas bog'liq bo'lib, ular yirik hajmdagi investitsiyalarni jalb etish orqali iqtisodiy o'sishga sezilarli hissa qo'shmoqda.*

Kalit so'zlar: *Iqtisodiy zonalar, xorijiy investitsiyalar, sanoat, farmatsevtika, qishloq xo'jaligi, erkin iqtisodiy zonalar (EIZ), turizm, axborot-kommunikatsiya texnologiyalari (AKT), infratuzilma.*

Kirish. O‘zbekiston Respublikasi bugungi kunda dunyoning turli mamlakatlari bilan ijtimoiy-iqtisodiy aloqalarini jadal rivojlantirib bormoqda. Xitoy O‘zbekistonning yetakchi savdo sheriklaridan biri hamda mamlakat iqtisodiyotiga yirik sarmoyador hisoblanadi. O‘zbekiston va Xitoy o‘rtasidagi savdo-iqtisodiy hamda sarmoyaviy hamkorlik jadal rivojlanib, yangi yo‘nalishlarni qamrab olmoqda.

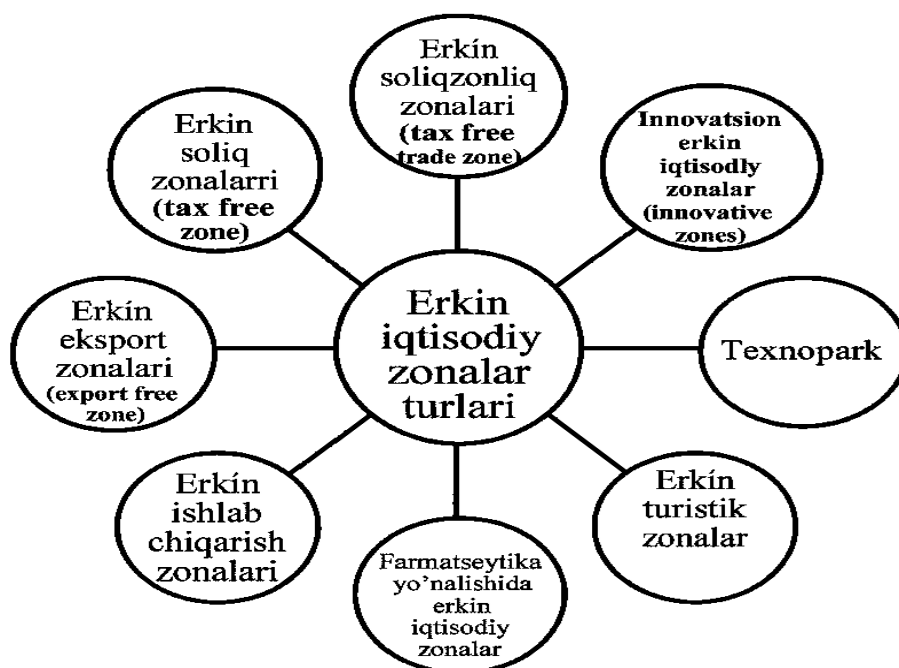
Bugungi kunda Xitoy O‘zbekistonning Osiyo mintaqasidagi eng muhim hamkorlaridan biri hisoblanadi. Hozirgi kunda ikki mamlakat o‘rtasidagi munosabatlar deyarli barcha sohalarda — siyosiy, savdo-iqtisodiy, sarmoyaviy, xavfsizlik, ilmiy-texnikaviy, ijtimoiy-madaniy, fan va ta’lim, sport, gumanitar, energetika, neft-gaz, transport, kommunikatsiya va axborot sohaslarida o‘zaro hamkorlik jadal suratlarda rivojlanib, samaradorligi ortib bormoqda. Shuningdek, mamlakatlarimiz mazkur sohalarda hamkorlikda erkin iqtisodiy hududlarda manfaatli loyihalarni amalga oshirib, sezilarli natijalarga erishmoqda.

Erkin iqtisodiy zonalar davlatlar iqtisodiy salohiyatini yuksaltirish va ishlab chiqarishni texnik hamda texnologik yangilash vositasi sifatida xalqaro xo‘jalik munosabatlarida bir necha o‘n yillar davomida faoliyat ko‘rsatib kelmoqda. Ushbu iqtisodiy tuzilmalar tashqi savdoni rivojlantirish, iqtisodiyotga xorijiy investitsiyalarni jalb qilish, xorijiy davlatlarning biznes va korporativ boshqaruv sohasidagi ilg‘or tajribalarini o‘zlashtirish, hududlar infratuzilmasini rivojlantirish va qo‘shimcha ish o‘rinlarini yaratish vositasidir.

Erkin iqtisodiy zonalar faoliyatini huquqiy tartibga solish, mazkur iqtisodiy hududlar ishtirokchilari uchun qulay tadbirkorlik va investitsiya muhitini yaratish dolzarb vazifadir. Erkin iqtisodiy hududlar mamlakatning boshqa qismlarida qo‘llanilmaydigan imtiyoz va rag‘batlantirish tizimi amal qiladigan milliy iqtisodiy hududning bir qismi sifatida namoyon bo‘ladi.

Asosiy qism. Erkin iqtisodiy zonalar noan‘anaviy tarmoqlarni rivojlantirish, milliy iqtisodiyotga xorijiy investitsiyalarni jalb qilish maqsadida tashkil etilgan, mamlakatning maxsus iqtisodiy imtiyozlar joriy etilgan alohida hududi hisoblanadi. U milliy iqtisodiy makonning bir qismi bo‘lib, bu hududda mamlakatning boshqa qismlarida qo‘llanilmaydigan ma’lum imtiyozlar tizimi amal qiladi va davlatning iqtisodiy jarayonlarga aralashuvi kamayadi.

Erkin iqtisodiy zonalar xo‘jalik yuritishning yangi shakllaridan biri bo‘lib, xalqaro maydonda dastlab sanoat ishlab chiqarishi rivojlangan mamlakatlar — AQSh, Yaponiya, Germaniya va Buyuk Britaniyada, keyinchalik esa Polsha, Vengriya, Bolgariya kabi davlatlarda tashkil etilgan. Jahon tajribasidan ma’lumki, erkin iqtisodiy hududlar dastlab daryo va dengiz portlarida, xalqaro aeroportlarda, temir va avtomobil yo‘llariga yaqin joylarda, sayyohlik maskanlarida hamda alohida sanoat markazlarida tashkil etilgan bo‘lib, ularning asosiy turlari 1-rasmda ifodalangan.

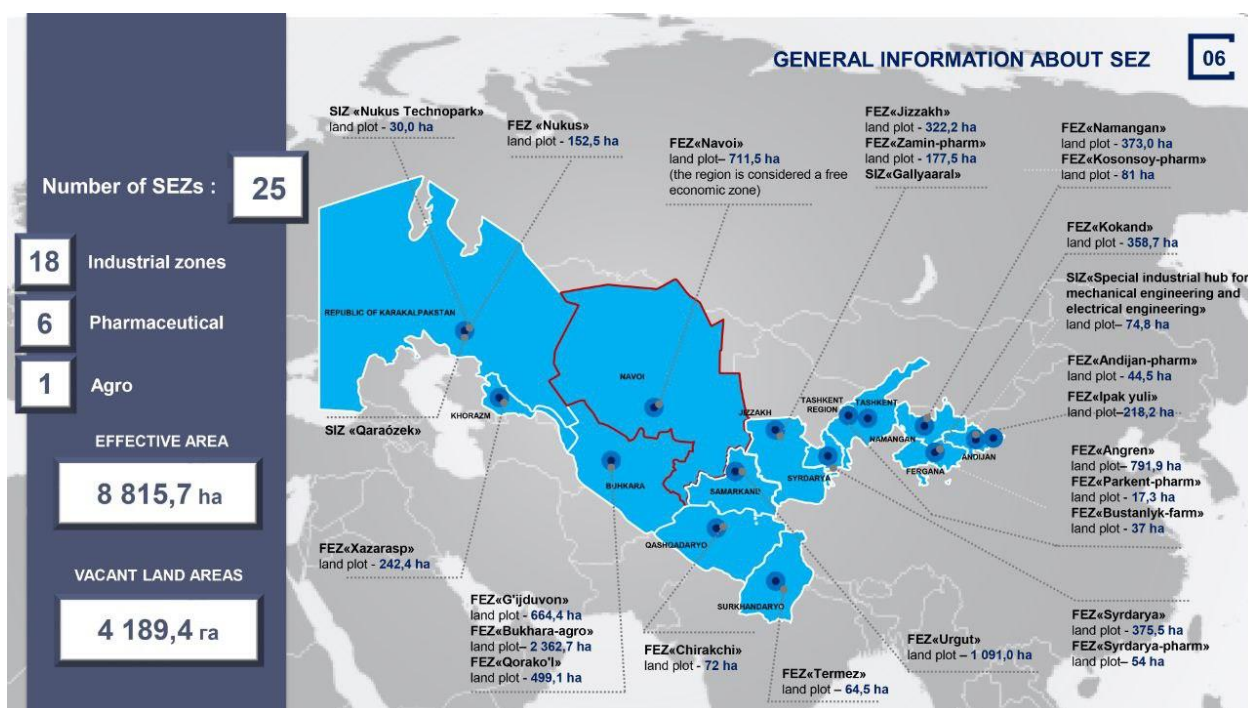


1-rasm. Erkin iqtisodiy zonalar asosiy turlari

O‘zbekiston Respublikasining "Erkin iqtisodiy zonalar to‘g‘risida"gi Qonuniga asosan, erkin iqtisodiy zonalar — “mintaqani jadal ijtimoiy-iqtisodiy rivojlantirish uchun mamlakat investitsiyasi, istiqbolli texnologiyalar va boshqaruv tajribasini jalb etish maqsadida tuziladigan, aniq belgilangan ma’muriy chegaralari va alohida huquqiy tartiboti mavjud maxsus ajratilgan hududlar” sifatida ta’riflangan.

2020-yilda O‘zbekistonda 18 ta erkin iqtisodiy zona (EIZ) faoliyat yuritgan bo‘lsa, 2023-yil 1-yanvar holatiga ularning soni 22 taga yetdi. O‘zbekiston Respublikasi Statistika agentligi ma’lumotlariga ko‘ra, hozirda mamlakatda 25 ta EIZ faoliyat yuritmoqda (2-rasm). Ulardan 18 tasi sanoat zonalari, 6 tasi farmatsevtika yo‘nalishidagi zonalar, 1 tasi esa qishloq xo‘jaligiga ixtisoslashgan zonadir.

O‘zbekiston Respublikasi Prezidentining tashabbusi bilan EIZlarda Buyuk Britaniya, Xitoy, Koreya Respublikasi, Italiya, Hindiston singari qator mamlakatlar bilan hamkorlikda investitsiya loyihalari amalga oshirib kelinmoqda.



2-rasm. O'zbekiston erkin iqtisodiy zonalari

Bu borada Xitoy sarmoyalarining o'rni katta. Xitoy O'zbekiston iqtisodiyotiga eng ko'p investitsiya kiritayotgan davlatlardan biridir. Respublikamizda Xitoy ishtirokidagi 1702 ta korxona faoliyat yuritmoqda. Ularning 116 tasi 100 foiz Xitoy sarmoyasi asosida tashkil etilgan. Mamlakatimizda Xitoyning 73 ta kompaniyasi vakolatxonalari ham faoliyat olib bormoqda.

Ta'lim sohasida ham hamkorlik jadal rivojlanmoqda. Shu aloqalar doirasida talabalar va amaliyotchilar almashinuvi keng yo'lga qo'yilgan. O'zbekiston–Xitoy hamkorligining bu darajada jadal kengayishi iqtisodiy rivojlanishda katta ahamiyat kasb etmoqda.

2017–2024-yillarda Xitoyning O'zbekiston iqtisodiyotiga kiritgan sarmoyalari umumiy hajmi 14 milliard dollarni tashkil etdi. Jizzax EIZ viloyat sanoatini rivojlantirishda muhim o'rin tutmoqda. Ushbu hududda soliq va bojxona to'lovlari uchun belgilangan imtiyozlar, shuningdek, xomashyo va butlovchi qismlar bojxona to'lovlaridan ozod etilishi Jizzax erkin iqtisodiy zonasida sanoat ishlab chiqarishini yanada rivojlantirishda muhim omil bo'lmoqda. "Jizzax" EIZ tashkil etilishi natijasida qisqa muddatda 19 ta zamonaviy korxona ishga tushirildi. Iqtisodiy hududning Jizzax shahridagi 363,7 gektar maydonda 14 ta, Sirdaryo viloyatidagi 150 gektar maydonda esa 5 ta loyiha amalga oshirilishi uchun 91,3 million dollar miqdorida investitsiya sarflandi. Zamonaviy texnologiyalar asosida barpo etilgan korxonalarda mingdan ortiq yangi ish o'rni yaratildi. Doimiy ish o'rinlariga ega bo'lganlarning 60 foizini kasb-hunar kollejlari bitirgan yosh mutaxassislar tashkil qiladi.

Toshkent viloyatidagi ishlab chiqarish hamda resurs salohiyatidan foydalanish, Farg'ona vodiysidagi korxonalar bilan barqaror iqtisodiy aloqalarni yo'lga qo'yishning kelajakda muhim ahamiyatga ega ekanini hisobga olgan holda,

2012-yilda “Angren maxsus industrial zonasi”ni tashkil etish to‘g‘risida qaror qabul qilingan edi. “Angren” EIZ, eng avvalo, o‘z vaqtida sanoat shaharlari sifatida tashkil qilingan hududlarda iqtisodiy salohiyatni rivojlantirishga xizmat qilmoqda.

“Jizzax” EIZ tashkil etilishi natijasida qisqa muddatda 19 ta zamonaviy korxona ishga tushirildi. Iqtisodiy hududning Jizzax shahridagi 363,7 gektar maydonda 14 ta, Sirdaryo viloyatidagi 150 gektar maydonda esa 5 ta loyiha amalga oshirilishi uchun 91,3 million dollar miqdorida investitsiya sarflandi. Zamonaviy texnologiyalar asosida barpo etilgan korxonalarda mingdan ortiq yangi ish o‘rni yaratildi. Doimiy ish o‘rinlariga ega bo‘lganlarning 60 foizini kasb-hunar kollejlari bitirgan yosh mutaxassislar tashkil qiladi.

Shuningdek, Toshkent viloyatidagi ishlab chiqarish hamda resurs salohiyatidan foydalanish, Farg‘ona vodiysidagi korxonalar bilan barqaror iqtisodiy aloqalarni yo‘lga qo‘yishning kelajakda muhim ahamiyatga ega ekanini hisobga olgan holda, 2012-yilda “Angren maxsus industrial zonasi”ni tashkil etish to‘g‘risida qaror qabul qilingan edi. “Angren” EIZ, eng avvalo, o‘z vaqtida sanoat shaharlari sifatida tashkil qilingan hududlarda iqtisodiy salohiyatni rivojlantirishga xizmat qilmoqda. Bu salohiyat o‘z davrida bir yoqlama, markazga yo‘naltirilgan ishlab chiqarishga asoslanib qolgan Angren va Ohangaron shaharlarining bugungi kunda isloh etilayotgan sanoat tizimini yanada rivojlantirishga xizmat qilmoqda. Bu esa, o‘z navbatida, zamonaviy texnologiyalar asosida qo‘shimcha ish o‘rinlari yaratilishini ta’minlaydi. Shu orqali mazkur maxsus iqtisodiy zona Toshkent viloyatidagi ikkita yirik hudud — Angren va Ohangaron shaharlari hamda ularning atrofidagi mahalliy punktlarda istiqomat qilayotgan aholi farovonligini oshirishga ham munosib ulush qo‘shmoqda.

O‘zbekistonni Qirg‘iziston orqali Xitoy bilan bog‘lovchi bo‘ljak avtomagistralning Angren shahridan o‘tishi, qolaversa, ushbu shahar mamlakat poytaxtini Farg‘ona vodiysi bilan bog‘lovchi asosiy nuqtalardan biri ekanligini inobatga olsak, “Angren” EIZ ham milliy, ham mintaqaviy, ham xalqaro miqyosda ahamiyatga egadir. Yuqorida keltirilgan EIZlar O‘zbekistonda ilk tashkil etilgan iqtisodiy zonalar bo‘lib, ularni tashkil etishda asosiy hamkor Xitoy davlati hisoblanadi va u yirik sarmoyalar kiritgan. O‘zbekistonda Navoiy, Angren va Jizzaxda maxsus iqtisodiy zonalar (EIZ) mavjud bo‘lib, ular Xitoy xususiy investorlarining O‘zbekiston hukumati bilan hamkorlikda barpo etilishi natijasidir.

Xitoyning bir qancha kompaniyalari Jizzax va Angren zonalarida tog‘-kon uskunalari, axborot-kommunikatsiya texnologiyalari (telekom, uyali telefonlar), qurilish materiallari (shisha, keramik plitkalar, tezyurar liftlar) hamda yengil sanoat (sun‘iy charm, poyabzal, uy hayvonlari uchun oziq-ovqat, to‘qimachilik) ishlab chiqarishga sarmoya kiritgan.

Hozirgi kunda mamlakatimizda EIZlar tez suratlarda rivojlanib, iqtisodiy samaradorlikni oshirmoqda. Jumladan, faoliyat yuritayotgan 25 ta EIZning 19 tasi O‘zbekiston–Xitoy hamkorligida tashkil etilgan. Ushbu EIZlarning asosiy faoliyat yo‘nalishi ko‘proq sanoat tarmog‘i bilan bog‘liq ekanini kuzatish mumkin (1-jadval). Chunki sanoat sohasida faoliyat yuritayotgan korxonalarning aksariyat qismi katta miqdordagi investitsiyalarni jalb qiladi va iqtisodiy o‘rishga katta hissa

qo‘shadi. Sanoat tarmog‘ida faoliyat yuritayotgan korxonalar ko‘p ishchi kuchiga ehtiyoj sezadi, bu esa EIZ joylashgan hudud aholisi uchun ko‘plab ish o‘rinlarini yaratadi. Sanoat mahsulotlarini eksport qilish qulay bo‘lib, EIZlarda ishlab chiqarilgan mahsulotlarni tez va oson eksport qilish uchun infratuzilma yaratilgan. Shuningdek, 2017-yilda farmatsevtika sohasida faoliyat olib boradigan EIZlar Jizzax, Namangan, Toshkent shahri, Toshkent viloyati, Qoraqalpog‘iston Respublikasi, Andijon va Surxondaryo viloyatlarida tashkil etilgan bo‘lib, ular dorivor o‘simliklardan turli infuzion eritmalar, antibiotiklar kabi mahsulotlarni ishlab chiqaradi. Asosiy investitsiya kiritgan hamkorlar Xitoy, Hindiston, Rossiya, Eron va Qirg‘iziston hisoblanadi.

1-jadval

O‘zbekistondagi tashkil etilgan EIZ larni faoliyati

№	Erkin iqtisodiy zona nomi	Joylashgan hududi	Tashkil etilgan yili	Asosiy mahsuloti	Asosiy hamkor davlati	Tarmoq faoliyati
1	Navoiy EIZ	Navoiy	2008	Kimyo sanoati, qurilish materiallari, elektronika	Xitoy-Germanya	sanoat
2	Angren EIZ	Toshkent	2012	Elektronika, kimyo sanoati Mashinasozlik	Xitoy-Rossiya	sanoat
3	Jizzah EIZ	Jizzax	2013	Qurilish materiallari, maishiy texnika, elektr uskunalar	Xitoy-Janubi Koreya	sanoat
4	Samarqand EIZ	Samarqand	2017	Mahalliy xomashyodan qurilish materiallari, plastmassa	Turkiya-Hindiston	sanoat
5	G‘ijduvon EIZ	Buxoro	2017	Yengil sanoat, oziq-ovqat mahsulotlari, keramika	Xitoy-Eron	sanoat
6	Qo‘qon EIZ	Farg‘ona	2017	Elektrotexnika, maishiy texnika, qadoqlash	Xitoy-Koreya	sanoat
7	Xazorasp EIZ	Xorazm	2017	Qishloq xo‘jaligi texnikasi, qadoqlash, oziq-ovqat, plastmassa	Turkiya-Qozog‘iston	sanoat
8	Nukus EIZ	Qoraqalpog‘iston Respublikasi	2019	Oziq-ovqat, qishloq xo‘jaligi texnikasi	Rossiya-Xitoy	sanoat
9	Sirdaryo EIZ	Sirdaryo	2018	Qurilish materiallari, qadoqlash, plastmassa	Xitoy-Rossiya, Turkiya	sanoat
10	Chirchiq EIZ	Toshkent	2020	Kimyo sanoati, elektrotexnika, suv filtrlash	Xitoy, Belarus, Germanya	sanoat
11	Namangan EIZ	Namangan	2018	Yengil sanoat, qishloq xo‘jaligi mahsulotlarini qadoqlash	Turkiya, Xitoy	sanoat
12	Termiz EIZ	Surxondaryo	2018	Qishloq xo‘jaligi mahsulotlari muzlatilgan, qadoqlash, oziq-ovqat	Xitoy, Afg‘oniston	sanoat
13	Zomin farm	Jizzax	2017	Farmasevtika, dorivor o‘simliklar	Xitoy-Hindiston	farmasevtika

14	Namangan farm	Namangan	2017	Antibiotiklar, kapsula farmasevtika mahsulotlari fitodori vositalari	Hindiston-Xitoy	farmasevtika
15	Bo'stonliq farm	Toshkent	2017	Ekstraklar, choylar, siroblar, kosmetik biomahsulotlar	Xitoy-Rossiya	farmasevtika
16	Toshkent farm	Toshkent	2017	Dorivor o'simliklar, infuzion eritmalar, vaksinalar	Turkiya-Eron	farmasevtika
17	Nukus farm	Qoraqalpog'iston Respublikasi	2017	Mahaliy o'simlik asosida dorilar, balzam, spirt	Rossiya-Qirg'iziston	farmasevtika
18	Andijon farm	Andijon	2019	Farmasevtika dorilar, antibiotiklar, tibbiy mahsulotlar	Hindiston-Xitoy	farmasevtika
19	Bo'ysin farm	Surxondaryo	2017	Tabletka sirob vositalari, gigiyeva vositalari	Xitoy-Eron	farmasevtika
20	Baliq ishlab chiqaruvchi	Toshkent	2018	Baliqchilik, ozuqa ishlab chiqarish	Xitoy-Rossiya	baliqchilik
21	Chorvoq EIZ	Toshkent	2019	Turizm sohasi	BAA, Janubiy Koreya	turizm
22	Bo'sun EIZ	Surxondaryo	2022	Qurilish materiallari, tog'-kon sanoati	Eron-Xitoy	sanoat
23	Xiva-agro EIZ	Xorazm	2018	Qishliq xo'jaligi mahsulotlarini qayta ishlash, qadoqlash	Rossiya-Xitoy	qishloq xo'jaligi
24	Ipak yo'li EIZ	Andijon	2024	Mashinasozlik, metallurgiya, qurilish materiallari, elektrotexnika	Xitoy, Turkiya, Germaniya	sanoat
25	Chiroqchi EIZ	Qashqadaryo	2019	Agrar qayta ishlash, yuqori texnologiyali sanoat, eksport mahsulotlar	Turkiya	sanoat

Izoh: *Jadval mualliflar tomonidan statistik ma'lumotlari asosida shakllantirildi*

2018-yilda Toshkent viloyatida baliqchilik yo'nalishida EIZ tashkil etildi. Uning asosiy hamkorlari Xitoy va Rossiya bo'lib, mazkur hududda baliqchilik uchun ozuqa ishlab chiqariladi. Xorazm viloyatida esa 2018-yilda qishloq xo'jaligi tarmog'i bo'yicha EIZ tashkil etilgan bo'lib, uning asosiy hamkorlari Rossiya va Xitoy hisoblanadi. 2019-yilda Toshkent viloyatida BAA va Janubiy Koreya hamkorligida turizm sohasida EIZ tashkil etildi. U Chorvoq hududida, tabiati va manzarasi go'zal, turizmni rivojlantirish uchun qulay hududda joylashgan. Savdo-iqtisodiy va investitsiyaviy hamkorlik jadal rivojlanmoqda. 2023-yil yakunlari bo'yicha O'zbekistonning umumiy tashqi savdo aylanmasida Xitoyning ulushi 21,9 foizni tashkil etdi. Jami eksportning 10,1 foizi, importning esa 29,5 foizi Xitoy hissasiga to'g'ri kelgan. Yaqin istiqbolda bu ko'rsatkichni 20 milliard dollarga yetkazish imkoniyatlari qayd etildi. Investitsiya loyihalarining joriy portfeli 50 milliard dollardan oshgan. 2023-yil boshidan buyon mamlakatimizda 3 milliard

dollardan ziyod Xitoy sarmoyasi o‘zlashtirilib, 500 dan ortiq yangi qo‘shma korxona tashkil etildi. Bu O‘zbekiston–Xitoy iqtisodiy munosabatlarining izchil rivojlanayotganidan dalolat beradi.

Xulosa. Erkin iqtisodiy zona – bu yangi ishlab chiqarish quvvatlarini barpo etish, yuqori texnologiyali ishlab chiqarishni rivojlantirish, zamonaviy, raqobatbardosh, import o‘rnini bosuvchi va eksportga yo‘naltirilgan tayyor sanoat mahsulotlarini ishlab chiqarishga faol jalb etish maqsadida tashkil etiladigan hududdir. Uni tashkil etishdan maqsad, eng avvalo, mamlakat yoki alohida hududning strategik rivojlanishiga oid vazifalarni hal qilish, tashqi savdo, umumiy iqtisodiy, ijtimoiy, hududiy va ilmiy-texnik masalalarni yechish, yuqori texnologiyalar sohasidagi loyihalarni hayotga tatbiq etish, hudud infratuzilmasini rivojlantirish va qo‘shimcha ish o‘rinlarini yaratishdan iboratdir. Shuningdek, erkin iqtisodiy zonalarining kengayishi O‘zbekistonning iqtisodiy o‘sishi va global raqobatbardoshligini oshirishga xizmat qiladi.

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ELEKTR ZINJIRLARNI BOSHQARISH USULLARI VA TAHLILI.

Annotatsiya: Elektr zanjirlarini hisoblashdan asosiy maqsad tokni zanjir tarmoqlarida qanday taqsimlanganligini aniqlashdir. Bu vazifa Om va Kirxgof qonunlaridan foydalanib hal etiladi. Elektr zanjirlari hisobi aniq olinsa va himoya qurilmalari to'g'ri o'rnatilsa ko'yillar xizmat qiladi.

Kalit so'zlar: Elektr zanjirlari, Tugun kuchlanish usuli, Qo'shilish usuli, Kontur toklar usuli.

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ELECTRICAL CHAINS CONTROL METHODS AND ANALYSIS.

Abstract: The main purpose of calculating electrical circuits is to determine how the current is distributed in the circuit branches. This task is solved using Ohm's and Kirchhoff's laws. If the calculation of electrical circuits is accurate and the protective devices are installed correctly, the clothes will serve.

Keywords: Electric circuits, Nodal voltage method, Connection method, Loop current method.

Elektr zanjirlarini hisoblashdan asosiy maqsad tokni zanjir tarmoqlarida qanday taqsimlanganligini aniqlashdir. Bu vazifa Om va Kirxgof qonunlaridan foydalanib hal etiladi.

Murakkab elektr zanjirlarini hisoblash uchun turli usullar mavjud bo'lib ularni qaysi birini qo'llash sxemalarda elementlarni qanday joylashishiga va masala shartiga bog'liq[1].

Quyida ushbu usullarni alohida ko'rib chiqamiz.

1. Tugun kuchlanish usuli yordamida ikki tugun nuqtaga ega bo'lgan murakkab zanjirli hisoblanadi.

1-rasmda A va V tugun nuqtalarga ega bo'lgan murakkab zanjir tasvirlangan. A va V tugun nuqtalari orasidagi kuchlanish **tugun kuchlanish** deb ataladi. V tugundan A tugunga qarab yo'nalgan tok yo'nalishini EYUK larning musbat yo'nalishi deb ataymiz. A va V tugun orasidagi kuchlanish:

$$u \square E_1 \square J_1 R_1 \square E_2 \square J_2 R_2 \square E_3 \square J_3 R_3 \square O \square J_u R_u$$

Tarmoqlardagi toklarni hisoblash qo`yidagicha bajaralidi.

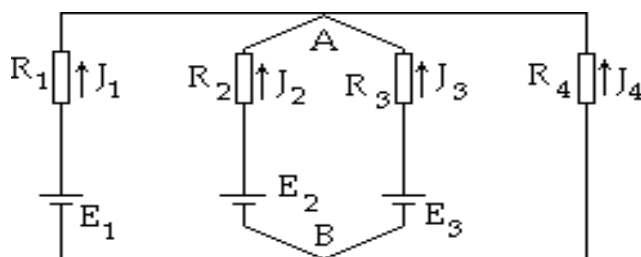
E_1-u	E_2-u	E_3-u	$O-u$
$J_1=-----$	$J_2=-----$	$J_3=-----$	$J_4=-----$

R_1

R_2

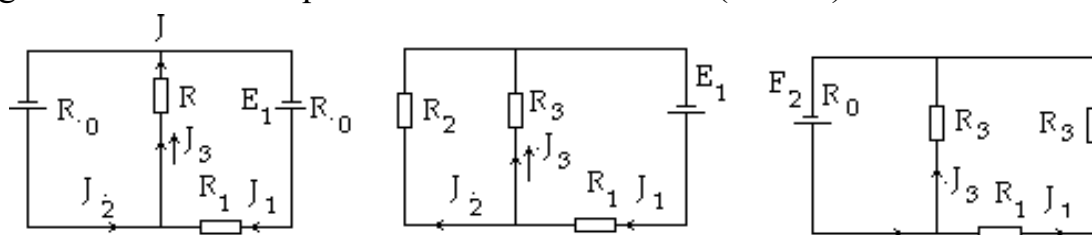
R_3

R_4



1-rasm. Murakkab elektr zanjirlari.

2. **Qo`shilish usulini** mohiyati shundan iboratki, agar zanjirda bir necha EYUK bo`lsa, zanjirning har bir qismidagi toklarni bir-biridan mustaqil holda, shu qismlardagi EYUK lar hosil qiladi deb hisoblash mumkin(2-rasm).



Natijaviy yuklarni topish uchun hususiy toklarni yo`nalishini hisobga olgan holda ularni qo`shamiz[2,3,4].

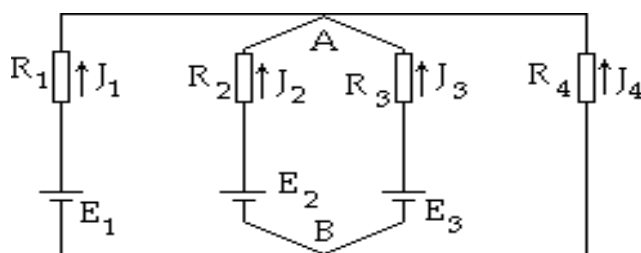
3. **Kontur toklar usuli.** Bu usulni qo`llashda murakkab zanjirda kontur toklari qabul qilinib yo`nalishlari qabul qilinadi. Avvalo bu konturlar uchun Kirxgof qonuniga asoslanib tenglamalar tuziladi. Bu tenglamalar sistemasini yechish natijasida kontur toklar qiymatlari aniqlanadi. So`ngra bu toklar asosida zanjir elementlaridagi xususiy toklarni aniqlanadi.

R_1

R_2

R_3

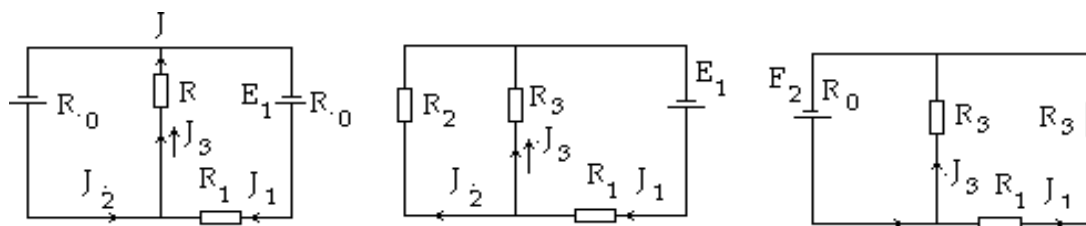
R_4



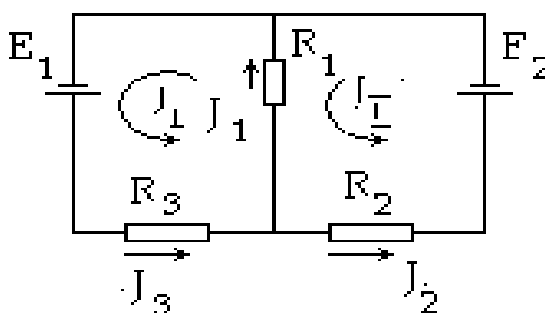
1-rasm. Murakkab elektr zanjirlari.

4. **Qo`shilish usulini** mohiyati shundan iboratki, agar zanjirda bir necha EYUK bo`lsa, zanjirning har bir qismidagi toklarni bir-biridan mustaqil holda, shu qismlardagi EYUK lar hosil qiladi deb hisoblash mumkin(2-rasm) [5,6].

Natijaviy yuklarni topish uchun hususiy toklarni yo`nalishini hisobga olgan holda ularni qo`shamiz.



5. Kontur toklar usuli. Bu usulni qo`llashda murakkab zanjirda kontur toklari qabul qilinib yo`nalishlari qabul qilinadi. Avvalo bu konturlar uchun Kirxgof qonuniga asoslanib tenglamalar tuziladi. Bu tenglamalar sistemasini yechish natijasida kontur toklar qiymatlari aniqlanadi. So`ngra bu toklar asosida zanjir elementlaridagi xususiy toklar aniqlanadi.



3-rasmda ko`rsatilgan zanjir uchun tenglamalar tuzamiz va ular asosida xususiy toklarni topamiz[6,7].

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ELEKTR ZANJIRLARIDAGI ELEKTROMAGNIT MAYDON TAHLILI

Annotatsiya: Elektromagnit maydon nazariyasini ishlab chiqilishi va uni tajribalar yordamida tasdiqlanishiga oid tahliliy ishlar va standartlar ko'rib chiqiladi va xulosalar olinadi.

Kalit so'zlar: Elektromagnit maydon, Elektr maydoni, Magnit maydoni, Elektr zarad.

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ELECTROMAGNETIC FIELD ANALYSIS IN ELECTRICAL CYCLES

Abstract: Analytical works and standards related to the development of the theory of the electromagnetic field and its experimental verification are reviewed and conclusions are drawn.

Keywords: Electromagnetic field, Electric field, Magnetic field, Electric charge.

Elektromagnit maydon nazariyasini ishlab chiqilishi va uni tajribalar yordamida tasdiqlanishiga oid tarixiy ma'lumotlar kitobning boshlanishida aytib o'tilgan edi.

Davlat standartiga ko'ra *elektromagnit maydon deb, barcha nuqtalarining elektr va magnit xossalari mos ravishda ikkita vektor kattalik bilan aniqlanadigan, birining o'zgarishi ikkinchisini vujudga keltiradigan va zaradlangan zarrachalarga ularning tezligi va zarad kattaligiga bog'liq bo'lgan kuch bilan ta'sir ko'rsatadigan materiyaning maxsus ko'rinishiga aytiladi.* Agar elektromagnit maydon vaqt bo'yicha o'zgarmasa, u holda u *statsionar maydon* deb ataladi. Bunday maydonda elektr va magnit maydonlarini alohida-alohida o'rganish mumkin bo'ladi[1,2].

Elektr maydoni – elektromagnit maydon ikki tomonining biri bo'lib, elektr zaradi atrofida va magnit maydonining o'zgarishi tufayli hosil bo'ladi, zaradlangan zarracha va jismga ta'sir ko'rsatadi hamda zaradlangan qo'zg'almas zarracha va jismga ko'rsatadigan ta'sir kuchi bilan aniqlanadi[1,2,3].

Magnit maydoni – elektromagnit maydon ikki tomonining biri bo'lib, zaradlangan zarracha yoki jism harakati va elektr maydonining o'zgarishi tufayli

hosil bo'ladi, harakatlanayotgan zaradlangan zarracha yoki jismga ta'sir ko'rsatadi hamda harakatlanayotgan zaradlangan jismga uning harakat yo'nalishiga perpendikular yo'nalgan va tezligiga proporsional bo'lgan ta'sir kuchi bilan aniqlanadi[3,4].

Elektr zarad – materiya yoki jism xossasi bo'lib, uni o'zining va tashqi elektromagnit maydon bilan o'zaro aloqasini tavsiflaydi. Elektr zarad ikki xil: *musbat zarad* (proton, pozitron va boshqa zarrachalar zaradi) va *manfiy zarad* (elektron va boshqa zarrachalar zaradi). Elektr zarad son jihatdan zaradlangan zarrachaga va jismlarning o'zaro ta'sir kuchi bilan aniqlanadi[5].

Har qanday zaradlangan zarracha atrofida elektromagnit maydon paydo bo'ladi va bu maydon zarracha bilan yaxlit bir butunlikni tashkil etadi. Elektromagnit maydon zarrachadan tashqarida ham bo'lishi mumkin. Zarad miqdori o'zgarganda mos ravishda o'zgaruvchan elektromagnit maydon hosil bo'ladi.

Elektromagnit maydon ma'lum miqdordagi energiyani tashiydi va uning energiyasi kimyoviy, issiqlik, mexanik va boshqa turdagi energiyalarga aylanishi mumkin[5,6].

Elektromagnit maydon quyidagi o'ziga xos xususiyatlarga ega:

1) elektromagnit maydon – obyektiv borliq - materiyaning maxsus ko'rinishi bo'lib, u o'zaro uzviy bog'liq va biri ikkinchisini namoyon etuvchi elektr va magnit maydonlarining majmuasidir.

2) elektromagnit maydon modda kabi massaga, energiyaga, harakat miqdori va uning momentiga ega bo'lib, boshqa materiya hisobiga hosil bo'ladi va materiyaning boshqa turiga aylanishi mumkin hamda tabiatning asosiy qonuniga ko'ra bordan yo'q va yo'qdan bor bo'lmaydi. Shu bilan birga elektromagnit maydon fazoda uzluksiz to'liq, diskret yoki kvant ko'rinishida tarqaladi. Bu xususiyat esa faqat elektromagnit maydonga xos bo'lib, materiyaning boshqa turlarida kuzatilmaydi.

3) elektromagnit maydon tomonidan zaradlangan zarrachalarga ko'rsatadigan kuch ta'siri maydonning maxsus elektromagnit xususiyati hisoblanadi. Bunday xususiyat mexanikada butunlay kuzatilmaydi.

4) elektromagnit maydon ma'lum sharoitlarda moddaga, modda esa o'z navbatida maydonga aylanishi mumkin. Masalan, elektron va pozitron ikki kvantli elektromagnit nurlanishga aylanadi, foton yo'q bo'lganda esa ikki juft elektron va pozitron hosil bo'ladi.

Shu narsani ta'kidlab o'tish joizki, fizik (elektr, magnit va boshqa) maydon va bizga matematika kursidan ma'lum bo'lgan funksiya, skalyar yoki vektorning maydoni turlicha ma'noga ega. Funksiyaning maydoni deganda bu funksiya aniqlanadigan fazoning sohasi tushuniladi. Fizik maydon xossalarini bayon etishda maydonning matematik tushunchasidan foydalaniladi[7].

Elektromagnit maydon nazariyasini o'rganish har xil elektr va elektromagnit qurilmalarning ishlash asoslarini bilib olish va eng asosiysi talab etilgan darajada yangi qurilmalarni hisoblash hamda loyihalash imkoniyatlarini yaratadi.

Elektromagnit maydon nazariyasi bilan bevosita bog'langan amaliy

sohalarga elektrotexnika, energetika, avtomatika, radiotexnika, aloqa tizimlari, hisoblash va o'lchash texnikalari, qishloq va suv xo'jaligi, tibbiyot va boshqalar kiradi[8].

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ELEKTR TA'MINOTIDA ELEKTR USKUNALARINI ISHLATISHDAGI ASOSIY TALABLAR

Annotatsiya: *Ishlatishni yo'lga qo'yish elektr energiyaga bo'lgan talabni uzluksiz elektr ta'minoti, o'zgarmas chastota, kuchlanishni kerakli me'yori va yuqori tejamkorlik orqali to'liq qondirilsagina to'g'ri hisoblanishini bilish yo'llari.*

Kalit so'zlar: *Elektrotexnik uskunalar, energetika inshootlari, elektr uskunalari.*

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BASIC REQUIREMENTS FOR THE OPERATION OF ELECTRICAL EQUIPMENT IN ELECTRICAL SUPPLY

Abstract: *Ways to know that the implementation of the operation is correct only if the demand for electrical energy is fully met through uninterrupted power supply, constant frequency, the required voltage standard, and high efficiency.*

Keywords: *Electrical equipment, power plants, electrical equipment.*

Ishlatishni yo'lga qo'yish elektr energiyaga bo'lgan talabni uzluksiz elektr ta'minoti, o'zgarmas chastota, kuchlanishni kerakli me'yori va yuqori tejamkorlik orqali to'liq qondirilsagina to'g'ri hisoblanadi.

Elektr ta'minotining tejamkorligi birinchi navbatda ishlab chiqarish tannarxi, elektr energiyani uzatish va taqsimlash, uskunalarning to'liq ishlashiga, uning FIK, xodimlarning soniga yoki mehnat unumdorligi orqali baholanadi[1].

Ishlatishni yo'lga qo'yish va amalga oshirish talablari quyidagi tartibda:

1. Rahbarda mutaxassis xislatlari bo'lishi, ya'ni rahbar zamonaviy ilg'or texnikani mukammal bilmog'i lozim.
2. Tashkiliy tuzilishlarni doimiy ravishda yaxshilash.
3. Mehnat intizomini quvvatlash.
4. Uskunalarini to'liq bilishi. Bunday bilish o'zida berilgan tipdagi uskunani ishlatish nazariyasini, stansiyada o'rnatilgan uskunalarini bilishi, ularning tarkibini, parametrlari va xarakteristikalarini o'z ichiga jamlaydi.
5. To'g'ri ishga kiritish tartibini bilish. U yoki bu sharoitlarda ruxsat etilgan yuklama miqdori, jarayonga kerakli bo'lgan ko'rsatkichlarni ta'minlash, tezlik va

uskunani bir holatdan boshqa holatga o'tish tartibi tejamkor ishlashiga muhim ahamiyat kasb etib va kerakli ishlash muddatini ta'minlashiga ta'sir etadi.

6. Uskunani ko'rib chiqishdagi na'munaviy tartib. Kirish joylarida tozalikka rioya qilish qoidalarini qo'yish.

7. Rejaviy ogohlantiruvchi ta'mirlashlarni sifatli o'tkazish. Rejaviy ogohlantiruvchi ishlarni nazorat qilish muddati ko'zda tutilmaydi. Har qanday ko'zda tutilgan nosozliklar iloji boricha qisqa muddatda yo'q qilinishi lozim.

Rejaviy – ogohlantiruvchi ta'mirlash yig'ilgan nosozliklarni ommaviy yo'qotilishga kirmaydi, balki ularning vujudga kelishi ogohlantiruvchi hisoblanadi.

8. Oldini olish sinovlarini o'tkazish va o'lchov hamda rele uskunalarining aniq tekshirishlarini kiritish. Oldini olish sinovlari uskunani ko'zdan kechirishda aniqlanmagan nosozliklarni aniqlab beradi, chunki bunday nosozliklar tashqi belgilarga ega emas.

9. Hujjatlarni to'g'ri olib borish. Hujjatlar uskunaning o'tgan umrini, eng ma'qul holatini o'rnatishga, ko'zdan kechirish usuli va sozlash usullarini, nosozliklarni yoki halokat sabablarini aniqlashga yordam beradi.

10. Halokat sabablarini sinchkovlik bilan tekshirish. Halokat ishlatishdagi katta yetishmovchilikni birinchi alomatidir. Uni diqqatlik bilan o'rganish orqali ularni yanada yomon oqibatlarga olib kelishi mumkin bo'lgan nozik joylarini aniqlash mumkin.

11. Elektrotexnik uskunalariga xodimlarni tayyorlash. Xodimdan egallab turgan lavozimiga monand texnik bilim, ishlatayotgan uskunani bilishi, uni ishlatish qoidalarini va ish joyiga qo'llanadigan ishlab chiqarish ko'nikmalari talab qilinadi[2,3].

Energetika inshootlari ishchilari majbur:

- uzatilayotgan elektr energiyasining sifatini nazorat qilish. Kuchlanish va chastotaning me'yori, issiqlik tashuvchilarning bosimi va harorati;

- tezkor – dispetcherlik intizomiga amal qilmoq;

- inshootlarni, binolarni, uskunalarni ishlatishga shay holda tutmoq;

- energiya ishlab chiqarishni maksimal tejamkorlik va ishonchliligini ta'minlash.

- inshoot va uskunalarni ishlatish jarayonida sanoat va yong'in xavfsizligi qoidalariga rioya qilmoq.

- mehnatni muhofaza qilish qoidalarini bajarish.

- ishlab chiqarishdagi insonga va tabiatga bo'lgan zararli ta'sirlarni kamaytirish.

- elektr energiyani ishlab chiqarishda, uzatishda va taqsimlashdagi yagona o'lchov birligini ta'minlash.

- tejamkorlik, ishonchlilik, xavfsizlik hamda energetik inshoot tabiatini va

- atrof - muhit tabiatini yaxshilash maqsadida ilmiy – texnik yutuqlaridan foydalanish[4,5].

Iste'molchilarni uzluksiz elektr energiya bilan ta'minlash muhim ahamiyat kasb etadi, energiya ta'minotidagi uzilishlar sanoat korxonalarining texnologik jarayonlarini buzishi, elektrlashgan transportning to'xtashiga, shaharlar va

qishloqlardagi normal hayotni buzishiga olib keladi. Uzluksiz elektr ta'minoti tezkor xizmatchilarning yaxshi ishlashi, sistemada quvvat zaxirasi va elektr tarmoqlarining ratsional sxemalari orqali ta'minlanadi[6].

Texnologik jarayonlarning buzilishi elektr energiya sifatining kamayishi natijasida ham kuzatiladi. Sistemada chastotaning kamayishi motorlardagi mexanizmlarning aylanish tezligini kamayishiga olib keladi va ishlab chiqarilayotgan mahsulotlarning sifatsizligiga olib kelishi mumkin. Kuchlanishning tushishi motorlarning aylanish momentini kamaytiradi, kuchlanishni oshishi esa yoritgich qurilmalarining umrini qisqartiradi[7].

Elektr energiya sifati nazorati chastota va kuchlanish rostdlashni avtomatlashtirish, kompensatsiyalovchi uskunalarni to'g'ri ishlatish, kuchlanishni yuklama ostida rostdlash transformatorlarini qo'llash orqali amalga oshiriladi.

Iste'molchi ta'minlashi lozim:

- elektr uskunalarni ishga yaroqli holda saqlash va ularni xavfsizlik qoidalari hamda boshqa me'yoriy – texnik xujjatlarga muvofiq ishlatish.

- elektr uskunalari va elektr qurilmalarning texnik xizmatini, rejayiy – ogohlantiruv ta'mirlashini, sinashni, yangilash va tiklashni o'z vaqtida hamda sifatli o'tkazish.

- elektrotexnik va elektrotexnologik xodimlarni yig'ish, ishchilarni davriy tibbiy ko'riklari, mehnat xavfsizligi, yong'in xavfsizligi bo'yicha yo'riqnomalarni o'tkazish.

- elektrotexnik va elektrotexnologik xodimlarni o'qitish va bilimni tekshirish.

- elektr uskunalarni xavfsiz va ishonchli ishlatish.

- elektrotexnik va elektrotexnologik xodimlarning mehnatini muhofaza etish.

- elektr uskunalarni ishlatishda tabiatni muhofaza qilish.

- elektr uskunalarni ishlatishdagi qoida buzilishlar, elektr uskunalarni ishlatish bilan bog'liq bo'lgan baxtsiz hodisalarni hisobga olish, tahlil qilish hamda ularning paydo bo'lishiga olib kelgan sabablarni yo'q qilish uchun chora tadbirlarni ko'rish.

- elektr uskunalari bilan bog'liq bo'lgan o'limli va og'ir halokatlar hamda guruhli baxtsiz hodisalarni davlat energiya nazoratiga xat orqali ma'lum qilish.

- elektrotexnik xodimlar uchun lavozim yo'riqnomasi, ishlab chiqarishga oid yo'riqnoma hamda tabiatni muhofaza qilish yo'riqnomalarini ishlab chiqish.

- elektr uskunalarning himoya vositalari, o't o'chirish vositalari va jihozlar bilan ta'minlash.

- elektr energiyasining ratsional isrofini hisoblash hamda energiya tejamkorlik bo'yicha tadbirlar o'tkazish.

- elektr uskunalari, chaqmoqdan himoya qurilmalarini ishlatish, o'lchov asboblari va elektr energiyani hisobga olish vositalarida kerakli bo'lgan tajribalarni o'tkazish[8]

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ELEKTR O'LCHASH ASBOBLARINI TADQIQ ETISH

Annotatsiya: *Elektr qurilmalarni uzluksiz nazorat qilib turish, ishlab chiqarish jarayonlarini to'g'ri olib borish xamda ulardan samarali foydalanish katta ahamiyatga ega xisoblanadi. Buning uchun turli xil fizik kattaliklarni o'lchash ishlarida elektr o'lchov asboblariidan foydalanishni talabaga o'rgatish muxim vazifa xisoblanadi.*

Kalit so'zlar: *O'lchov asboblari, fizik kattaliklar, elektr o'lchash, ferrodinamik o'lchash.*

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RESEARCH OF ELECTRICAL MEASURING INSTRUMENTS

Abstract: *Continuous monitoring of electrical devices, proper operation of production processes, and their effective use are of great importance. For this, it is an important task to teach students how to use electrical measuring instruments to measure various physical quantities.*

Keywords: *Measuring instruments, physical quantities, electrical measurement, ferrodynamic measurement.*

Elektr qurilmalarni uzluksiz nazorat qilib turish, ishlab chiqarish jarayonlarini to'g'ri olib borish xamda ulardan samarali foydalanish katta ahamiyatga ega xisoblanadi. Buning uchun turli xil fizik kattaliklarni o'lchash ishlarida elektr o'lchov asboblariidan foydalanishni foydalanuvchiga o'rgatish muxim vazifa xisoblanadi[1].

Elektrik kattaliklarni o'lchash turli ishlab chiqarish jarayonlarini to'g'ri olib borishga, elektr qurilmalarini beto'xtov ishlatishga va ulardan yaxshiroq foydalanishga yoqilg'i xamda xom ashyoni tejashga imkon berganligi uchun bizning keng masshtabli ishlab chiqarishimizda nixoyatda katta ahamiyatga egadir.

Elektr o'lchash asboblariini ikkita asosiy guruxga ajratish mumkin: 1.Bevosita baxolash asboblari. 2.Solishtirib o'lchaydigan asboblari[2].

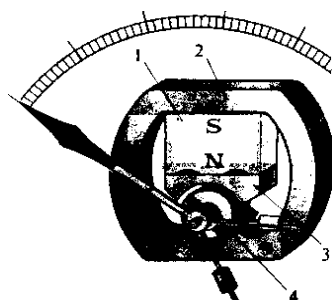
Davlat standartiga ko'ra bevosta baxolaydigan asboblari anqlik darajasiga qarab sakkizta sinfga bo'linadi 0,05 ; 0,1; 0,2; 0,5; 1; 1,5; 2,5; va 4. Asboblarning shkalasida anqlik sinfini ko'rsatuvchi son aylana ichiga olib quyiladi. Nominal

kattalik deb, asbobni yuqori o'lchash chegarasiga aytiladi. Shunday qilib, asbobni keltirilgan xatoligi Umumiy xolda xatolik musbat yoki manfiy bo'lishi mumkin. Biror kattalikni asbob yordamida o'lchab aniqlaganda qilingan nisbiy xatolik deb asbobning eng katta xatoligining shu kattalikni o'lchab topilgan qiymatiga nisbatiga aytiladi, bu nisbat foizlarda ifodalanadi. Shunday qilib asbob bilan kattalikni o'lchagandagi nisbiy xatoligi aniqlanadi[3,4].

Elektr o'lchov asboblarini klassifikatsiyalanishi.

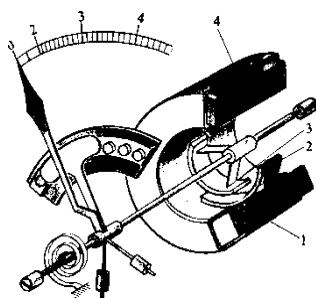
Eng ko'p tarqalgan tizimlarning o'lchash mexanizmlari bilan tanishib chiqamiz.

Magnitoelektrik o'lchash mexanizmi ko'chmas magnit zanjiri xamda xarakatchan qismdan iborat bo'ladi.



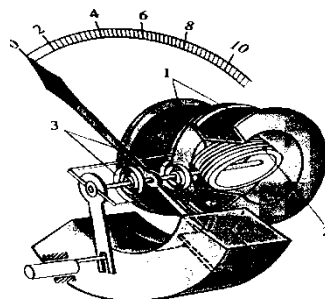
1-RASM. MAGNITOELEKTRIK O'LCHASH MEXANIZMI. 1-DOYIMIY MAGNIT, 2-MAGNITLI O'ZAK, 3-MAGNIT QUTBI.

Elektromagnit o'lchash mexanizmi g'altak va strelka bilan bir o'qqa o'rnatilgan po'lat o'zakdan iborat. Xuddi o'sha o'qqa teskari ta'sir ko'rsatuvchi spiralsimon prujina va tinchlantiruvchining alyuminiydan yasalgan sektorsimon yaproqchasi xam o'rnatiladi. Bu yaproqcha o'zgarmas magnitning qutblari orasiga joylashtiriladi.



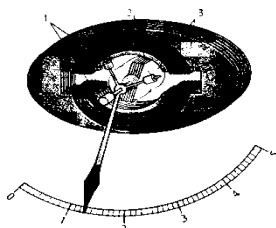
2-RASM. ELEKTROMAGNIT O'LCHASH MEXANIZMI. 1-CHULG'AM, 2,3- O'ZAK, 4-EKRAN.

Elektrodinamik tizimdagi o'lchash mexanzimi ikki sektsiyaga ajratilgan ko'chmas g'altak va xarakatchan g'altakdan iborat bo'ladi.



3-RASM. ELEKTRODINAMIKDAGI ŷLCHASH MEXANZIMI. 1-2-CHULQAMLAR 3-PRUJINA.

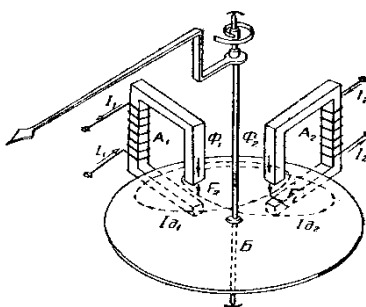
Ferrodinamik oʻlchash mexanizmini ishlash printsipi elektrodinamik oʻlchash mexanizmlarining ishlash printsipidan farq qilmaydi.



4-rasm Ferrodinamik oʻlchash mexanizmlari. 1,2-chulgʻamlar 3-magnitli oʻzak

5-Induksion sistemadagi oʻlchash mexanizmidagi ikkita kʻchmas elektromagnit xamda strelka bilan bir oʻqqa oʻrnatilgan xarakatchan alyuminiy diskdan iborat.

5-rasm. Induksion sistemadagi oʻlchash mexanizmi.



Oʻlchash natijalarini taqqoslash va baxolash.

Texnologik jarayonlarni takomilashtirishda, boshqarish tizimlarida, elektr energiyasini uzoq masofalaridan tejimli uzatishda, kerak boʻlgan joyda uni talabi ga muvofiq taqsimlanishi xamda elektr qurilmalarni osonlik bilan avtomatlashtirish imkoniyatlari elektr oʻlchov asboblari yordamida amalga oshiriladi[5].

Elektr oʻlchov asboblari xalq xoʻjaligida elektr kattaliklari: kuchlanish, tok kuchi, quvvat, energiya, qarshilik, tok chastotasi shuningdek noelektrik kattaliklar: temperatura, namlik, satx va boshqalarni oʻlchashda keng qʻllaniladi. Elektr

qurilmalarining ish rejimi o'lchash asboblarning ko'rsatishiga muvofiq kuzatiladi.

Fizik kattaliklarni elektr usul bilan o'lchash va uning ahamiyati.

O'lchash natijalarini olish usuli bo'yicha bevosita va bilvosita o'lchash usullari mavjud. Bevosita o'lchashlar shkalasi izlanayotgan kattalik xisobida darajalangan o'lchov asboblari yordamida bajariladi. Bilvosita o'lchashlar yordamchi kattaliklarning qiymatini beradigan asboblari yordamida bajariladi. Bu yordamchi kattalik vositasida izlanayotgan kattalik xisoblab chiqariladi[6].

Maxsus texnik vositalar – o'lchash asboblari yordamida biror fizik kattalikni qiymatini tajriba yo'li bilan aniqlash o'lchash deyiladi. O'lchash ma'lumotlarini kuzatuvchi vosita o'zlashtirilishi uchun qulay bo'lgan shaklda ko'rsatuvchi texnik vosita o'lchash asbobi deyiladi. Odatdagi o'lchashlar uchun mo'ljallangan asboblari ish asbobi deyiladi. Bu asboblarning shkalalarini darajaga bo'lib chiqish uchun va ularni tekshirib turish uchun mo'ljallangan asboblari namuna asboblari deyiladi. Ba'zi elektr o'lchash asboblari o'zgarmas tok zanjirida xam o'zgaruvchan tok zanjirida xam ishlatish mumkin bo'ladi. Bunday o'lchash asboblari universal o'lchov asbobi deyiladi. O'zgaruvchan tokni yuqori kuchlanishli zanjirlariga ulanadigan o'lchov asboblari o'lchash chegaralarini kengaytirish maqsadida kuchlanish va tok transformatorlaridan foydalaniladi. Chunki bunday zanjirlarda o'lchash chegaralarini qo'shimcha qarshilik yordamida yoki shuntlar yordamida kengaytirish mumkin emas. Negaki o'lchash asbobining chulqamlari yuqori kuchlanish ostida bo'lib ularni ishdan chiqib qolish xolatlari kuzatilishi mumkin[7]

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O‘ZBEKISTON RESPUBLIKASI TURIZM SOHASIGA INVESTITSİYALARNI JALB QILISHNI TAKOMILLASHTIRISH

Annotatsiya: Maqolada O‘zbekiston Respublikasida turizm sohasiga investitsiyalarni jalb qilishning nazariy, tashkiliy va amaliy jihatlarini tahlil etilgan. Investitsion faoliyat samaradorligiga ta’sir etuvchi omillar, uni moliyalashtirish manbalari hamda huquqiy va iqtisodiy mexanizmlar o‘rganilgan. Xorijiy tajribalar asosida turizm korxonalarida investitsion faoliyatni rivojlantirish yo‘llari yoritilgan va moliyaviy-investitsion faoliyatning o‘ziga xos xususiyatlari ko‘rsatib berilgan.

Kalit so‘zlar: turizm, investitsion faoliyat, moliyalashtirish mexanizmi, xorij tajribasi, sof foyda, raqobatbardoshlik.

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IMPROVING THE ATTRACTION OF INVESTMENTS IN THE TOURISM SECTOR OF THE REPUBLIC OF UZBEKISTAN

Abstract: The article analyzes the theoretical, organizational, and practical aspects of attracting investments into the tourism sector of the Republic of Uzbekistan. Factors affecting the efficiency of investment activities, sources of financing, as well as legal and economic mechanisms are examined. Based on international experience, the paper highlights the ways of developing investment activities in tourism enterprises and outlines the specific features of financial-investment operations

Keywords: tourism, investment activity, financing mechanism, foreign experience, net profit, competitiveness.

Bugungi kunda barqaror iqtisodiy rivojlanishning muhim shart- sharoitlari va omillari orasida investitsion faoliyat alohida o‘rin egallaydi. Investitsion faoliyat samaradorligini ta’minlash jarayonlariga ta’sir ko‘rsatuvchi omillar natijasida, xizmat ko‘rsatish va ishlab chiqarishda investitsiya sig‘imi va samaradorligi ortib boradi. Investitsiya qaytimining real shakli pul mablag‘lari ko‘rinishida o‘zlashtirilib, korxonaning yalpi daromadida o‘z aksini topadi.

Iqtisodiy munosabatlarning hozirgi takomillashgan bosqichida investitsiya resurslari uchun alohida sub'ektlar o'rtasida raqobat kurashi kuchayib boradi. Ushbu raqobat muhiti ta'sirida xo'jalik yurituvchi sub'ektlarning tadbirkorlik faoliyati samaradorligini oshirish, iqtisodiyotning turli tarmoq va sohalaridagi tashkiliy-huquqiy tuzilmalar faoliyatini qisqa va uzoq muddatli rivojlanishini tartibga solishning turli mexanizmlari amal qiladi.

Mamlakatda bozor munosabatlari ta'sirida investitsiya faoliyatini rag'batlantirish mexanizmining maqbullashtirilishi qisqa va uzoq muddatli davr uchun korxonada iqtisodiy faoliyat samaradorligini oshirishning muhim sharti hisoblanadi[1].

Investitsion faoliyat samaradorligi, investitsion faoliyat mexanizmini amal qilishining tashkiliy-iqtisodiy tizimiga bog'liq bo'lgan huquqiy, resurs va uslubiy jihatdan qo'llab-quvvatlashni o'z ichiga olgan tashkiliy-iqtisodiy shakllar va usullar majmuasiga bog'liq bo'ladi.

Korxonalarda investitsion faoliyatni amal qilishining nazariy va tashkiliy asoslarini shakllantirishga yo'naltirilgan qator tadqiqotlarda investitsion faoliyatning investitsiya jarayonlarini tashkil etishdagi o'rni nisbatan kengroq darajada talqin etiladi.

Iqtisodchi olimlardan Maykl D.Jonk va Lorens J.Gitman "investitsiyalar - bu daromad va kapital qiymatini saqlanishini ta'minlaydigan yoki uning qiymatini oshirishiga qaratilgan kapitalni joylashtirish usulidir" - deb ta'riflagan[2].

Boshqa iqtisodchi olimlar esa "investitsiyalar bu kapitalni saqlash va oshirish maqsadidagi pullik qo'yilmalardir" – deb ta'rif berishgan[3]. Ko'pgina iqtisodchi olimlar tomonidan investitsiyalar mazmuniga bo'lgan qarashlarda ularning fikrlari xuddi shunday talqinda bo'lib, unchalik o'zgarmagan. Investitsion faoliyat tahlilini amalga oshirish yondashuvi bo'yicha bir qator ko'zga ko'ringan hozirgi zamon iqtisodchi olimlarning ilmiy tadqiqot monografiyalarida va o'quv qo'llanmalarida o'z aksini topgan.

Mamlakatimizda investitsiya faoliyatiga doir olib borilgan ilmiy tadqiqotlarda "investitsion faoliyat mexanizmini amal qilishining investitsiyalarni tashkil etish va moliyalashtirish bosqichlari, investitsiya faoliyatida kapital qurilish, investitsiya loyihalarini sindikatli kreditlash, investitsiyalarning moliyaviy va iqtisodiy samaradorligini baholash jarayonlariga ta'siri" tadqiq etilgan[4].

Shu o'rinda, korxonalarda investitsion faoliyatni amalga oshirishni moliyaviy jihatdan ta'minlovchi manbalarning tahlili yuzasidan iqtisodchi olimlarning fikr va mulohazalariga to'xtaladigan bo'lsak, investitsion faoliyatni moliyalashtirishning bozor mexanizmlarini nazariy jihatlari qator iqtisodchi olimlar tomonidan tadqiq etilgan.

Masalan, professor Y.Mirkinning fikriga ko'ra, investitsiyalarni moliyalashtirishning real, istiqbolli shakli kompaniyalarning jamg'armalarini ikkilamchi bozordan aksiyadorlik kapitaliga joylashtirishni ko'paytirish hisoblanadi, ammo investitsiyalarni moliyalashtirishning manba darajasi juda past[5].

Taniqli iqtisodchi olimlardan U.Sharp ham investitsiya faoliyatini fond bozori

orqali moliyalashtirish mexanizmiga alohida e'tibor qaratadi. Uning fikriga ko'ra, qimmatli qog'ozlarning daromadliligi va riskliligi o'rtasidagi to'g'ridan-to'g'ri aloqaga ega bo'lgan oqilona investitsion strategiya investitsion faoliyatni moliyalashtirishning asosi hisoblanadi[6].

Moliyaviy vositachilar (tijorat banklari, jamg'arma va kredit uyushmalari, kredit ittifoqlari, sug'urta kompaniyalari, o'zaro yordam fondlari, pensiya fondlari) esa, korporatsiyalarni fond bozoridan qo'shimcha mablag'lar jalb qilish imkoniyatini bilvosita ta'minlaydi.

Fikrimizcha, Y.Mirkinning fond bozori orqali investitsion faoliyatni moliyalashtirish mexanizmi xususidagi fikri alohida ilmiy-amaliy ahamiyat kasb etadi. Buning boisi shundaki, ko'pchilik MDH mamlakatlarida korporativ aksiya va obligatsiyalarga qilinadigan investitsiyalarning risk darajasi yuqoriligi va investorlar ishonchining pastligi fond bozorining rivojlanishiga to'sqinlik qilayotgan asosiy sabablar ekanligi qator ilmiy izlanishlarda o'z ifodasini topgan.

U.Sharpning investitsion faoliyatni moliyalashtirishda moliyaviy vositachilarning roli xususidagi fikriga muvofik, ular investitsion faoliyatni moliyalashtirishning faol subyektlaridan biri hisoblanadi.

Bizningcha, investitsion faoliyat - investitsion faoliyatni amalga oshirishning shakli va usullar to'plami hisoblangan investitsiya manbalari va vositalarini ishlab chiqarishni kengaytirishga yo'naltirilgan qismini tizimli qo'llab-quvvatlashga asoslangan huquqiy, tashkiliy va iktisodiy, moliyaviy uslublar majmuasi hisoblanadi.

Turistik korxona doirasida investitsion faoliyat mexanizmi investitsiya qarorlarini ishlab chiqish va amalga oshirishni tartibga soluvchi asosiy elementlar majmuasi sifatida namoyon bo'ladi. Ushbu mexanizmning asosiy elementlari: korxonaning investitsion faoliyatini tartibga solishning bozor omillari, investitsiya faoliyatini davlat tomonidan tartibga soluvchi huquqiy chora-tadbirlar, ichki tartibga solish imkoniyatlari kabi investitsiyalarni boshqarishni amalga oshirishning o'ziga xos usullaridan iborat.

Investitsion faoliyatni amal qilishining nazariy va tashkiliy asoslari doirasidagi umumiy xulosalar investitsiya faoliyatini boshqarish mexanizmlariga doir bir qator tamoyillar asosida shakllanadi (yo'naltirilganlik, ob'ektivlik, qonuniylik, axborotlarning etarliligi, tizimlilik).

Turizmda investitsion faoliyatni samarali amal qilishi quyidagilar orqali namoyon bo'ladi:

investitsion faoliyatda maqsadli, taktik va strategik jarayonlarning aloqadorligi;

investitsion faoliyatning boshqaruv ob'ekti elementlarida moddiy- texnik, moliyaviy, ijtimoiy, institutsional va boshqa manbalardan kompleks foydalanishning o'rni;

investitsiya muhitiga tartibga soluvchi ta'sirlarning samaradorligini ta'minlaydigan investitsiya faoliyatining barcha ishtirokchilarining davlat tomonidan tartibga solinadigan munosabatlari va o'zaro bog'liqliklari to'plami va hokazo.

Investitsion faoliyat strategiyasining uzoq davr uchun amal qilishi, investitsion resurslarning umumiyligi, tarmoq va korxona doirasida investitsiyalarni joylashtirishning davlat hokimiyati organlari tomonidan foydalaniladigan ta'sir etuvchi usullar, vositalar va ta'sir kuchlariga qarab o'zgarib boradi. U jarayonning tarkibiy yo'nalishi quyidagi elementlarni o'z ichiga oladi:

investitsion faoliyat strategiyasining taktik va strategik boshqaruv mezonlariga muvofiqligi;

investitsion faoliyat boshqaruv omillarining maqsadga erishish uchun amalga oshiriladigan turli elementlar o'rtasidagi o'zaro bog'liqligi;

menejment resurslari, tanlangan boshqaruv uslubi qo'llanilgan va maqsadga erishilgan holda foydalaniladigan moddiy, texnik, moliyaviy, ijtimoiy, institutsional va boshqa manbalar.

“Investitsion faoliyat mexanizmini samarali amal qilishi maksimal foyda olish maqsadida investitsiyalar hajmi, tarkibi, yo'nalishlari va amalga oshirilishini shakllantirish imkoniyatini beradi”[7]. Shuningdek, korxonaning moliyaviy-iqtisodiy barqarorligini ta'minlashda uzoq va qisqa davr uchun tizimli ta'sir ko'rsatish xarakteriga ega.

Bozor iqtisodiyoti sharoitida tarmoq tarkibiga kiruvchi ishlab chiqarish majmualarining va korxonalarning uzoq muddatli sharoitda samarali faoliyat yuritishi hamda raqobatbardoshligining ortib borishi, eng avvalo, investitsion faoliyat mexanizmning samarali tashkil etilganligi, uning texnologik va innovatsion omillar bilan uyg'unligi darajasi bilan baholanadi.

Turistik korxonalarning barcha bo'g'inlarida investitsion faoliyatni birdek samarali olib borish chuqur o'ylangan hamda sohaning barcha xususiyatlaridan kelib chiqib ishlab chiqilgan investitsion rivojlanish strategiyasi asosida olib borilishi lozim.

Ushbu holatda investitsiyalarni to'g'ri baholanganligi katta ahamiyat kasb etadi, sababi aynan baholash natijalari tarmoqning u yoki bu bo'g'inini rivojlantirish bo'yicha qarorlar qabul qilish, resurslarni oqilona taqsimlash, innovatsiyalarni qo'llash, rag'batlantirish kabi muhim qarorlar qabul qilishda asos bo'lib xizmat qiladi.

Shu o'rinda, turistik korxonalarda moliyaviy va investitsiya faoliyatlarini birlashtiruvchi moliyaviy-investitsion faoliyat tushunchasi va uning mohiyatini o'rganish muhimdir.

Fikrimizcha, moliyaviy-investitsion faoliyat – bu korxonalar faoliyatini takomillashtirish, iqtisodiy jarayonlarni normallashtirish, barqaror iqtisodiy o'sishni ta'minlash va ijtimoiy masalalarni tartibga solishga qaratilgan maqsadli chora-tadbirlarning butun majmuasidir.

Korxonalar faoliyatini rentabelligi va bozor raqobatbardoshligini aniqlashda sof foyda asosiy o'rin tutadi.

Sof foyda turistik korxonalar investitsiya ob'ektlarini tanlash va ularning korxona iqtisodiy rivojlanishining strategik va taktik vazifalariga muvofiqligini baholash imkoniyatini beradi. Shu sababli, sof foydani turistik korxonalar investitsion faoliyat samaradorligini asosiy mezon sifatida qayd etish maqsadga

muvofiq.

Turistik korxonalar faoliyatini investitsiyalash bilan bog‘liq qarorlarni qabul qilish jarayoni korxona faoliyatida muxim bosqich hisoblanganligi sababli, mavjud mablag‘lardan samarali foydalanish va investitsiya qilingan kapitalning rentabelligini maksimal darajada oshirish uchun investitsiya loyihasini amalga oshirish bilan bog‘liq kelajakdagi daromadlar va xarajatlarni sinchkovlik bilan tahlil qilish talab etiladi.

Demak, ushbu mavzuda ilmiy izlanish olib borishda turizm sohasida investitsiya faoliyatining ilmiy-nazariy va tashkiliy asoslarini o‘rganish, xorij tajribasini tahlil qilish va milliy sharoitda qo‘llash imkoniyatlarini aniqlash, mavjud muammolar hamda moliyaviy-investitsion omillarni baholash orqali turizm tashkilotlarida investitsiya faoliyatini rivojlantirish yo‘nalishlari bo‘yicha ilmiy asoslangan taklif va amaliy tavsiyalar ishlab chiqish maqsadga muvofiq.

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TO'DAKO'L – QUYIMOZOR SUV OMBORLARINING ATROF LANDSHAFTLARINING EKOLOGIK HOLATINI O'ZGARISH DARAJASINI BAHOLASH

***Annotatsiya:** Ushbu maqolada, To'dako'l-Quyimozor suv omborlarining atrof landshaftlarining ekologik holati past, o'rtacha, yuqori darajada o'zgarishi baholangan hamda batafsil ma'lumot berilgan.*

***Kalit so'zlar:** iqlim, rekreatsion o'zgarish, morfologik, landshaft, cho'l, bioxilma-xillik, tuproq, relyef, degradatsiya, agroirrigatsion, urochisha.*

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ASSESSMENT OF THE DEGREE OF CHANGE IN THE ENVIRONMENTAL SITUATION OF THE LANDSCAPES OF THE TUDAKUL-KUYIMAZAR RESERVOIRS

***Abstract:** This article assesses and provides detailed information on changes in the ecological state of the surrounding landscapes of the Tudakul-Kuyimazar reservoirs at low, medium, and high levels.*

***Keywords:** climate, recreational change, morphological, landscape, desert, biodiversity, soil, relief, degradation, agro-irrigation, urochisha.*

Tabiatda barqaror rivojlanishga va murakkab morfologik tuzilishga ega bo'lgan cho'l landshaft majmualarini tadqiq etish, ularning makondagi qonuniy tabaqalanishini tahlil qilish, obyektiv mavjud bo'lgan morfologik birliklarni ajratish, chegaralash va tasniflash hozirgi zamon landshaftshunoslik fanida muhim ilmiy va amaliy ahamiyat kasb etadi. Bu esa birinchi navbatda tabiatdan oqilona foydalanishni, atrof-muhitni muhofaza qilishni tashkil etishda va vujudga kelgan turli xil geoekologik vaziyatlarni optimallashtirishga oid chora-tadbirlarini ishlab chiqishda ilmiy asos bo'lib xizmat qiladi.

Buxoro viloyati landshaftlarini kompleks o'rganish va tabaqalashtirishda tabiiy geografiyaga yaqin bo'lgan tarmoq fanlar bo'yicha olib borilgan tadqiqotlar kompleks geografik izlanishlar uchun poydevor vazifasini o'tab kelgan. Bu borada ayniqsa N.A.Buskov va Y.M.Nosirov (1960), I.Sh.Granitov (1964), Y.B.Rahmatov tomonidan Qorako'l deltasi landshaftlari (1975–1982), U.Nurov (1977–1988) Zarafshon deltasi landshaftlari dinamikasi va tabiiy resurslarini o'rgangan.[1]

I.Q.Nazarov, X.R.Toshovlar tomonidan (2008-y.) cho‘l landshaftlarini tasniflashning asosiy tamoyillari ishlab chiqilgan va yangicha tipologik taksonomik pog‘ona va birliklar tizimi tavsiya qilingan, mazkur tavsifga ko‘ra quyidagicha taksonomik birliklar taklif qilingan:

Landshaftlar zonasi (cho‘l tabiat zonasi); landshaftlar sinfi (tog‘ va tekislik); landshaftlarning kichik sinfi (past tog‘ yoki pastqam tekisliklar); landshaftlar tipi (qumli, gilli, gipsli, sho‘rxok); landshaftlarning kichik tipi (ko‘chma qumlar); landshaftlar turi (barxanli qumlar) [2; 71-b.].

Landshaftlarni u yoki bu maqsad uchun baholashning asosiy mazmuni kishilik jamiyatining talablaridan kelib chiqqan holda landshaftlarning yaroqliligini, qulay yoki noqulayligini aniqlab berishdan iboratdir. Tabiiy majmualarni baholashning uch jihati aniq bo‘lishi kerak.

Birinchidan, baholashning obyekti aniq bo‘lishi kerak. Bunda tabiiy komponentlardan biri, masalan, iqlim, relyef tuproq yoki o‘simlik baholash obyekti bo‘lishi mumkin. Ammo bunday baholash bir tomonlama bo‘lib, joy tabiiy sharoitning har tomonlama bahosini berish mumkin bo‘lmay qoladi. Shuning uchun baholashning obyekti sifatida geotizim olingani ma’quldir. Mavjud baholash tajribalari natijasida ham landshaftlarni obyekt sifatida qarash maqsadga muvofiq bo‘lishini ko‘rsatadi.

Ikkinchidan, baholashning subyekti ham bo‘lishi kerak. Ya’ni tabiiy majmualar yoki landshaftlarni baholayotganda nima uchun, kim uchun baholanayotganligi ham aniq bo‘lishi kerak.

Uchinchidan, obyekt va subyektdan tashqari yana uni baholanayotgan vaqtdagi iqtisodiy geografik, sotsial, tabiiy geografik, ilmiy-texnik sharoit kabilar hisobga olinishi kerak. Sharoit makon va zamonda o‘zgaruvchan bo‘lganligi uchun baholashning natijalarini ham mos holda o‘zgartirib turishga to‘g‘ri keladi.

Baholanishi lozim bo‘lgan tabiiy sharoit yoki tabiiy muhit faqat turli xil tabiiy element qismlarning tasodifiy yig‘indisi bo‘lmay, balki yaxlit qismlari o‘zaro ta’sir va aloqada bo‘lgan tizim hamdir. Ana shu yaxlitlik yoki bir butunlik landshaftlarda aks etgan. Tabiiy sharoitni qishloq xo‘jaligi uchun baholash dastavval landshaftlarning qishloq xo‘jaligida foydalanilishini cheklashi mumkin bo‘lgan xususiyatlarni aniqlab olishdan boshlanishi kerak. Landshaftlarning bunday xususiyatlari ularning relyef, tuproqlar, yer osti suvlarining holati kabilar bilan bog‘liqdir. Landshaftlarni baholash obikor dehqonchilik uchun ham, bahorikor dehqonchilik uchun ham, qishloq xo‘jaligi nuqtayi nazaridan eng muhim hisoblangan 3 ta komponent: iqlim, tuproq, relyef bo‘yicha bajarilgani maqsadga muvofiq. Yaylov chorvachiligi uchun asosan o‘simlik qoplamiga qarab baholash ma’quldir. Qishloq xo‘jalik ekinlarining o‘sishi va rivojlanishiga iqlim tuproq relyefning turlicha ta’sir ko‘rsatishi mumkinligini hisobga olsak, ularni baholash usullari ham turlicha bo‘ladi [3; 44-46-b.].

To‘dako‘l – Quyimozor suv omborlarining atrof landshaftlarining ekologik holat o‘zgarish darajasini baholash

Ekologik holat o‘zgarish darajasi	Landshaft elementlaridagi jarayonlar	O‘zgarish bahosi, ballda
Past darajada	cho‘llanish, tuproq yuvilishi, suv eroziyasi, o‘simliklarning siyraklashuvi	3
O‘rtacha darajada	degradatsiya, yer osti suvlari sathining ko‘tarilishi, ikkilamchi sho‘rlanish.	4
Yuqori darajada	To‘qayzor joy tipini shakllanishi, bioxilma-xillikni ortishi, botqoqlanish, sho‘rxok botqoqlarni yuzaga kelishi, tuzli qumoq cho‘l tuproqlarni shakllanishi	5

To‘dako‘l – Quyimozor suv omborlari va uning atrofi landshaftlarining ekologik holatining ta’sir darajasini aniqlashda yanada kichik tabiiy geografik taksonomik birligidan foydalanildi va ularni urochisha tipi doirasida, suv ombor atrofida to‘rtta (1.Janubiy-g‘arbiy To‘dako‘l, 2.Janubiy-sharqiy To‘dako‘l, 3.Quyimozor suv ombori atrofi, 4.O‘rtacho‘l massivi atrofi) tayanch tadqiqot uchastkalari ajratib o‘rganildi.

Past darajada (3 ball) cho‘llanish, tuproq yuvilishi, suv eroziyasi, o‘simliklarning siyraklashuvi past darajadagi ekologik holat darajasi o‘zgargan landshaftlar asosan, suv omborlar tizimiga tutash bo‘lgan quyidagi landshaftlarda namoyon bo‘ladi. Bu yerda eng keng tarqalgan tuproq tipi sho‘rxok va sho‘rtob tuproqlaridir. Ularning qatlamlar bo‘yicha tabaqalanishi juda kuchsiz ifodalangan. Tuproqlarning qalinligi hudud bo‘ylab bir tekisda taqsimlanmagan chunki ularning qalin yoki yupqa bo‘lishi bevosita joyning mikrorelyef shakllari bilan chambarchas bog‘liq. O‘simliklaridan shuvoq, partak, singren, isiriq, sassiq kovrak, qora saksovul qandim, suv o‘ti, qamish, hamda efemerlar yetakchilik qiladi. Tipik bo‘z tuproqlarda efemer o‘simliklari keng tarqalgan landshaftlar, to‘q tusli bo‘z tuproqlardagi shuvoq (*Artemisa tenusecta*) formatsiyali landshaftlar, sur-qo‘ng‘ir tuproqlardagi shuvoq (*Artemisa tenusecta*) formatsiyali landshaftlar, bunda Janubi-g‘arbiy To‘dako‘l hududi kiradi.

O‘rtacha darajada (4 ball) degradatsiya, yer osti suvlari sathining ko‘tarilishi, ikkilamchi sho‘rlanish. O‘rtacha darajada ekologik holat darajasi o‘zgargan landshaftlar esa quyidagi landshaftlarni o‘z ichiga oladi. Bular: och tusli bo‘z tuproqlarda efemer o‘simliklari keng tarqalgan landshaftlar, bo‘z-o‘tloq tuproqlardagi agroirrigatsion (sug‘oriladigan yerlar) landshaftlar, och tusli bo‘z tuproqlardagi qo‘ng‘irbosh (*Poa bulbosa* L.) illoq (*Carex pachystylis*) formatsiyali efemer o‘simliklari keng tarqalgan landshaftlar, och tusli bo‘z tuproqlardagi shuvoq (*Artemisia deffusa*), sarsazan (*Peganum hamala*), qo‘ziquloq (*Phlomis thapsoidas*) formatsiyali landshaftlar. Ushbu landshaftlarda degradatsiya, yer osti suvlari sathini ko‘tarilishi, ikkilamchi sho‘rlanish jarayonlari kuzatiladi. Bu hududlarga O‘rtacho‘l massivining atrofi kiradi.

Yuqori darajada (5 ball) to‘qayzor joy tipini shakllanishi, bioxilma-xillikni ortishi, botqoqlanish, sho‘rxok botqoqlarni yuzaga kelishi, tuzli qumoq cho‘l tuproqlarni shakllanishi yuqori darajada o‘zgargan odatda suv ombor sohil bo‘yi mustahkamlanmagan va yarim mustahkamlangan qumli cho‘l tuproqlaridagi qamish (*Phragmites communis*), jing‘il (*Tamaricaceae hispida willd*) formatsiyali to‘qayzor landshaftlarida, yarim mustahkamlangan tizmalı qumli cho‘l tuproqlaridagi iloq (*Cerex physodes*), qo‘ng‘irbosh (*Pao bulbosa L.*) efemer o‘simliklari keng tarqalgan landshaftlarda hamda gipsli tuproqlardagi botqoq sho‘rxoklarda sho‘rajriq (*Aeluropus litoralis*) o‘simliklari keng tarqalgan landshaftlarda kuzatiladi. Ushbu landshaftlarda to‘qayzor joy tipini shakllanishi, bioxilma-xillikni ortishi, botqoqlanish, sho‘rxok botqoqlarni yuzaga kelishi, tuzli qumoq cho‘l tuproqlarni shakllanishi kabi jarayonlar yuz bermoqda. Janubi-sharqiy To‘dako‘l, Quyimozor suv ombori atrofi hududini o‘z ichiga oladi. Natijada, kichik taksonomik birliklarida ekologik holatning o‘zgarish jarayoni yuqori darajada borayotganligi aniqlandi. Urochisha tiplarini tasniflashda relyef, tuproq, o‘simlik asos qilib olindi. (1-jadval).[4]

Xulosa qilib aytganda, To‘dako‘l va Quyimozor suv havzalari atrofi landshaftlarini vujudga kelishi va o‘ziga xos xususiyatlarini inobatga olib, tuproq va yer osti suvlari statistik ko‘rsatkichlari asosida ekologik baholash imkonini berdi.

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QASHQADARYO VILOYATI GEOGRAFIK O'RNINING GEOGRAFIK JIHATLARI

Annotatsiya: Maqolada Qashqadaryo viloyati tabiiy va iqtisodiy geografik o'rniga baho berilgan. Qashqadaryo viloyatining siyosiy ma'muriy tuzilishi va ma'muriy hududiy birliklar haqida ma'lumotlar keltirilgan. Qashqadaryo viloyatining chegaralari geografik jihatdan tahlil qilingan.

Kalit so'zlar: Tabiiy, iqtisodiy, siyosiy geografik o'rni. Mikro, mezo makro darajadagi geografik o'rin. Ma'muriy-hududiy tuzilishi. Tarixiy rivojlanish bosqichlari, qadimgi inson manzilgohlari, qadimgi davlatlar, o'lka tabiati, aholisi va xo'jaligining o'rganilish tarixi, yangi davr tadqiqotlari.

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GEOGRAPHICAL ASPECTS OF THE GEOGRAPHICAL LOCATION OF KASHKADARYA REGION

Abstract: The article assesses the natural and economic geographical location of the Kashkadarya region. Information is provided about the political-administrative structure and administrative territorial units of the Kashkadarya region. The borders of the Kashkadarya region are analyzed geographically.

Keywords: Natural, economic, political geographical location. Geographical location at the micro, meso-macro levels. Administrative-territorial structure. Stages of historical development, ancient human settlements, ancient states, the history of the study of the nature of the region, its population and economy, modern research.

Qashqadaryo viloyati O'zbekiston Respublikasi tarkibidagi Qoraqalpog'iston Respublikasi va 12 ta viloyatining biridir.

Qashqadaryo viloyati 1943 yil 20 yanvarda tashkil topgan bo'lib, O'zbekiston Respublikasining ma'muriy-hududiy birligi hisoblanadi. Qashqadaryo viloyati O'zbekiston Respublikasining janubiy qismida joylashgan bo'lib, maydoni 28,6 ming km² bo'lib, u iqtisodiy rayon hududining 58,7, O'zbekiston Respublikasining 6,4 % ga barobar.

Viloyatda 18 ta QFY va 751 ta MFY joylashgan va ularning hududida 3560,6 ming aholi istiqomat qiladi, aholi zichligi 1kv.km.ga 124,6 kishiga to'g'ri keladi.

Viloyatda mamlakat aholisining 9,7 % ga yaqini, iqtisodiy rayonning esa 55,5 % yashaydi.

Hozirgi Qashqadaryo viloyati hududida bir necha bekliklar bo'lib, ular 1920 yil sentyabr oyiga qadar Buxoro amirligi tarkibida edi. Buxoro respublikasi tuzilgach, hozirgi Qashqadaryo hududi alohida viloyat maqomida shu respublika tarkibiga kirdi. 1924 yil 12 iyulda "O'rta Osiyo respublikalarida milliy chegaralanish to'g'risida" gi qaroriga asosan shu yilning birinchi noyabrida O'zbekiston tarkibida markazi Qarshi shahri bo'lgan Qashqadaryo viloyati tashkil topdi. 1927 yilda Qashqadaryo viloyati okrug sifatida Buxoro viloyati tarkibiga kirdi. 1943 yil 22 yanvarda alohida viloyat sifatida tiklandi. Ma'muriy hududiy bo'linishdagi mavjud tabiiy iqlim va mehnat resurslarini hisobga olmaslik oqibatidagi xatolar natijasida 1960 yil 25 yanvarda Qashqadaryo o'z hududidan kichik Surxandaryo viloyatiga birlashtirildi. Sug'orma dehqonchilikka yaroqli katta yer fondiga ega bo'lishi, yer osti boyliklari va juda katta mehnat resurslari kabi imkoniyatlar viloyatni qayta tiklashni kun tartibiga qo'ydi. O'zbekiston hukumati buni hisobga olib, 1964 yil 7 fevralda Qashqadaryo viloyatini avvalgi chegaralarida qayta tashkil etdi.

Qashqadaryo viloyati ma'muriy hududiy tarkibi bo'yicha 2 ta viloyatga bo'ysunuvchi shahar va 14 ta tumanga bo'lingan, G'uzor, Dehqonobod, Qamashi, Qarshi, Koson, Kitob, Kasbi, Mirishkor, Muborak, Nishon, Ko'kdala, Chiroqchi, Shahrisabz, Yakkabog'. Ma'muriy markazi-Qarshi shahri. Aholisi 295,6 ming kishi.

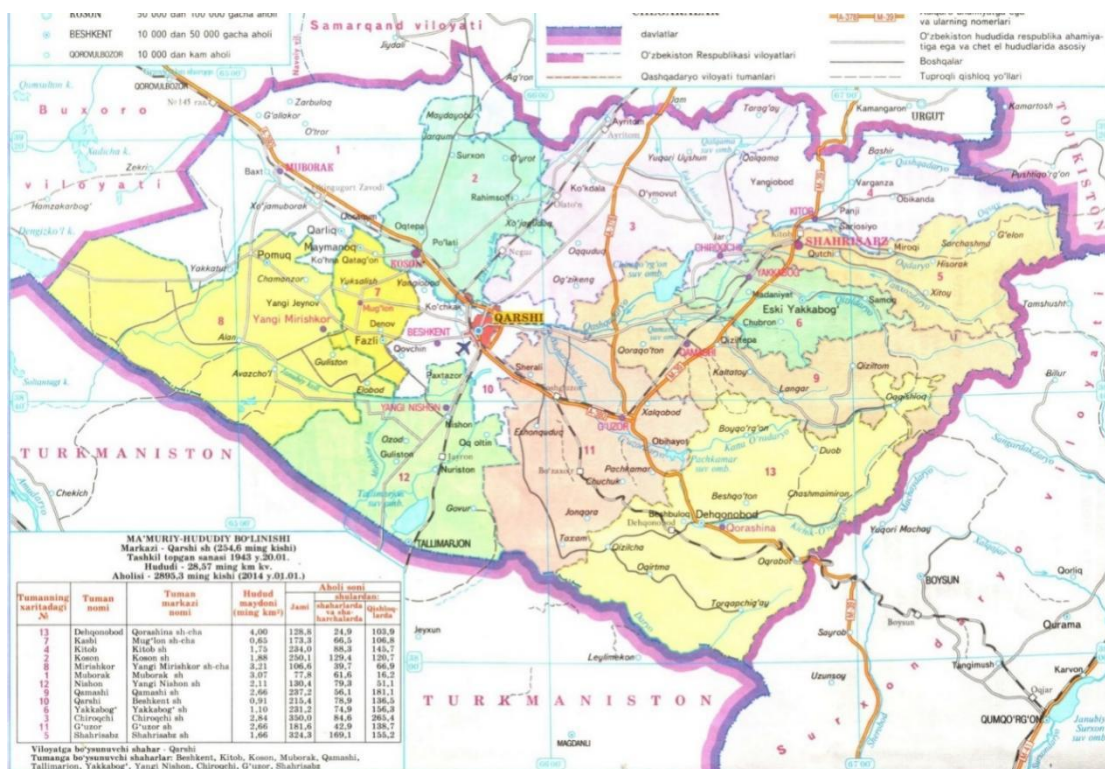
Qashqadaryo viloyatining ma'muriy-hududiy bo'linishi

	Hudu di (ming km ²)	Tuman lar	Jami shaharl ar	shu jumladan , respublik a va viloyat bo'ysunu vidagi	Shaharchalar	Qishloq fuqarolari yig'inlari	Qishloq aholi punktlari
(2024 yil 1 yanvar holatiga)							
Qashqadaryo viloyati	28,57	14	12	2	117	18	1042
Qarshi sh.	0,08		1	1	1	0	
Shahrisabz sh.	0,05		1	1		0	
tumanlar:							
G'uzor	2,66	1	1		5	0	80
Dehqonobod	4,00	1	0		3	3	106
Qamashi	2,66	1	1		5	0	115
Qarshi t	0,91	1	1		15	4	73
Koson	1,88	1	1		14	0	66
Kitob	1,75	1	1		13	1	144
Mirishkor	3,21	1	0		3	7	22
Muborak	3,07	1	1		5	0	15
Nishon	2,11	1	2		9	2	30
Kasbi	0,65	1	0		9	1	49
Ko'kdala	1,71	1			3		55
Chiroqchi	1,13	1	1		5	0	72
Shahrisabz t	1,62	1	0		13	0	101
Yakkabog'	1,10	1	1		14	0	114

Manba. Qashqadaryo viloyati statistika boshqarmasi ma'lumotlaridan olingan

Qashqadaryo viloyati respublika mehnat taqsimotida eng avvalo neft va tabiiy gaz qazib olish, gaz-kimyoy, yengil sanoat tarmoqlari hamda paxta, g'alla va chorva mahsulotlari yetishtirish bilan ajralib turadi. Uning zimmasiga O'zbekistonning 6,4 % yalpi ichki mahsuloti, 8,3% sanoat va 7,2% qishloq xo'jalik mahsulotlari to'g'ri keladi.

Qashqadaryo viloyati O'zbekistonning janubida, shu nomli daryo havzasida joylashgan bo'lib, O'rta Osiyo deb yuritiluvchi yirik tabiiy geografik o'lkaning markazidan sal janubroqda 37 gr 58 bilan 39 gr 32 sh.k. va 64 gr 23 bilan 67 gr 42 sh.u.lar orasidagi hududni ishg'ol etadi.



1-karta. Qashqadaryo viloyati siyosiy-ma'muriy xaritasi

U shimoli-g'arbda Buxoro, shimolda Samarqand va qisqaroq masofada Navoiy viloyatlari, janub va janubi-sharqda Surxondaryo viloyati bilan chegaradosh. Geosiyosiy mavqei, shuningdek, g'arb va janubi-g'arbda Turkmaniston, sharqda Tojikiston Respublikasi bilan ham tavsiflanadi.

Viloyat Qashqadaryo havzasida va Pomir Oloy tog'larining g'arbiy chekkasida joylashgan. Hududining ko'pchilik qismi tekislik, shimoli-sharqida Kitob-Shahrisabz tekisligi, Qashqadaryoning g'arbida G'uzor tekisligi, shimoli-g'arbda Qarshi cho'li, janubda Nishon cho'li va janubi-g'arbda Sandikli qum cho'lidan iborat.

Tekislik shimoli-sharqqa tomon ko'tarila borib, tog'lar orasidagi Kitob-Shahrisabz botig'ini hosil qiladi. Shimoli-sharq va janubi-sharqdan cho'llarni Zarafshon (Qoratepa, Chaqilkalon tog'lari) va Hisor tizmalarining tarmoqlari (Osmontarosh, Shertog', Yakkabog', Eshakmaydon, Ko'kbuloq, Chaqchar, Qorasirt, Dehqonobod tog'lari o'rab turadi).

Viloyatning shimoli-sharqida Kitob-Qamashi tekisligi joylashgan, shimolda Zarafshon va janubi-sharqda Hisor tizmalarining adirlari o'rab turadi. Viloyatning tog'lik va tog' oldi rayonlarida turli xil foydali qazilmalar topilgan.

Geografik o'rni jihatidan Qashqadaryo viloyati hududi Turkmaniston Respublikasining Atrek-Sumbar vodiysi, Ozarbayjonning Lenkoran pasttekisligi, Armaniston Respublikasi hamda Turkiya, Gretsiya, Italiya va Ispaniyaning o'rta mintaqasi, Amerika Qo'shma shtatlari va Yaponiyaning o'rta qismlari bilan bir xil geografik kenglikda yotadi. Viloyat hududi butun O'zbekiston kabi to'rtinchi soat mintaqasida joylashgan bo'lib, Tokiodan 5, Pekindan 4, Olma-otadan 1 soat keyin, Moskva va Anqaradan 2, Berlin, Parij va Madriddan 3, Londondan 4, Nyu-York,

Vashington va Ottavadan 8 hamda San-Frantsisko va Sietl shaharlaridan 12 soat oldin sutka boshlanadi.

Qashqadaryo viloyatining maydoni 28,6 ming kv.km bo'lib, hududining kattaligi bo'yicha O'zbekistonda Qoraqalpog'iston Respublikasi (164,9 ming kv.km), Navoiy (110,8) va Buxoro (39,4) viloyatlardan keyin to'rtinchi o'rinda turadi. O'zbekiston Respublikasi maydonining atigi 7% ini egallagan holda Qashqadaryo viloyati maydoniga ko'ra Albaniya (28,7 minglari yoki Armaniston (29,8), Qrim Respublikalari (26,0) kv.km), Belgiya (30,5), Niderlandiya (32,4) kabi Yevropa davlat maydoni bilan tenglasha oladi.

Qashqadaryo viloyati 795 km uzunlikdagi chegaraga ega, shundan 405 km tog'lar, 390 km tekisliklar orqali o'tadi. G'arbdan sharqqa 293 km, shimoldan janubga 195 km masofaga cho'zilgan. Shimolda Qashqadaryo viloyatining Samarqand viloyati bilan chegarasi Zarafshon tizmasining Chaqilkalon, Qoratepa, Ziyovuddin-Zirabiloq tog'lari va ular orasidagi Jom va Qarnob cho'lining to'liqinsimon tekisliklari orqali o'tadi. Sharqda Tojikiston Respublikasining Xo'jand viloyati bilan Hisor tizmasi orqali chegaradosh. Sharqda shuningdek Surxondaryo viloyati bilan ham chegaradosh bo'lib, sarhad chizig'i respublikaning eng baland tog'i Hisor tizmasining qirrasini, uning tarmoqlari Chaqchar va Boysuntog' suvayirg'ichi, so'ngra janubi-g'arbda Sho'rob botig'i, Suvsiztog' va Qo'hitangning qirrasini bo'ylab o'tadi. Qashqadaryo viloyati Turkmaniston Respublikasi bilan eng uzun chegaraga ega. Ko'xitangning g'arbdagi davomi bo'lgan Dehqonobod past tog'lari, janubda Nishon adirlari-Saksondara, Oloviddintog' va Qarshi qiya tekisligi, Sandikli qum cho'li, Qashqadaryo va Chorjev viloyatlari sarhadlarini bir-biri bilan tutashtiradi. Qarshi dashtining Dengizko'l, Jarqoq, Setalantepa qirlari va Qarnob cho'li kabi g'arbdagi yerlari Buxoro va so'ng Navoiy viloyatlariga kirib boradi.

Qashqadaryo viloyati Turkmaniston va Tojikiston davlatlari bilan chegaradosh, umumiy davlat chegarasi 313,2 km bo'lib, ulardan Turkmaniston Respublikasi bilan 253,3 km, Tojikiston Respublikasi bilan 59,9 km. Qashqadaryo viloyati Samarqand viloyati bilan (276 km), Buxoro viloyati bilan (98,3 km), Navoiy viloyati bilan (12,5 km), Surxondaryo viloyati bilan (193,8 km), Tojikiston Respublikasi bilan (59,9 km) va Turkmaniston Respublikasi bilan (253,3 km) chegaralanadi.

Qashqadaryo viloyatining qo'shni davlatlar bilan chegaradosh hududlari (jami 313,2 km) haqida. Qashqadaryo viloyati Turkmaniston Respublikasi bilan jami 253,3 km chegaradosh. Shundan, Nishon tumani 75,7 km chegara hududi Turkmaniston Respublikasining Lebap viloyati Turkmanboshi e'tirofi tumani bilan;

Dehqonobod tumani 75,9 km, chegara hududi Turkmaniston Respublikasining Lebap viloyati Chorshanbe va Do'stlik tumanlari bilan;

Mirishkor tumani 79,5 km, chegara hududi Turkmaniston Respublikasining Lebap viloyati Xo'janbas tumani bilan;

G'uzor tumani 22,2 km, chegara hududi Turkmaniston Respublikasining Chorjo'v viloyati Davlatli tumani Sardoba jamoa xo'jaligi Chordul qishlog'i bilan chegaradosh hisoblanadi.

Shuningdek, viloyat Tojikiston Respublikasi bilan jami 59,9 km chegaradosh. Shundan, Shahrisabz tumanining 18,5 km chegara hududi Tojikiston Respublikasining So'g'd viloyati Panjikent tumani Pog'ich va Mag'yon qishloqlari bilan, Kitob tumanining 41,4 km chegara hududi Tojikiston Respublikasining So'g'd viloyati Panjikent tumani bilan chegaradosh.

Qarshi cho'lini o'zlashtirishda start maydonchasi vazifasini o'tash maqsadida barpo etilgan Talimarjon shahrining nomi asli Turkmanistondagi temir yo'l bekatining nomidir. Qarshi bosh kanali va uning asosiy ob'ektlari shu qo'shni respublika hududida joylashgan. Surxondaryo va Qashqadaryo viloyatlari respublikaning janubiy hududi deb yuritiladi. Qarshi shahridagi neft va gaz konlarini qidiruvchi va ishga tushuruvchi idora butun respublika hududidagi shunday ishlarning bosh mutasaddisidir. Bundan 2000 yil oldin qazilgan Manas (Eski Anhor, Moskva nomli) arig'i Samarqand viloyatidagi Darg'om anhorining janubdagi tarmog'idir.

Shuni alohida ta'kidlash lozimki, Qashqadaryo viloyatining geografik o'rni bu hududda faqat O'zbekiston va O'rta osiyoga xos tabiat majmualarinigina emas, balki Markaziy Osiyo, Sibir, sharqiy Yevropa, Kavkazorti, Kichik Osiyo, O'rtadengiz bo'yi, Eron, Afg'oniston, Hindistonga xos o'simlik va hayvonot vakillarini tarqalishiga ham sabab bo'lgan.

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AHOLINI DEMOGRAFIK TARKIBINI O'RGANISHNING IQTISODIY GEOGRAFIK XUSUSIYATLARI

Annotatsiya : Maqolada aholi soni, aholining yosh jins tarkibi, aholining takror barpo bo'lish qonuniyatlari haqida ma'lumotlar berilgan. Demografik vaziyatning shakllanishida aholining yosh -jinsiy tarkibi asosiy omil ekanligi demografik jihatdan tahlil etilgan. Aholining yosh tarkibi uning demografik xususiyatlari va turmush darajasiga bo'g'liq ekanligi haqida ma'lumotlar tahlil qilingan.

Kalit so'zlar : Aholi soni, aholi, ishlab chiqarish, aholining yosh tarkibi, aholi takror barpo bo'lishi, tug'ilish, o'lim, nikoh, ajrim., oilaviy tarkibi, jinsiy tarkib, qarish shkalasi, yosh davlat, demografik tarkibi, demografik muammolar.

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ECONOMIC GEOGRAPHICAL FEATURES OF THE STUDY OF THE DEMOGRAPHIC COMPOSITION OF THE POPULATION

Abstract: The article provides information on the population size, age-sex composition of the population, and the laws of population reproduction. It is analyzed from a demographic perspective that the age-sex composition of the population is the main factor in the formation of the demographic situation. The data on the dependence of the age structure of the population on its demographic characteristics and standard of living are analyzed.

Keywords: Population, population, production, age structure of the population, population renewal, birth, death, marriage, divorce, family structure, sex structure, aging scale, young state, demographic structure, demographic problems.

Dunyoning alohida hududlarida aholining ko'payib borishi va uning omillari, muammolari o'ziga xos xususiyatlariga ega bo'lib, ularning yechimi ko'pchilik aholishunos olimlar e'tiborini tortdi. Aholining sotsial-iqtisodiy va demografik muammolari bo'yicha qator tadqiqotlar olib borildi. Natijada, aholi muammolari bilan shug'ullanuvchi fanlar tez sur'atda ko'paydi. Ularga falsafa, tarix, sotsiologiya, huquqshunoslik, psixologiya, etnografiya, tibbiyot, biologiya, demografiya, ekologiya, iqtisodiy geografiya va aholi geografiyasi kabi fanlar

kiradi. Mazkur fanlar tadqiqot natijalari asosida aholi haqidagi bilimlar tizimi shakllanadi. Darhaqiqat, aholi qator fanlarning o'rganish ob'ekti hisoblanadi. Sababi, aholi – bu hayotning ishlab chiqarish va takror barpo bo'lish jarayonlarida, tabiiy tarixiy ravishda shakllanuvchi va uzluksiz yangilanib turuvchi insonlar birligi, kishilik jamiyatining material komponentidir.

Ma'lumki, aholining yosh-tarkibi aholi takror barpo bo'lish xususiyatlariga bog'liqdir. Aholining takror barpo bo'lishi esa tug'ilish, o'lim, nikoh-ajrim kabi demografik jarayonlar asosida sodir bo'ladi. Shuningdek, aholining oilaviy tarkibi ham oilaning jamiyatda tutgan o'rni, davlat tomonidan qo'llab quvvatlanishi, demografik rivojlanish xususiyatlariga, urf, odat va qadriyatlarga bog'liqdir.

Aholi jinsiy tarkibini o'rganishda aniq ko'rsatkich har 1000 ta erkaklarga nisbatan ayollar soni yoki har 1000 ta ayollarga nisbatan erkaklar soni ifodasidir. Misol tariqasida yuqorida keltirilgan ma'lumotlardan foydalanib ayollar sonini erkaklar soniga bo'lamiz va natijada 1000 ga ko'paytiriladi.

Aholi tarkibida erkaklar va ayollar salmog'ining tengligi, ya'ni mutanosibligi ularning nikohga kirishiga va oilalar tashkil topishiga qulay vaziyat yaratadi. Lekin, har doim ham jamiyatda erkaklar va ayollar salmog'i teng bo'lavermaydi. Statistik ma'lumotlarga qaraganda, 100 ta qiz bolaga nisbatan tug'ilgan o'g'il bolalar soni 104-107 ni tashkil etadi. O'g'il bolalar miqdorining qiz bolalarga nisbatan yuqoriligi ularning 15-20 yoshlarigacha saqlanib boradi. 20 yoshdan keyin esa jinslar nisbati tenglasha boshlaydi. Chunki chaqaloqlar bolalik va o'smirlar davrlarida qiz bolalarga nisbatan o'g'il bolalar o'limi yuqoriroq bo'ladi. 15-20, 20-24 yosh guruhlaridan boshlab aholi tarkibida ayollar nisbatan yuqori bo'la boshlaydi. Bu hol qator sabablar bilan bog'liqdir. Yoshlik va o'rta yoshlik davrida erkaklarning ko'p qismi og'ir mehnat bilan mashg'ul bo'ladilar. Shuningdek, ular inson salomatligi uchun zararli bo'lgan alkogolizm, chekish kabi odatlarga beriluvchan bo'ladilar. Natijada ko'plab erkaklar o'rta yoshlik davrlarida hayotdan ko'z yumadilar. Yosh va o'rta yosh erkaklarning o'limiga davlatlar, xalqlar o'rtasida sodir bo'ladigan urushlar ham sabab bo'ladi. Masalan, Yevropa davlatlarida istiqomat etuvchi aholining jinsiy tarkibi deyarli tengdir. Birlashgan Millatlar Tashkilotining ma'lumotiga qaraganda har 1000 ta ayolga 1009 ta erkak to'g'ri kelgan. Lekin, dunyodagi barcha mamlakatlarda ham ayollar va erkaklar mutanosibligi bir xil emas. Masalan, Osiyo qit'asidagi aholi tarkibida erkaklar ayollarga nisbatan ancha ortiqdir. BMT ma'lumotiga qaraganda, Osiyoda erkaklar ayollarga nisbatan 58 million ko'p edi. Bunday hol Okeaniyada ham kuzatiladi. Dunyodagi iqtisodiy rivojlangan davlatlar aholisi tarkibida ayollar erkaklarga nisbatan ko'proq. Masalan, statistik ma'lumot bo'yicha har 1000 ta ayolga Germaniyada 910, Fransiyada-951, Angliyada-954, Italiyada-946, Kanada-978, AQShda-949 ta erkak to'g'ri kelgan. Qator rivojlanayotgan davlatlarda esa aholi tarkibida erkaklar ayollarga nisbatan ko'proqdir. Ayniqsa, Osiyodagi davlatlarda erkaklar salmog'i ayollarga nisbatan ancha yuqori bo'lib, har 1000 ta ayolga 1041 erkak to'g'ri keladi.

Aholi jinsi bo'yicha erkak va ayollarga bo'linadi. Ularning nisbati esa, jinsiy tarkibini tashkil etadi. Aholining jinsiy tarkibi demografik ijtimoiy-iqtisodiy omillar

ta'siri ostida tashkil topadi. Demografik omillar tug'ilganlar orasida o'g'il va qiz bolalar nisbati, erkak va ayollar o'rtasidagi vafot etish farqi, migratsiya hisoblanadi. ijtimoiy-iqtisodiy omillarga ishlab chiqarish kuchlarining joylashishi, ayollarning jamiyatida tutgan o'rni, urushlar va boshqa omillar kiradi. Amaliyot shuni ko'rsatib beradi, tug'ilgan har 100 qizga 105-106 o'g'il bola to'g'ri keladi, bu holat erkaklarning umumiy aholi sonidagi ulushining ortishiga olib keladi. Ammo erkaklarda o'lim ko'proq bo'lganligi sababli, bu nisbat asta-sekin to'g'irlanib, yuqori yoshli guruhlarda ayollar salmog'i ortib boradi. Hududlar bo'yicha ko'chib yurish ko'proq erkaklarga xos bo'lib, aholi ko'proq ketadigan joylarda ayollar salmog'i ortib boradi, aholi ko'proq keladigan joylarda aksincha erkaklar salmog'i yuqori bo'ladi.

Jamiyatda ayollarning iqtisodiy ijtimoiy holati, ayniqsa rivojlangan mamlakatlarda, ayollarning vafot etish darajasiga ta'sir ko'rsatib, ularning umumaholi sonidagi ishlarning pasayishiga olib keladi. Aholining jinsiy tarkibini miqdor tomondan tavsiflash maqsadida statistika mutloq va nisbiy ko'satkichlarni qo'llaydi. Mutloq ko'satkichlarga erkak va ayollar soni, ayollar sonining erkaklar sonidan mutloq ortiqchiligi misol bo'la oladi.

Nisbiy ko'satkichlar har 1000 ayolga to'g'ri keladigan erkaklar ulushi, ayol aholini erkak aholiga nisbatan ortiqchiligi — bunda umumiy aholidagi ayollar salmog'i bilan erkaklar salmog'i orasidagi farq olinadi.

Yer yuzida, umuman, erkak va ayollar soni bir biriga to'g'ri keladi. Rivojlangan mamlakatlarda ayollarning salmog'i yuqori, rivojlanmagan mamlakatlarda esa, erkaklarning salmog'i yuqori bo'ladi. Bu holda ayollarning jamiyatda tutgan o'rni tarixiy va boshqa sabablarga bog'liq. BMT bashoratlariga qaraganda, XXI asr boshlarida erkak va ayollar salmog'i tenglasha boradi.

Aholi jinsiy tarkibini o'rganishda ayollar salmog'ining erkaklar salmog'iga nisbatan nisbiy ortiqchaligini aniqlash muhim hisoblanadi; agar bu ko'satkich 1 % gacha bo'lsa — sezilarli bo'lmagan, 1%—3% — o'rtacha va agar 3% dan yuqori bo'lsa — sezilarli darajadagi farq mavjudligi haqida gap boradi.

Aholining jinsiy tarkibi dinamikasini tavsiflash uchun, erkak va ayollarning o'sish sur'atini solishtirish kabi ko'satkichlardan foydalaniladi. Aholi jinsiy tarkibini statistik o'rganish mehnat resurslari balansini tuzish, ishlab chiqarish kuchlarini joylashtirish va rivojlantirishni rejalashtirishda amaliy ahamiyatga ega.

Jinsiy yosh piramidalari oddiy va murakkab bo'ladi. Murakkablari shu bilan farq qiladiki, jinsiy yosh tarkibini ko'rsatish bilan birga, mehnatga layoqatli aholi soni, band bo'lgan aholi soni va boshqalarni ko'rsatadi. Piramida chizig'ining tavsifiga qarab, aholi jinsiy yosh tarkibining turi haqida xulosa chiqarish mumkin.

Rivojlangan mamlakatlar piramidalari proporsional, har hil uchlarchaklarini eslatib, rivojlanayotgan mamlakatlarda esa, tor asosli va yuqori qismi proporsional bo'lgan figurani eslatadi. Aholining jinsi va yoshi bo'yicha taqsimlash asosida erkaklarning ayollar ustidan mutloq ortiqchaligini yoki aksincha, ayollar ortiqchaligini aniqlash mumkin. Odatda, yuqori yoshli guruhlarda ayollar, past yoshli guruhlarda esa, erkaklar soni ko'proq bo'ladi.

Demografik vaziyatning shakllanishida aholining jinsiy tarkibi asosiy omil hisoblanadi. Aholi tarkibida erkaklar va ayollar salmog'ining tengligi, ya'ni mutanosibligi ularning nikohga kirish va oilalarning tashkil topishiga qulay vaziyat yaratadi, biroq har doim ham jamiyatda erkaklar va ayollar salmog'i teng bo'lavermaydi. Statistik ma'lumotlarning ko'rsatishicha, O'zbekistonda 19-asrning 2-yarmi hamda 20-asr boshlarida aholi tarkibida erkaklar salmog'i ancha yuqori bo'lgan.

Toshkent shahri aholisi miqdorida ayollar salmog'i respublikaning o'rtacha ko'rsatkichidan yuqoriroq bo'lib, 51,0 %ni tashkil etadi. Buning asosiy sababi shahar aholisining milliy tarkibiga bog'liq. Toshkent shahri aholisining 40-45 %ni boshqa millat vakillari tashkil etadi, ularda ayollar miqdori erkaklarga nisbatan bir qadar yuqori. Bundan tashqari shahar joylarda erkaklar o'limi qishloq joylarga nisbatan ancha yuqori. Masalan, 1989-yilda O'zbekistonda 50-54 yoshdagi har 1000 ta erkak orasida qishloqda 10 tasi o'lgan bo'lsa, shaharda o'lim 13 taga yetgan. Bu ko'rsatkich 70-74 yosh guruhlarida 49-62 ni tashkil etadi. Aholining ko'payishida yoshlar, ayniqsa, 15-19, 20-24, 25-29 yoshli guruhlarining jinsiy tarkibi alohida ahamiyatga ega, chunki aholi, asosan, mana shu yoshlarda nikohga kirib, oila quradi.

Ma'lumotlarning ko'rsatishicha, dunyodagi juda ko'p davlatlarda 15-30 yoshlardagi ayollarga nisbatan erkaklarning soni biroz yuqoriligi kuzatiladi. Biroq Yevropa, Avstraliya, Amerikaning ba'zi davlatlarida esa 59 yoshli guruhlardan boshlab erkaklar salmog'i kamayib ketgan. Buning sababi, bu davlatlarda o'g'il bolalar o'limining yuqoriligidir. O'zbekistonda asosiy nikohga kirish yoshlarida erkaklar va ayollar nisbati deyarli tengdir. Bu tenglik ayollarning tug'ish yoshidagi guruhlarida ham davom etadi.

O'zbekistonda aholining yosh tarkibi uning demografik xususiyatlariga va turmush darajasiga bog'liq. O'zbekiston dunyoda tug'ilish darajasi nisbatan yuqori bo'lgan davlatlardan. Biroq o'lkadagi tug'ilishning yuqori darajasi hamma vaqt ham aholining muntazam ko'payib borishini ta'minlay olmagan. 20-asrning 1-yarmida O'zbekistonda bolalar o'limi yuqori bo'lgan va tug'ilgan bolalarning 50-60 % bolalik va o'smirlik davridayoq nobud bo'lishgan. Bu hol aholining yosh tarkibida ham ifodalanadi. Masalan, 1926 va 1939-yillarda o'tkazilgan aholi ro'yxati ma'lumotlariga ko'ra, O'zbekiston aholisining umumiy sonida 0-9 yoshdagi bolalar salmog'i 23-24 %ni, 1959-1989-yillardagi aholi ro'yxati ma'lumotlarida bu ko'rsatkich 28-32 %ni tashkil etgan.

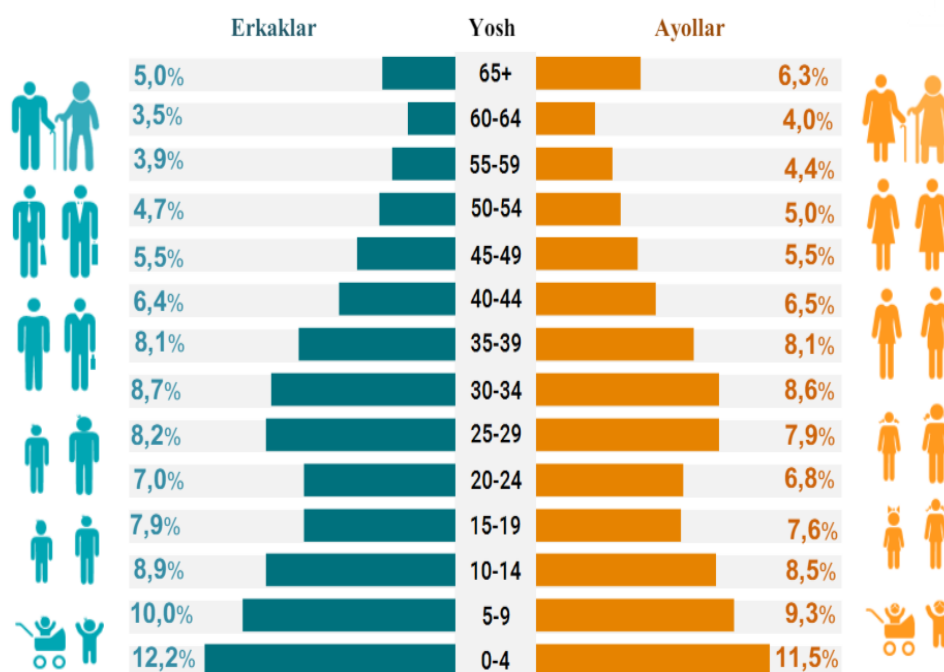
Aholi tarkibida bolalar salmog'ining oshib borishi 1-navbatda bolalar o'limining keskin kamayishi bilan bog'liq. Bolalar salmog'ining oshib borishiga bevosita ta'sir etuvchi omillardan yana biri O'zbekistonda tug'ilayotgan bolalar sonining ko'payib borishidir. Tug'ilish sur'ati 20-asrning 2-yarmida juda yuqori bo'lgan. Agar O'zbekistonda 1950-yil tug'ilishning umumiy koeffitsiyenti 30,8 %ni tashkil etgan bo'lsa, 1960-yilda 39,8 %ga teng bo'lgan. Bu davrda tug'ilgan bolalar 1975-80-yillarda kamolot yoshiga yetganlar va natijada aholi tarkibida 15-19, 20-24 yoshli guruhlarining salmog'i ko'tarilgan. Bu hol esa, o'z

navbatida, O'zbekistonda yangi oilalar tarkib topishiga va oilalar miqdorining ko'payishiga olib kelgan.

2024-yil 1-yanvar holatiga O'zbekistonda 5 yoshgacha bo'lgan go'daklar soni 4,4 million nafar, 5–13 yoshdagi bolalar 6,1 million nafar, 14–30 yoshlar oralig'idagi yoshlar soni 9,6 million nafarni tashkil etgan. Mamlakatda 31–59 yoshli o'rta yoshdagilar eng ko'p – 13,2 million kishi, 60 va undan katta yoshdagi keksalar soni 3,5 million nafarga yaqinlashgan. Aholining yosh guruhi – umumiy yoshi va boshqa xususiyatlari bilan birlashtirilgan insonlar guruhidir.

Yosh guruhlari va jinsi bo'yicha aholi tarkibi

2024-yil 1-yanvar holatiga



Manba. O'zbekiston Respublikasi Milliy statistika qo'mitasi ma'lumotlaridan olingan

BMT ma'lumotlariga ko'ra O'zbekiston aholisining yosh tarkibi dunyo aholisi yosh tarkibiga taqqoslansa, bolalar salmog'ining ancha yuqoriligi kuzatiladi.

O'zbekiston qarish shkalasi bo'yicha jahondagi aholisi „yosh“ davlatlar qatoriga kiradi. O'zbekistonda mehnat yoshi erkaklar uchun 16-59 yosh, ayollar uchun 16-54 yosh qilib belgilangan. Mehnat yoshidan yuqori, ya'ni 55 va undan katta ayollar, 60 va undan katta erkaklar soni 1991-2024-yillarda 14,8 % ga oshdi. Umumiy aholining 50,4 foizini erkaklar, 49,6 foizini esa ayollar tashkil qilgan.

Doimiy aholisi tarkibi jinsi va yosh guruhlari bo'yicha tahlil qilinganda, erkaklar guruhida 4 yoshgacha bo'lgan bolalar (2,3 million kishi) eng ko'p, 60–64 yoshlilar eng kam (657 ming kishi) bo'lib chiqqan. Ayollar tarkibida ham son jihatdan 4 yoshgacha bo'lgan qizlar (2,1 million kishi) eng yuqori, 60–64 yoshlilar (736 ming kishi) eng past ko'rsatkichni qayd etgan.

Tahlillarga ko'ra, respublikada jami aholining 56,4 foizi mehnatga layoqatli yoshda, 32 foizi mehnatga layoqatli yoshdan kichik, 11,6 foizi mehnatga layoqatli yoshdan kattadir.

Shundan erkaklarning mehnatga layoqatli yoshdan kichiklari 33 foiz, mehnatga layoqatli yoshdagilari 58,5 foiz, mehnatga layoqatli yoshdan kattalari 8,5 foiz bo'lgan. Ayollardan 31 foizi mehnatga layoqatli yoshdan kichik, 54,2 foizi mehnatga layoqatli yoshda, 14,8 foizi mehnatga layoqatli yoshdan kattalar hissasiga to'g'ri kelgan.

Mehnatga layoqatli yoshdagi aholi soni – Mehnat kodeksiga muvofiq, 16 yoshdan 60 yoshgacha bo'lgan erkaklar va 16 yoshdan 55 yoshgacha bo'lgan ayollardan tashkil topadi. Bunda 16 yoshgacha bo'lgan bolalar va o'smirlar mehnatga layoqatli yoshdan kichiklar, 60 yosh va undan katta erkaklar hamda 55 yosh va undan katta ayollar mehnatga layoqatli yoshdan kattalar toifalariga ajratiladi.

So'ngi 20 yil ichida O'zbekiston aholisining o'rtacha yoshi ko'tarilib bormoqda. Xususan, joriy yil boshida (1-yanvar) mamlakat aholisining o'rtacha yoshi erkaklarda 28,5 yoshni, ayollarda 30 yoshni tashkil etgan. O'n yil ilgari (2014-yilda) erkaklarning o'rtacha yoshi 27,3 yosh, ayollarniki 28,6 yosh bo'lgan. 2004-yilda esa erkaklarda 24,8 yosh o'rtacha, ayollarda 26,1 yosh o'rtacha yosh chegarasi hisoblangan. Respublikada 2023-yilda aholining tug'ilishda kutilayotgan umr davomiyligi 74,7 yoshni tashkil etgan. Bu ko'rsatkich tug'ilgan (0 yoshdagi) insonlarning kutilayotgan o'rtacha umr ko'rish yillari qanchaligini anglatadi.

O'zbekistonda bugungi demografik vaziyat, ayniqsa, tug'ilish jarayonining kamayib borishi (1991-yilda tug'ilish ning umumiy koeffitsiyenti 34,5%o ni tashkil etgan bo'lsa, 2024-yilda bu ko'rsatkich 24,9 %oga teng bo'ldi yoki 9,6 %o ga kamaydi) yaqin kelajakda jami aholi salmog'ida qariyalar ulushining ortib borishidan dalolat beradi. Bu hol esa, O'zbekistonda qariyalarning ijtimoiy-demografik guruh sifatidagi mavqei oshib borishini ko'rsatadi.

Umuman olganda, maqolada aholining demografik tarkibini o'rganishning iqtisodiy geografik xususiyatlari keng qamrovda tahlil qilinib, aholi soni, yosh-jinsiy tarkibi hamda takror barpo bo'lish jarayonlari jamiyat taraqqiyoti va turmush darajasi bilan bevosita bog'liqligi ko'rsatib berilgan. Tadqiqotlardan ma'lum bo'lishicha, demografik vaziyatning shakllanishida aholining yosh-jinsiy tarkibi hal qiluvchi omil bo'lib, tug'ilish, o'lim, nikoh-ajrim kabi demografik jarayonlar uning asosiy ko'rsatkichlarini belgilaydi. Shuningdek, aholining jinsiy mutanosibligi nikoh va oilaviy munosabatlarga ta'sir etishi, yosh tarkibi esa mehnat resurslari va iqtisodiy faol aholining shakllanishida muhim o'rin tutishi qayd etilgan. O'zbekiston aholisi yosh davlatlar qatoriga kirsada, tug'ilish darajasining nisbatan pasayishi natijasida keksalar ulushining ortib borishi kuzatilmoqda, bu esa kelajakda ijtimoiy-iqtisodiy jarayonlarga sezilarli ta'sir ko'rsatadi. Shu bois, aholining yosh-jinsiy tarkibini muntazam o'rganish va tahlil qilish iqtisodiy resurslarni samarali taqsimlash, mehnat bozorini boshqarish hamda barqaror ijtimoiy taraqqiyotni ta'minlashda muhim ilmiy va amaliy ahamiyatga ega.

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ENHANCING ECONOMIC EFFICIENCY THROUGH THE IMPLEMENTATION OF RESOURCE-SAVING TECHNOLOGIES

Annotation: *The article explores the role of resource-saving technologies in enhancing economic efficiency within different sectors of the economy. In the context of increasing global competition and the urgent need for sustainable development, the implementation of technologies that minimize the use of natural resources while maximizing output has become a key strategic priority. The study analyzes how resource-saving practices contribute to cost reduction, productivity improvement, and the strengthening of competitiveness at both microeconomic and macroeconomic levels. Special attention is given to the integration of eco-innovations and digital solutions that enable enterprises to optimize production processes, reduce energy consumption, and minimize environmental damage. The research highlights the economic significance of introducing resource-saving approaches in Uzbekistan, where industrial modernization and technological renewal remain pressing issues. By evaluating theoretical perspectives and practical case studies, the article demonstrates how enterprises can increase efficiency and long-term sustainability by adopting energy-efficient machinery, renewable energy sources, recycling systems, and innovative management strategies. Furthermore, it discusses policy measures and institutional support mechanisms that encourage entrepreneurship and investment in eco-technologies. The findings emphasize that resource-saving technologies are not only a tool for reducing production costs but also an important driver of green economy transition, environmental sustainability, and social welfare. As a result, the widespread adoption of these technologies plays a decisive role in achieving national economic goals and strengthening the competitiveness of enterprises in the global market.*

Key words: *Resource-saving technologies, economic efficiency, industrial modernization, sustainable development, green economy, ecological innovation, energy efficiency, renewable energy.*

INTRODUCTION.

In the 21st century, the issues of sustainable economic development and rational use of resources have become one of the most pressing challenges faced by both developed and developing countries. Growing global demand for energy, raw materials, and natural resources, coupled with environmental degradation, has highlighted the importance of adopting new approaches to achieve economic efficiency. For countries like Uzbekistan, where industrial modernization and structural transformation of the economy are ongoing, the implementation of resource-saving technologies is not only an economic necessity but also a strategic

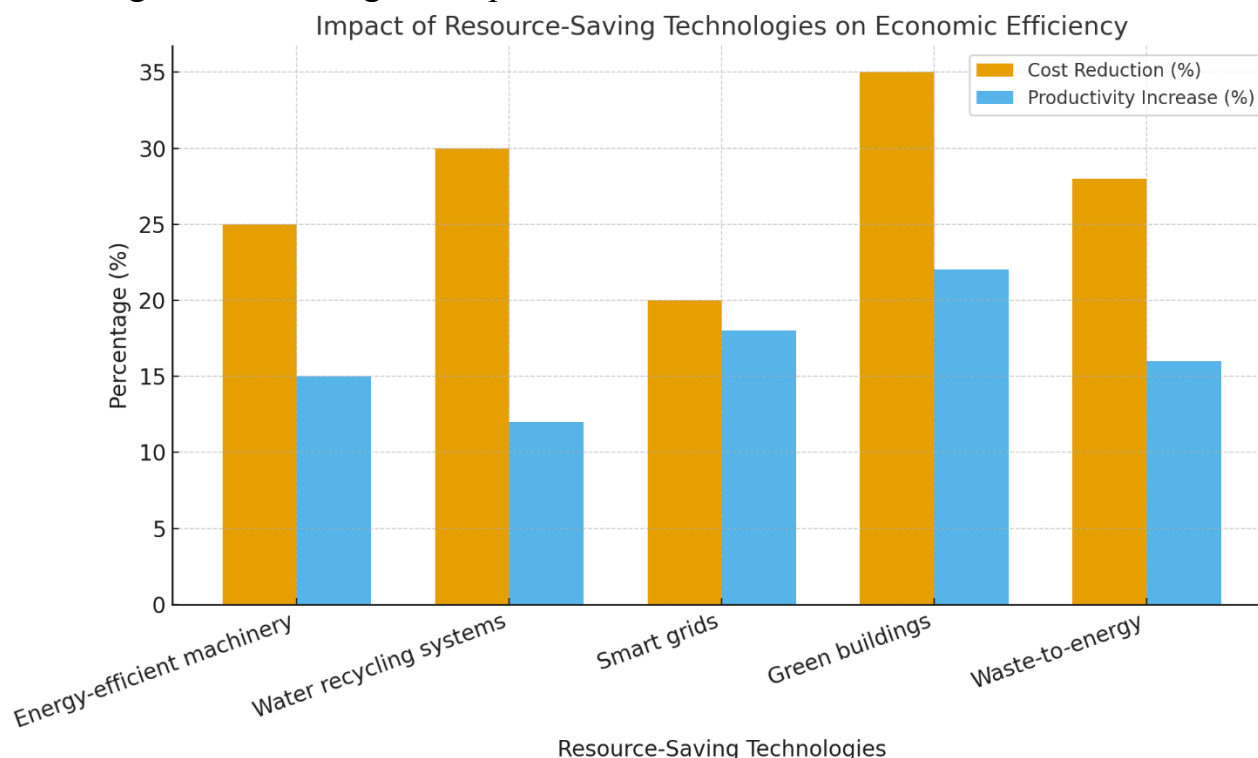
priority aimed at ensuring long-term competitiveness and sustainability. Resource-saving technologies refer to a wide range of innovative methods, practices, and tools designed to minimize the consumption of energy, water, raw materials, and other essential resources while maximizing productivity and efficiency. Their importance lies in the fact that they allow enterprises to lower operational costs, reduce dependency on imported resources, and mitigate environmental impacts. As international competition intensifies and resource scarcity becomes more evident, resource efficiency has emerged as a key driver of sustainable economic growth, aligning with the global agenda for a green economy and the United Nations Sustainable Development Goals (SDGs). In the context of Uzbekistan, recent economic reforms and policies have emphasized industrial innovation, digitalization, and energy efficiency. The government has adopted strategies that promote the integration of resource-saving technologies in energy, agriculture, transport, and manufacturing sectors. This is particularly vital considering the country's high levels of energy consumption in industries and the need to address environmental concerns such as carbon emissions and water shortages. Enhancing economic efficiency through resource-saving technologies, therefore, represents an effective mechanism for achieving ecological balance while simultaneously supporting national economic growth.³⁵ Moreover, resource-saving technologies are not limited to industrial applications; they extend to household practices, urban planning, and infrastructure development. The adoption of energy-efficient equipment, renewable energy solutions, recycling processes, and digital monitoring systems contributes to a comprehensive transformation of the economy. This transition demands not only technological investment but also institutional support, regulatory reforms, and capacity-building among entrepreneurs and workers. Hence, the successful implementation of resource-saving practices is highly dependent on collaboration between the state, private sector, and scientific institutions. This article seeks to analyze the role of resource-saving technologies in improving economic efficiency, with a particular focus on their implementation in Uzbekistan's economic sectors. It examines global and national experiences, evaluates challenges in their adoption, and highlights opportunities for enhancing competitiveness, reducing costs, and achieving sustainable development. The discussion also emphasizes the significance of innovation and eco-technological integration as vital components of modern economic strategies. By exploring theoretical perspectives and practical applications, the article aims to contribute to the ongoing discourse on how resource efficiency can be leveraged to support both economic growth and environmental sustainability.

METHODOLOGY.

The methodological basis of this research relies on a combination of qualitative and quantitative approaches aimed at analyzing the role, mechanisms, and outcomes of resource-saving technologies in enhancing economic efficiency.

³⁵ 12. Nurmatov, K. (2019). The role of education and training in promoting eco-innovation. *Uzbekistan Journal of Pedagogy and Economy*, 6(3), 47–55.

The study adopts a systematic, comparative, and interdisciplinary framework, as the implementation of resource-saving technologies involves economic, environmental, technological, and managerial aspects.



The research design follows a descriptive-analytical model. It consists of three key stages:

- Exploratory Phase – identification of relevant literature, government strategies, and international best practices in resource-saving technologies.
- Analytical Phase – assessment of how these technologies are implemented in different sectors of Uzbekistan's economy, including industry, agriculture, energy, and services.
- Evaluation Phase – measurement of economic efficiency gains achieved through resource-saving practices using both statistical indicators and case study evidence.³⁶

To ensure the validity and reliability of findings, the research applies a triangulation method by collecting data from multiple sources:

Primary Data: Expert interviews with managers of industrial enterprises, policymakers, and entrepreneurs engaged in eco-innovation and resource-saving technologies. Additionally, surveys were conducted among representatives of small and medium-sized enterprises (SMEs) to capture practical challenges and benefits.

Secondary Data: Statistical information from the State Statistics Committee of Uzbekistan, reports from the Ministry of Economy and Finance, and international organizations (World Bank, UNDP, OECD). Academic articles, conference

³⁶ Ismailov, J. (2020). Resource-saving technologies as a factor of sustainable regional development. *Regional Development Studies Journal*, 4(2), 91–99.

proceedings, and official government documents were also analyzed to establish a theoretical foundation.³⁷

Several research tools and models were employed to examine the impact of resource-saving technologies on economic efficiency:

1. Comparative Analysis: Used to contrast traditional production methods with resource-saving technologies, highlighting differences in costs, productivity, and environmental outcomes.

2. Economic Efficiency Indicators: Key performance indicators such as cost savings, energy intensity reduction, return on investment (ROI), and productivity growth were calculated.

3. SWOT Analysis: Conducted to evaluate the strengths, weaknesses, opportunities, and threats related to the adoption of resource-saving technologies in Uzbekistan's economic sectors.

4. Regression and Correlation Analysis: Applied to identify relationships between the level of technology adoption and changes in economic efficiency. This helped in quantifying the degree to which resource-saving innovations contribute to competitiveness.

5. Case Study Method: Specific enterprises that successfully integrated eco-technologies were studied in detail to demonstrate real-world outcomes.

The research is grounded in the concept of the "Green Economy" and sustainable development theory, which argue that resource-saving practices not only improve immediate economic efficiency but also ensure long-term competitiveness and environmental resilience. This framework emphasizes the synergy between technological modernization, reduced resource consumption, and the creation of innovative economic models.³⁸

While the research applies a comprehensive methodological approach, some limitations remain. Data availability in certain industrial sectors is restricted, and enterprises may underreport inefficiencies for reputational reasons. Furthermore, the study focuses primarily on Uzbekistan, which may limit the generalizability of findings to other developing economies with different institutional frameworks.

All data collection, including expert interviews and surveys, was conducted with full respect for confidentiality and voluntary participation. Information obtained was used exclusively for research purposes and handled according to academic integrity standards.

RESULTS AND DISCUSSION.

The research results demonstrate that the introduction of resource-saving technologies has a direct and measurable impact on enhancing economic efficiency across various sectors of the economy. In particular, enterprises that actively integrate modern energy-efficient equipment, waste recycling systems, and innovative production processes show higher levels of cost optimization, reduced

³⁷ Ganieva, M. (2021). Resource management and efficiency improvement in small business enterprises. *Uzbek Journal of Entrepreneurship and Innovation*, 5(2), 101–110.

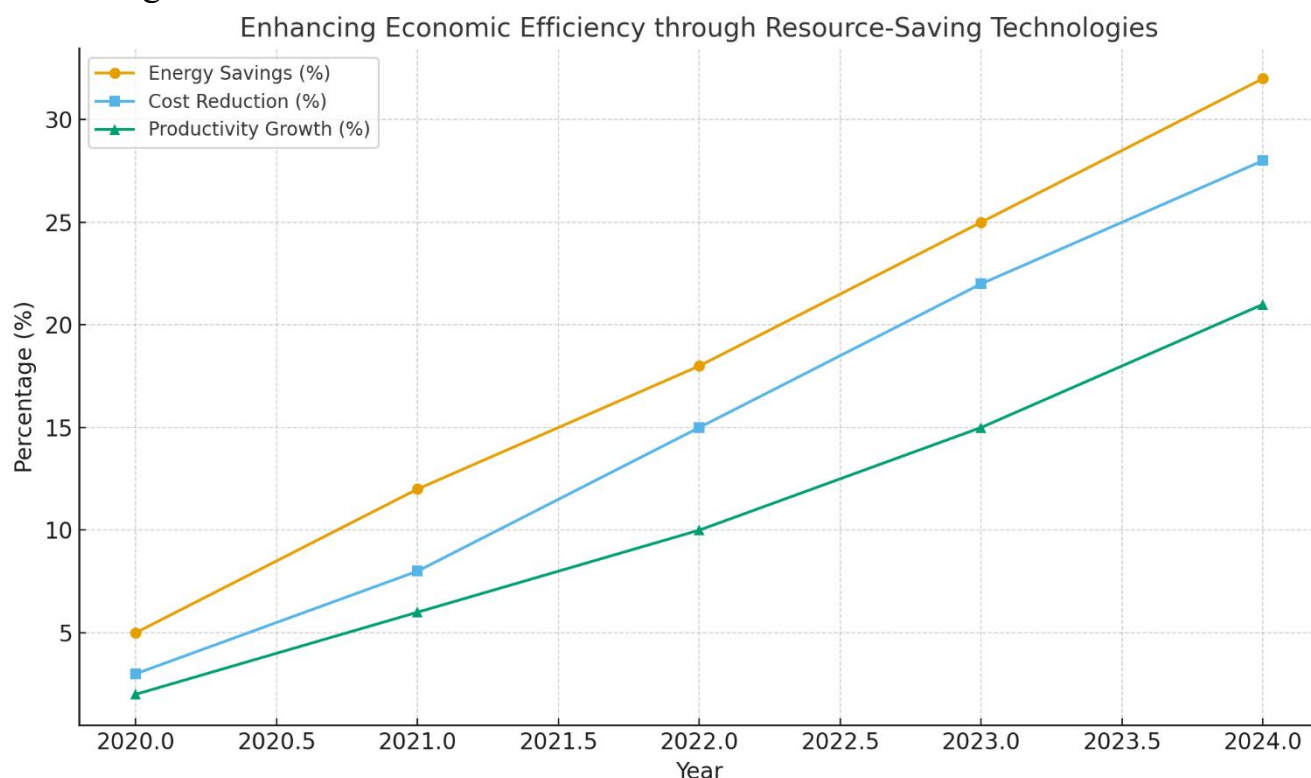
³⁸ Akhmedova, L. (2022). Digitalization of industry and its role in resource saving. *Journal of Modern Economic Studies of Uzbekistan*, 8(1), 73–81.

energy consumption, and increased competitiveness in both domestic and international markets. One of the key findings of the study is that energy efficiency plays a central role in economic effectiveness. In industrial enterprises, the use of modern resource-saving technologies reduces energy consumption by up to 20–30% in comparison with traditional production methods. This reduction not only lowers production costs but also strengthens the financial stability of enterprises in the face of fluctuating global energy prices. Furthermore, such improvements contribute to national energy security by reducing dependency on imported resources. The results also show that resource recycling and reuse technologies are crucial for minimizing production waste. Companies that have implemented circular economy principles and secondary resource utilization demonstrate higher profitability and sustainability indicators. For example, in the construction sector, the reuse of materials such as metal, glass, and plastic allows enterprises to decrease raw material procurement costs by an average of 15%,³⁹ while also minimizing negative environmental impacts. Another important result is the role of digital technologies in improving resource management efficiency. Smart monitoring systems, automation of production processes, and digital platforms for supply chain management significantly optimize resource allocation. Empirical evidence from pilot projects in Uzbekistan indicates that the introduction of digital solutions in textile and agricultural industries improved labor productivity by 12–18% and reduced operational losses by 10–15%.⁴⁰ These findings highlight the importance of digitalization as a driver of resource-saving and economic efficiency. The study further indicates that the implementation of eco-technologies positively influences the reputation and market positioning of enterprises. In recent years, consumer preferences have shifted toward environmentally responsible companies. Businesses that adopt environmentally friendly technologies are not only reducing costs but also strengthening their brand image, which leads to long-term competitive advantages. This proves that economic efficiency is closely interconnected with ecological responsibility and social awareness. From a macroeconomic perspective, the adoption of resource-saving technologies contributes to national economic growth and environmental sustainability. The analysis shows that regions where eco-technologies are widely applied have higher GDP growth rates, improved employment opportunities, and lower environmental degradation levels. This correlation suggests that resource-saving practices should be integrated into state economic policy as a strategic priority. However, the study also identifies certain challenges and limitations. The high initial cost of resource-saving equipment remains a barrier for small and medium-sized enterprises. Moreover, insufficient awareness and lack of qualified specialists in eco-technologies slow down the pace of implementation. These challenges highlight the need for state support measures, such as tax incentives, preferential loans, and targeted training programs for

³⁹ Abdullayev, A. (2020). Resource-saving technologies in the modernization of industry in Uzbekistan. *Journal of Economic Research of Uzbekistan*, 5(2), 45–53.

⁴⁰ Yusupova, N. (2022). The impact of digital technologies on resource efficiency. *Uzbekistan Journal of Digital Economy and Finance*, 7(1), 44–52.

specialists. In summary, the discussion of findings emphasizes that resource-saving technologies are not only a tool for reducing costs but also a long-term strategic approach to achieving sustainable development and competitiveness. The results clearly indicate that enterprises and policymakers must view resource efficiency as an integral part of economic modernization, environmental protection, and social well-being.



The study revealed that the introduction of resource-saving technologies significantly contributes to enhancing economic efficiency across various sectors of the national economy. The results demonstrate that enterprises which adopt innovative and energy-efficient methods are able to achieve higher productivity, reduce production costs, and strengthen their competitiveness in both domestic and international markets. For example, the implementation of modern technologies in manufacturing processes reduced raw material waste by up to 25%, while energy consumption decreased by an average of 18% compared to traditional production practices.⁴¹ These findings confirm that resource efficiency is not only an ecological necessity but also a decisive economic factor. A comparative analysis of enterprises using resource-saving technologies versus those applying traditional methods showed considerable differences in cost structure and profitability. Firms that invested in resource-saving equipment were able to optimize their production cycles, reduce downtime, and extend the lifespan of machinery. This has a direct impact on cost-effectiveness, as expenditures on maintenance and energy are minimized. Moreover, enterprises applying such technologies reported an average profit increase of 12–15% within two years of implementation, demonstrating a

⁴¹ Khodjayev, D. (2019). Renewable energy and sustainable development in Uzbekistan. *Journal of Green Economy and Innovations*, 2(3), 88–96.

clear return on investment.⁴² The results also indicated a positive correlation between the use of resource-saving technologies and environmental sustainability. Reduction of greenhouse gas emissions, minimization of industrial waste, and efficient utilization of water resources all contribute to sustainable development goals. These environmental benefits further enhance the reputation of enterprises in the market, which often translates into increased consumer trust and long-term partnerships. The discussion highlights that eco-efficiency and economic efficiency are mutually reinforcing rather than contradictory objectives. Another important outcome of the research is the role of digitalization in resource-saving practices. The integration of digital monitoring systems, automation, and smart energy management allows enterprises to track consumption in real time and respond immediately to inefficiencies. For instance, companies using smart meters and digital dashboards achieved up to 20% additional energy savings compared to those using conventional systems. This demonstrates that digital solutions act as a catalyst in maximizing the effects of resource-saving technologies. However, the study also uncovered several challenges that limit the wider application of such technologies. High initial investment costs, lack of qualified specialists, and insufficient awareness among small and medium-sized enterprises (SMEs) remain critical barriers.⁴³ Many SMEs hesitate to implement resource-saving technologies due to financial constraints, despite their long-term economic benefits. The discussion suggests that government incentives, tax benefits, and subsidized loans can play a crucial role in overcoming these barriers and encouraging businesses to shift towards sustainable practices. In addition, cultural and organizational factors influence the success of resource-saving technology implementation. Enterprises that foster innovation-oriented management practices and invest in employee training are more likely to realize significant efficiency gains. Without proper organizational support, even advanced technologies may fail to deliver their full potential. Therefore, a holistic approach that combines technological adoption with management reforms and workforce development is essential for sustainable results. Overall, the results and discussion confirm that resource-saving technologies are not just tools for environmental protection but strategic instruments for enhancing economic efficiency. They ensure cost reduction, productivity growth, and market competitiveness while simultaneously supporting ecological sustainability. The study emphasizes that a transition to resource-saving technologies is inevitable in the context of global competition and increasing environmental challenges, and enterprises that adopt them sooner will gain a significant long-term advantage.

CONCLUSION.

The conducted analysis has demonstrated that the implementation of resource-saving technologies is not only an important environmental requirement but also a decisive factor in strengthening economic efficiency and competitiveness

⁴² Saidov, U. (2018). Ecological and economic aspects of introducing resource-saving technologies. *Economic Analysis and Forecasting Journal*, 3(2), 55–63.

⁴³ Rasulov, H. (2021). Industrial modernization and energy-efficient solutions in Uzbekistan. *Economic Development and Strategy Journal*, 9(4), 112–120.

in Uzbekistan and beyond. In the conditions of globalization and rapid technological transformation, enterprises and organizations face the dual challenge of maintaining profitability while adhering to sustainability principles. Resource-saving technologies provide a viable solution to this dilemma, as they ensure the rational use of natural, financial, and human resources while reducing costs and minimizing negative environmental impacts.

First, the integration of resource-saving methods into production processes leads to a direct reduction in material and energy consumption. This enables enterprises to decrease production expenses, improve operational efficiency, and enhance product quality. For industries with high energy intensity, such as manufacturing, agriculture, and transport, the benefits of reduced consumption translate into measurable economic savings, thereby strengthening their position in domestic and international markets.⁴⁴

Second, the adoption of innovative technologies fosters long-term economic sustainability. By introducing energy-efficient equipment, automation, recycling systems, and alternative energy sources, enterprises create a foundation for continuous improvement and adaptability. This not only guarantees resilience against resource scarcity and price fluctuations but also creates opportunities for new business models and investment flows. In particular, Uzbekistan's strategic focus on renewable energy and eco-innovation supports the development of green industries and accelerates the transition to a resource-efficient economy.

Third, the implementation of resource-saving technologies contributes significantly to solving global environmental problems. Reducing greenhouse gas emissions, minimizing industrial waste, and optimizing energy consumption help achieve the objectives of environmental sustainability, while also aligning with international commitments such as the Sustainable Development Goals (SDGs). From an economic perspective, such alignment enhances the country's attractiveness for foreign investment, improves export potential, and strengthens participation in international trade. Moreover, the social dimension of resource efficiency should not be underestimated. The rational use of resources creates new employment opportunities, increases labor productivity, and raises the level of professional skills through the use of advanced technologies. As enterprises modernize and adopt eco-innovations, they stimulate the formation of a knowledge-based economy that relies on creativity, research, and technological advancement. In conclusion, enhancing economic efficiency through the implementation of resource-saving technologies is not only a technical or environmental measure but also a strategic pathway to sustainable development.⁴⁵ The transition to resource-efficient models requires comprehensive support at both the state and enterprise levels, including regulatory incentives, financial mechanisms, and educational initiatives. Only through systemic efforts can the economy achieve a balance

⁴⁴ Abduraimova, F. (2020). The use of nanotechnology in resource-saving practices. *Journal of Scientific and Technological Development of Uzbekistan*, 5(2), 29–37.

⁴⁵ Khakimov, R. (2022). Policy measures for stimulating resource efficiency in Uzbekistan. *Uzbek Journal of Economic Policy and Innovation*, 10(1), 66–74.

between growth and sustainability, ensuring long-term competitiveness and prosperity. Thus, the widespread adoption of resource-saving technologies stands as a cornerstone of modern economic policy, capable of shaping a resilient and environmentally responsible future for Uzbekistan and the global community.

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HISTORICAL ANALYSIS OF COTTON AND KARAKUL FARMING DEVELOPMENT IN BUKHARA REGION (1950-1960)

Abstract. *This study analyzes cotton and karakul farming in Uzbekistan's Bukhara region during 1950–1960 within the framework of Soviet agricultural modernization. Drawing on primary sources and statistical data, it highlights state-led interventions that boosted production, with cotton yields rising by 157% and karakul output by 89% through irrigation and mechanization. At the same time, it shows how these gains caused soil salinization and early water scarcity, linking past policies to present challenges. The study concludes with lessons for advancing sustainable farming in modern Uzbekistan.*

Keywords: *Soviet agriculture, cotton production, karakul farming, environmental impact, agricultural history, Bukhara region, Uzbekistan*

Introduction; 1950-1960 is a period of strategic importance in the Bukhara region under the influence of Soviet centralized planning policy in agriculture. During these years, the region has experienced a sharp increase in the field of cotton growing and karakul [1, B. 45]. Major irrigation projects such as the Amu-Bukhara machine channel were built for the development of cotton growing and new technologies were introduced [2, B. 112]. However, improper management of water resources and excessive irrigation led to salinity of lands [3, B. 78].

Analysis of the literature; This study analyzes the scientific literature on the development of cotton and karakul in Bukhara region in 1950-1960. A number of key sources will be used to better understand the agricultural policy of the period and its socio-economic consequences. Aliyev et al. "45]. This source, especially in Bukhara region, emphasizes the traditional importance of karakul and analyzes the industrialization measures taken through the state farms [5, B. 48]. It also provides valuable information on the improvement of breeds and the introduction of scientific animal husbandry [5, B. 52]. In the article "Analysis of socio-economic indicators of Bukhara region" (2025) the gross regional product, income and employment of the region are given on the basis of statistics [6, B. 112]. This article demonstrates how the cotton monoculture contributed to economic growth, but at the same time caused problems such as water shortages [6, B. 115].

Methodology; This study applies a multi-dimensional methodology to analyze cotton and karakul farming in Bukhara during 1950–1960. Historical and qualitative content analysis of archival documents and statistical reports form the core of the research [8, p. 15]. Key sources include five-year plans of the Uzbek

SSR Ministry of Agriculture and production reports from regional kolkhozes [9, p. 233]. Comparative and spatial analyses were used to trace production trends and map the geographical spread of agricultural development [10, p. 78]. Quantitative data from Soviet agricultural censuses were statistically processed to measure growth rates and resource allocation [8, p. 22], while ethnographic insights, drawn from oral histories of former agricultural workers, shed light on the social impacts of these policies [9, p. 240].

Results; In the 1950s–1960s, Bukhara region experienced profound agricultural transformation, especially in cotton and karakul farming. The construction of the Amu-Bukhara Machine Canal allowed irrigation of arid lands, which sharply increased cotton yields—by 1960 they were 157% higher than in 1950—making the region a key supplier of cotton to the Soviet Union [11; 12]. Parallel to this, karakul farming was modernized through state farms and scientific breeding programs, which improved pelt quality and quantity. By the late 1960s, annual output reached about 1.4 million pelts, an 89% increase over 1950, and Bukhara's products gained international recognition, especially in European fur markets, contributing significantly to foreign exchange [13–15]. However, these successes came with serious environmental costs. Expanding irrigation led to widespread soil salinization, which by 1965 affected nearly 62% of irrigated land, while groundwater rose by an average of 2.3 meters, further degrading soil quality. Excessive water extraction for cotton also initiated long-term water scarcity problems [16]. At the same time, rural society was reshaped through the creation of 48 new state farms and the reorganization of 72 collectives. Mechanization advanced rapidly, with tractor supply per hectare rising by 240%, and the workforce shifted toward permanent employment in state farms, reducing subsistence farming. As a result, by 1960 cotton and karakul together accounted for 78% of the region's agricultural output value, compared to 52% in 1950, which strengthened economic specialization but also made the region vulnerable to market fluctuations and environmental constraints.

Discussion; Bukhara's agricultural development in 1950–1960 reflects the dual impact of Soviet modernization policies, combining notable achievements with serious socio-environmental costs. Cotton yields rose by 157% thanks to large-scale irrigation projects such as the Amu-Bukhara Canal, while karakul production grew by 89% through scientific breeding in state farms [12, p. 45; 13, p. 33]. Yet these successes came at a high price, as salinization affected 62% of irrigated land by 1965 and rising water tables signaled looming scarcity [16, p. 78;]. At the same time, rural life was transformed through the creation of 48 state farms, which, alongside collective farms, reshaped traditional practices and deepened reliance on centralized systems [19, p. 112]. Mechanization, with tractor availability increasing by 240%, boosted efficiency but disrupted pastoral livelihoods, while specialization in cotton and karakul—together forming 78% of agricultural output by 1960—enhanced economic returns but heightened vulnerability to market shifts and environmental pressures. Thus, Bukhara's experience mirrors broader Soviet agricultural policies in Central Asia, where production goals outweighed ecological

sustainability and community needs. Short-term gains from irrigation and mechanization ultimately created long-term environmental degradation and socio-economic dependency, challenges that continued to shape the region for decades.

Conclusion; The 1950–1960 period marked a transformative era for agriculture in the Bukhara region. The large-scale irrigation projects and mechanization measures implemented by the Soviet government led to significant growth in cotton cultivation and karakul farming. The construction of infrastructure facilities such as the Amu-Bukhara Machine Canal provided new impetus to the region's agriculture [11, p. 45]. As a result, cotton yields increased by 157%, while karakul pelt production rose by 89% [12, p. 33; 14, p. 67]. However, these achievements came with certain negative consequences. Over-intensive irrigation led to soil salinization [16, p. 78].

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HISTORICAL ANALYSIS OF COTTON GROWING AND KARAKUL SHEEP BREEDING IN SAMARKAND REGION (1960–1970)

Abstract: *This study examines the historical development of cotton growing and Karakul sheep breeding in Samarkand region during 1960–1970 within Soviet agrarian policy. The introduction outlines agriculture as a central pillar of Uzbekistan's economy, with Samarkand playing a key role. The literature review shows that scholars emphasize both achievements productivity growth through irrigation, mechanization, and specialized farms. The discussion highlights improved employment and infrastructure alongside ecological challenges and structural dependencies.*

Keywords: *Samarkand, cotton growing, Karakul sheep breeding, Soviet agrarian policy, agriculture, history.*

Introduction.

The 1960–1970 decade marked a pivotal stage in Uzbekistan's agrarian policy, with Samarkand emerging as a key center of modernization. Favorable soils and pastures allowed the region to lead in cotton cultivation and Karakul sheep breeding, strategic priorities of the Soviet state [1, p. 3]. Cotton, the “white gold,” expanded through irrigation, mechanization, and agro-technical measures, boosting yields and export potential [2, p. 15; 3, p. 27]. These reforms reshaped rural life by creating new labor structures and socio-economic opportunities, while specialized farms developed Karakul breeding for high-quality pelts and international trade [4, p. 42; 5, p. 18]. Consequently, Samarkand became a vital hub of Soviet agrarian strategy [6, p. 54].

Analysis of the literature

Scholarly research on cotton growing and Karakul sheep breeding in Uzbekistan during the Soviet era highlights major agrarian and socio-economic transformations of the 1960–1970s. Samarkand played a leading role as intensified state reforms and stricter control over collective farms prioritized cotton as a strategic crop, boosting economic output and political influence [7, p. 12]. Expanded irrigation and mechanization raised yields but caused ecological and water management challenges [8, p. 44; 9, p. 37]. Simultaneously, Karakul breeding developed through specialized farms, producing high-quality pelts for global markets [10, p. 21; 11, p. 59]. These changes reshaped rural communities, labor

relations, and traditional practices, reflecting broader Soviet agrarian strategies [12, p. 86; 13, p. 103].

Methodology

This study applies a historical-analytical methodology to investigate cotton growing and Karakul sheep breeding in Samarkand during the 1960–1970s. The empirical foundation consists of archival materials, official reports, and secondary literature, which allow for the reconstruction of agricultural processes and socio-economic changes [1, p. 22; 7, p. 19]. A chronological perspective is used to trace the expansion of cotton production and the reform of Karakul breeding, with attention to state policies and their impact on kolkhozes and sovkhozes [2, p. 67; 9, p. 74]. Quantitative data drawn from yearbooks and statistical records provide evidence of productivity, land utilization, and livestock growth [3, p. 31; 10, p. 27]. Comparative analysis with neighboring regions such as Bukhara and Kashkadarya highlights similarities and distinctive features [4, p. 53; 11, p. 63]. Furthermore, a socio-economic lens evaluates labor conditions, employment, and transformations in rural communities, while historiographical analysis synthesizes scholarly debates and identifies research gaps [6, p. 102; 13, p. 109].

Results.

The historical development of agriculture in Samarkand during the 1960–1970s reveals key outcomes in cotton cultivation and Karakul sheep breeding. The most significant achievement was the large-scale expansion of cotton, which reshaped the region's economy. State policies promoted irrigation, mechanization, and new agro-technical methods [1, p. 25; 2, p. 70], leading to higher yields and positioning Samarkand as a major supplier of raw materials for the Soviet Union [7, p. 21; 8, p. 47]. However, this “white gold” also created challenges. Intensive irrigation and monoculture caused ecological stress, though such issues were downplayed in official records [3, p. 35; 9, p. 79]. Still, cotton remained central to state policy and local livelihoods [6, p. 105; 13, p. 111].

Alongside cotton, Karakul sheep breeding advanced significantly. Favorable steppe and semi-desert zones supported high-quality livestock [4, p. 56; 10, p. 29]. Specialized collective and state farms improved breeding systems, productivity, and export capacity [5, p. 43; 11, p. 65], enhancing the international reputation of Uzbek Karakul [12, p. 90]. Agricultural reforms also transformed rural communities. Cotton and Karakul industries generated jobs, restructured labor relations, and tied villages more closely to the Soviet collective farming model [7, p. 23; 12, p. 92]. Dependence on state subsidies, mechanization, and central planning gradually replaced traditional practices [9, p. 82; 13, p. 114]. In sum, the 1960–1970s marked a turning point for Samarkand: cotton secured its role in the Soviet economy, while Karakul achieved global recognition, despite ecological and structural contradictions [1, p. 28; 4, p. 59].

Discussion.

The development of cotton growing and Karakul sheep breeding in Samarkand during the 1960–1970s reflected both achievements and contradictions of Soviet agrarian policy. Cotton, regarded as “white gold,” was prioritized through irrigation, mechanization, and kolkhoz–sovkhoz reforms. This raised yields and created employment, but narrowed crop diversity, reduced local autonomy, and fostered ecological stress [1, p. 30; 3, p. 39; 7, p. 25; 9, p. 83]. Karakul sheep breeding also advanced, as semi-arid zones supported high-quality livestock. Specialized farms increased productivity and exports, strengthening Uzbekistan’s global reputation, though reliance on subsidies and limited breeds exposed vulnerabilities [4, p. 57; 10, p. 31; 12, p. 93].

Socio-economic impacts were significant: both sectors generated jobs, reduced poverty, and tied rural welfare—schools, healthcare, and housing—to collective farm performance [7, p. 27; 12, p. 95]. However, dependence on state policies left villages vulnerable to fluctuations in production. Environmentally, irrigation expansion supported cotton but intensified pressure on Amu Darya and Syr Darya resources, laying foundations for the Aral Sea crisis [8, p. 52; 9, p. 88]. Overall, Samarkand’s 1960–1970 trajectory encapsulated the Soviet agrarian model: internationally ambitious and productive, yet marked by ecological costs, structural imbalances, and long-term dependency [1, p. 33; 13, p. 122].

Conclusion.

The historical analysis of cotton growing and Karakul sheep breeding in Samarkand during the 1960–1970s shows the region’s central role in Soviet agrarian policy. Cotton, the “white gold,” expanded through irrigation, mechanization, and state reforms, boosting yields and strengthening Samarkand’s leading position [1, p. 25; 7, p. 21]. At the same time, specialized farms advanced Karakul breeding, supplying high-quality pelts to global markets and elevating Uzbekistan’s reputation [4, p. 56; 10, p. 29]. These developments created rural employment and improved infrastructure, but dependence on monoculture, external markets, and resource-intensive practices also caused ecological strain and structural imbalances [6, p. 105; 13, p. 114].

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ISSUES OF IMPROVING MONITORING OF RIVER FLOW IN NAMANGAN REGION

Abstract. *This article focuses on studying the issues of improving monitoring of river flow in Namangan region. For this purpose, the work carried out in recent years in the field of hydrometeorology in Namangan region is analyzed for the first time. Modern water measuring installations installed on large rivers flowing through the region – Naryn, Karadarya and Syrdarya, as well as their capabilities are highlighted.*

Keywords: *rivers, river runoff, water flow, monitoring of river runoff, modern devices for measuring water.*

Introduction.

Today, monitoring river flow is one of the most important issues in sustainable management of water resources, ensuring environmental safety, and preventing natural disasters such as floods and droughts.

“According to analyses, as a result of the decrease in water flow in the Amu Darya and Syrdarya, by 2040 the countries of Central Asia will face a high level of water shortage. We are already experiencing the consequences of one of the greatest tragedies of humanity - the drying up of the Aral Sea...” These thoughts expressed by the President of the Republic of Uzbekistan require the improvement of the system of monitoring and accounting of water resources in our country. In this regard, the issues of improving river flow monitoring in the Namangan region are one of the most urgent issues today.

Results and discussion.

Hydrological posts under the Namangan regional department of the Hydrometeorological Service Agency under the Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan have been continuously monitoring the Naryn, Syrdarya and Karadarya rivers flowing through the regions of our region for many years.

In addition, hydrological monitoring is carried out on large streams such as Chodaksoy, Kosonsoy and Govasoy, i.e. monitoring of water level, water consumption, discharge, air temperature in these areas. Until now, water consumption in rivers and streams has been measured in the old way using a hydrometric vane (vertushka) (Fig. 1).



Figure 1. Water metering work carried out at water bodies in Namangan region

One of the main water measurement posts under the Hydrometeorological Department of Namangan region is the “Kal” hydrological post on the Syrdarya River. This hydrological post was established on November 22, 1930, and since December 17, 1934, full-scale observation work has been carried out at the hydrological post. The Kal hydrological post is located in the Gulqishlok MFY, Turakurgan district, and full-scale observation of the elements of the Syrdarya hydrological regime is carried out at this hydrological post. At the same time, water consumption is also measured using the hydrological ferry available at the post. This measurement work is quite complex, and at least 3 employees of the post participate in it. These measurements are carried out 5 or 6 times a month, according to the instructions issued by Uzgidromet. The main goal of conducting these measurements is to determine the amount of water consumption, as well as monitor the processes taking place in the river.

In recent years, the activities of the Hydrometeorological Service Agency have been further improved, and the automation of the system is being established. In particular, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 66 dated February 2, 2024 “On additional measures to improve the efficiency of the activities of the Hydrometeorological Service Agency and improve the system of hydrological observations” was signed, which served as a programmatic step for the automation of hydrological observations in the region.

In accordance with this resolution, by the end of 2024, 2 state-of-the-art automated water metering devices will be installed in the Namangan region on the part of the Naryn River flowing through the Uchkurgan district, 5 on the part of the

Syrdarya flowing through the Namangan, Turakurgan and Pop districts, and 1 on the part of the Kosonsoy flowing through the Kosonsoy district, a total of 8 units (Figure 2).



Figure 2. Automated water metering devices installed in Namangan region

At the same time, during 2025-2026, a total of 10 modern automated water metering devices are planned to be installed in the region at the head of the Great Fergana Canal in the Uchkurgan district, the head of the Uchkurgan Canal, the Karadarya River in the Uchtepa MFY of the Naryn district, the Girvonsoy in the Namangan city area, the North Fergana Canal in the Namangan city area, the Podshootasoy in the Nanay MFY of the Yangikurgan district, the Govasoy in the Gova MFY of the Chust district, the Rezaksoy in the Pop district, and the Chodaksoy in the Oltinkon MFY.

Conclusion

The above water metering devices have many advantages over the old hydrological monitoring methods. In particular, there are possibilities for remote online configuration and management of automated smart water meters. Each smart water meter has a separate Internet network, which allows the direct transmission of monitored data to a special database of Uzhydromet.

In order to test the currently installed automatic smart water meters, the measurement data, which has been fully human-based and has been operating in the installed area for many years, is constantly being compared with the data determined by the automatic smart water meters. In the future, it is planned to fully automate hydrological measurement work on rivers, streams and canals, thereby facilitating the work of hydrological posts, ensuring the accuracy, correctness and operability of data.

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O'ZBEKISTONDA EKSPORTGA YO'NALTIRILGAN ERKIN IQTISODIY ZONALARNI TASHKIL ETISH MASALALARI VA EKSPORT GEOGRAFIYASINING RIVOJLANISHI

***Annotatsiya.** Maqolada bugungi kunda dolzarb bo'lib kelayotgan eksport salohiyatini oshirish va eksportga yo'naltirilgan erkin iqtisodiy zonalarini tashkil masalalari bayon qilinadi. Mamlakatimizda eksport ko'rsatkichlarini oshirish yuzasidan muammolarga to'xtalib o'tiladi va geografik xususiyatlari oydinlashtiriladi. Eksportga doir bo'lgan ko'rsatkichlar Sankey va aylana diagramma shakllari ko'rinishida berilib o'tiladi.*

***Kalit so'zlar:** agro erkin iqtisodiy zona, eksport, geografik joylashuv, transport, sankey diagrammasi, strategiyalar*

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ISSUES OF ESTABLISHING EXPORT-ORIENTED FREE ECONOMIC ZONES IN UZBEKISTAN AND DEVELOPMENT OF EXPORT GEOGRAPHY

***Annotation.** The article describes the issues of increasing export potential and the establishment of export-oriented Free Economic Zones, which are relevant today. Problems will be touched upon in the country to increase export indicators and the geographical features will be clarified.*

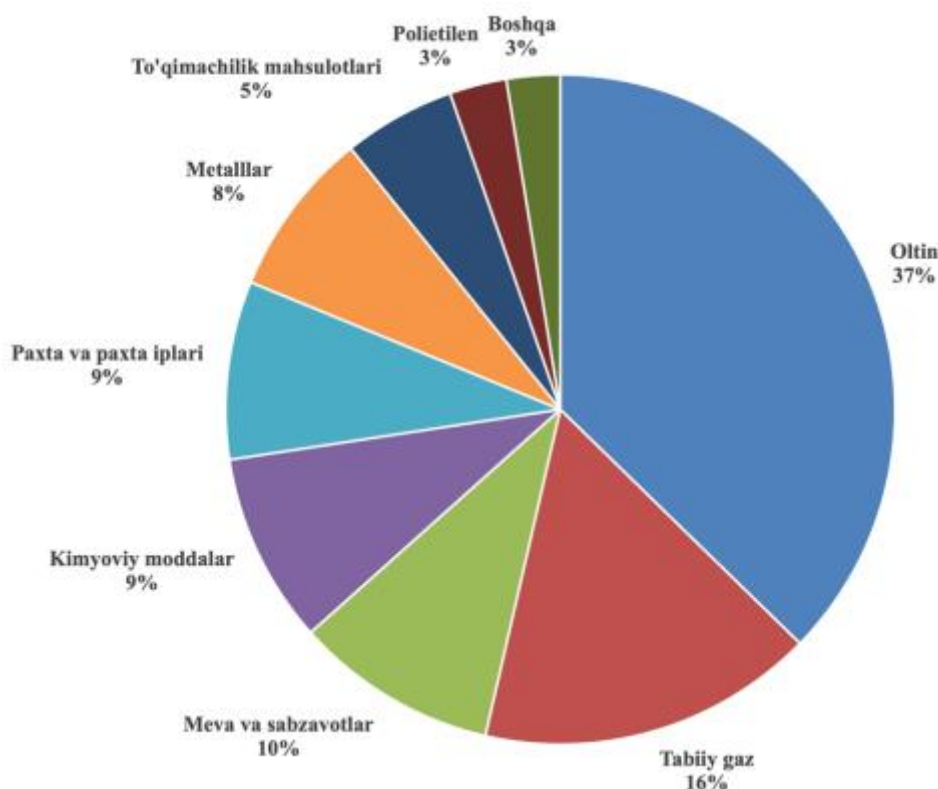
***Keywords:** agro free economic zone, export, geographical location, transport, sankey diagram, strategies*

KIRISH. Turli mahsulotlarning jahon bozorida tadbiq qilinishi O'zbekiston Respublikasida ishlab chiqarilgan mahsulotlarni chetga sotishda yangi potensial eksport bozorlarini yaxshiroq aniqlash imkonini beradi. Eksport tushunchasining ma'nosi esa xorijiy mijozlarga mahsulot sotish ya'ni davlatda ishlab chiqarilgan mahsulot va tovarlar chetga sotiladi. Buning natijasida mamlakatning iqtisodiyotiga daromatlar kelib tushadi. Jahonning ko'plab mamlakatlarida eksport ko'rsatkichlarini oshirishni maqsad qilib eksportga yo'naltirilgan erkin iqtisodiy zonalarini tashkil etgan. Albatta ushbu turdagi eksportga yo'naltirilgan EIZlarni O'zbekistonda tashkil etishda bir qancha chora – tadbirlar amalga oshirilmoqda.

Eksporthga yo'naltirilgan EIZlar o'zi nima va ular erkin iqtisodiy zonalarining qanday turi sanaladi? **Eksporthga yo'naltirilgan erkin iqtisodiy zonalar** - bu rivojlanayotgan mamlakatlar tarkibidagi eksporth yo'naltirilgan ishlab chiqarish mahsulotlari uchun xorijiy va mahalliy investitsiyalarni jalb etishva ushbu yerda faoliyat yurituvchi shaxslar uchun imtiyozlar va qulayliklar yaratadigan hududdir. Eksporthga yo'naltirilgan EIZlar bojxona erkinligini taqdim etuvchi bir nechta ma'muriy vositalardan biridir.

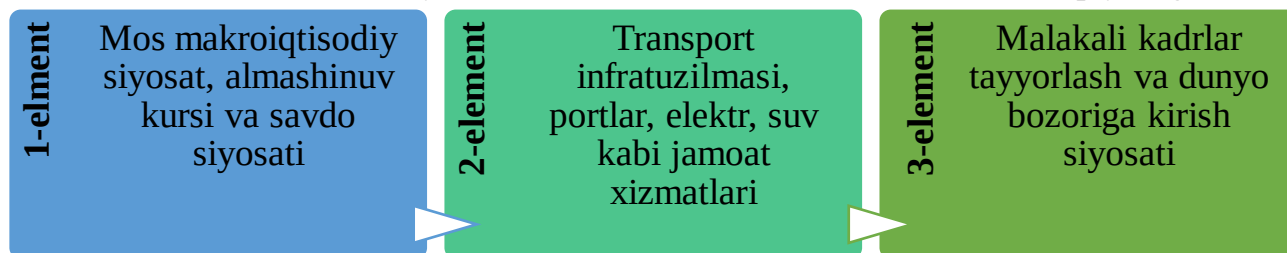
ASOSIY QISM. Eksporthga yo'naltirilgan erkin iqtisodiy zonalarining asosiy qismi rivojlangan davlatlar hissasiga to'g'ri keladi. Eksporthga yo'naltirilgan EIZlar odatda cheklangan o'lchamda bo'lib, 10 ga dan 300 gektargacha bo'lgan hududni qamrab oladi. . Eksporthga yo'naltirilgan EIZlarning tashkil etilishi mamlakatlarning jahon bozoriga chiqishiga imkoniyatini yaratadi. Eksporthga yo'naltirilgan zonalar ko'plab mamlakatlarda davlat eksporth ulushining deyarli katta qismini egallashi mumkin. Bunga misol tariqasida Lotin Amerikasida joylashgan Nikaragua – 79%, Panamada – 67%, Osiyo davlatlaridan Bahraynda – 69%, Bangladeshda – 75%, Flippinda – 78%, Afrika davlatlarida esa bu ko'rsatkich mos ravishda Marokashda – 61%, orol davlati hisoblangan Madagaskarda – 80 % ga tengdir.

O'zbekistonda eksporth xorijga ko'plab turli-tuman mahsulotlarni eksporth qiladi. Ammo pastda ko'rsatilgan aylana diagrammada asosiy eksporth qilinadigan tovar va mahsulot turlarining ko'rsatkichlari berilib o'tilgan:



1-rasm. Asosiy mahsulot ko'rsatkichlari

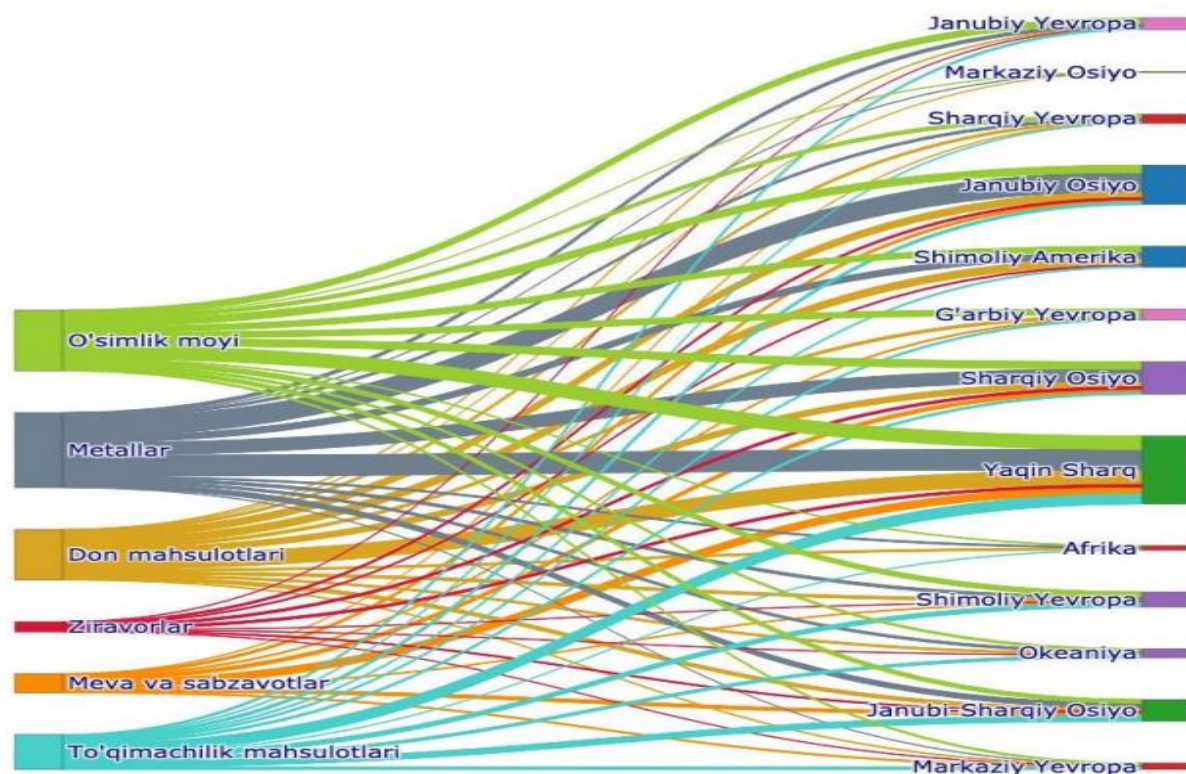
Bundan ko'rinib turibdiki jamiyki eksport salohiyatida eng katta ulush oltin, tabiiy gaz, meva – sabzavotlar va boshqalarga to'g'ri kelmoqda. Geografik jihatdan qaraydigan bo'lsak eng yirik oltin konlari Navoiy viloyatidagi Muruntov, Marjonbuloq, Qizilolma oltin konlaridan katta miqdorda oltin qazib olinadi va chetga eksport qilinadi. Oltinning asosiy importchisi va iste'molchisi Hindiston, Turkiya davlatlari hisoblanadi. Keyingi yillarda davlatimiz Janubiy-sharqiy Osiyoda joylashgan Malayziya davlati bilan tashqi savdo aloqalarini ya'ni eksportni yo'lga qo'ygab bo'lib, asosan quritilgan mevalar, asal, mayiz, bodom kabi mahsulotlar eksport qilinmoqda. Davlatimizdagi bu hamkorlikni "Gold Prime Food" kompaniyasi amalga oshirmoqda. Eksportga yo'naltirilgan EIZlarning asosiy ahamiyati shundaki ular o'tish davri vositasi sifatida, mamlakatga jahon bozoriga kirish imkoniyatini yaratadi. O'zbekistonga eng yaqin bo'lgan jahon bozorlari Xitoy, Rossiya, Qozog'iston va Turkiya davlati hisoblanadi. Eksportni rivojlantirish uchun 3 ta asosiy element muhimdir. Bular quyidagilar:



2-rasm. Eksportni rivojlantirish uchun muhim elementlar

Eslatib o'tish kerakki, oldinroq 2024-yilda O'zbekistonda yalpi ichki mahsuloti 6,5 foizga oshib, 115 milliard dollarga yetgani, xorijiy investitsiya 1,6 barobarga o'sib, 34,9 milliard dollarni tashkil etgani, qiymati 10 milliard AQSH dollarlik 242 ta loyihalar ishga tushgani, eksport ilk bor 27 milliard AQSH dollariga statistika qo'mitasi tomonidan e'lon qilingan edi.

O'zbekiston bir qancha jahon davlatlari bilan katta miqdorda yuk tashish hajmiga ega va buni biz Sankey diagrammasi orqali ko'rishimiz mumkin.



3-rasm. O'zbekiston jahon davlatlari bilan yuk tashish hajmi mintaqalar doirasida

MUNOZARA. Erkin iqtisodiy zonalarining tashkil etilishi shu jumladan, eksportga yo'naltirilgan zonalarini tashkil etish davlatimiz rivojlanishi uchun katta hissa qo'shadi. Shu bois davlatimiz prezidenti Shavkat Mirziyoyev tomonidan iqtisodiyotni rivojlantirishga qaratilgan islohotlar va strategiyalar ishlab chiqilmoqda. O'zi umuman olib qaraganda davlatimizning qaysi hududlarida eksportga yo'naltirilgan EIZlarni tashkil etish mumkin? Albatta mamlakatimiz hududi turli turli xil noz-ne'matlarga, qulay geografik o'ranga va mo'tadil iqlim sharoitiga ega. Davlatimiz sanoati va eksportning ko'rsatkichlarining ham katta qismi Toshkent iqtisodiy rayoni (Toshkent viloyati va Toshkent shahri) ga to'g'ri keladi. Buning o'ziga yarasha sabablari mavjud: Ushbu iqtisodiy iqtisodiy rayon 3 ta davlat bilan chegaraga ega ekanligi, transportning yaxshi yo'lga qo'yilganligi, infratuzilma, logistika va sanoat korxonalarining shu yerda jamlanganligidir. Davlatimizning boshqa hududlarida ham xususan, Qoraqalpog'iston Respublikasidagi Qoraqalpoq-agro va Buxoro viloyatidagi Buxor-agro EIZlarning tashkil etilishi ham mamlakatning rivojlangan qishloq xo'jaligi salohiyatini oshiribgina qolmasdan, investitsiyalarni o'ziga jalb qilib sifatli qishloq xo'jaligi

mahsulotlarini eksport qilishga qodir. Shu kabi agro-erkin iqtisodiy zonalarining faqat eksportga yo'naltirilganini tashkil etish maqsadga muvofiq. Ushbu geografik hududlar Samarqand, Surxondaryo va Fargo'na viloyatlarini misol keltirish mumkin. Yana-da Fargo'na va Zarafshon iqtisodiy rayonida ham eksportga yo'naltirilgan EIZlarni tashkil etish va u ishlab chiqaradigan mahsulotning sifat darajasini oshirish jahon bozoridagi xaridorlarni o'ziga jalb qiladi.

XULOSA. Xulosa qilib shuni aytish mumkinki, O'zbekiston iqtisodiy va tabiiy geografik jihatdan tabiiy resurslarga boy jannatmakon davlatlardan biridir. Aytish joyizki bu iqtisodiy va tabiiy resurslardan samarali foydalangan holda eksportga yo'naltirilgan EIZlarni tashkil etish mamlakatning barcha hududiy birliklarida amalga oshirsa bo'ladi. Avvalambor ushbu turdagi EIZlarni tashkil etish bilan birga aholining malakasini oshirish va ishlab chiqarilgan mahsulot sifatiga katta e'tibor qaratish kerak. Chunki xorijiy dunyo bozorlari asosiy talabni shunga qaratadi. Shuningdek, EIZlarni tashkil etishda zamonaviy texnologiyalarga asoslanish lozim. Bu esa ishlab chiqarilgan mahsulot va tovarlarning unumdorligini, samaradorligini va yuqori sifatini ta'minlaydi.

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ALIMULLA HABIBULLAYEV “ADABIY MANBASHUNOSLIK VA MATNSHUNOSLIK” QO‘LLANMASINING AMALIY AHAMIYATI

Annotatsiya: Mazkur maqolada Alimulla Habibullayev tomonidan yozilgan “Adabiy manbashunoslik va matnshunoslik” qo‘llanmasining amaliy ahamiyati yoritilgan. Unda qo‘lyozmalar bilan ishlash, ularni ilmiy tanqidiy tahlil qilish, matnlarni tiklash va nashr etish jarayonidagi uslubiy yondashuvlarning filologik ta’lim va tadqiqotlar uchun ahamiyati ko‘rsatib berilgan.

Kalit so‘zlar: manbashunoslik, matnshunoslik, qo‘lyozmalar, filologiya, ilmiy-tanqidiy matn, adabiy meros

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ALIMULLA HABIBULLAYEV THE PRACTICAL SIGNIFICANCE OF THE MANUAL "LITERARY SOURCE STUDIES AND TEXTUAL STUDIES"

Abstract: This article examines the practical significance of Alimulla Habibullaev’s textbook “Literary Source Studies and Textology”. It highlights the importance of working with manuscripts, their critical analysis, restoration and publication of texts for philological education and research.

Keywords: source studies, textual studies, manuscripts, philology, scientific-critical text, literary heritage

Mustaqil O‘zbekiston sharoitida milliy merosimizni ilmiy asosda o‘rganish, qadimiy qo‘lyozmalarni tiklash va nashr etish, shuningdek, adabiy manbashunoslik hamda matnshunoslikni rivojlantirish dolzarb masalalardan biridir. Alimulla Habibullaevning “Adabiy manbashunoslik va matnshunoslik” nomli qo‘llanmasi ushbu jarayonda muhim ilmiy-amaliy asos bo‘lib xizmat qiladi. Matnshunoslik fanining asosiy vazifasi matnlarni ilmiy-tanqidiy o‘rganish va nashr qilishdan iborat. Qo‘llanmada matnshunoslikning badiiy, tarixiy, ilmiy asarlar bilan ishlash usullari, matnni qayta tiklash prinsiplari, muallif variantini aniqlash metodlari keng yoritilgan. Qo‘lyozma matnlarning variantlari. Kitobda matnlarning yagona va ko‘p nusxali variantlari haqida ma’lumot berilgan. Masalan, Qutbning “Xusrav va Shirin” dostoni yoki Durbekning “Yusuf va Zulayxo” dostonining yagona nusxalari keltiriladi. Matnshunoslikning vazifasi ushbu nusxalarni solishtirib, eng ishonchli matnni tiklashdan iboratdir. Matnshunoslikning boshqa fanlar bilan aloqasi. Habibullaevning qo‘llanmasida matnshunoslikning uslubshunoslik, arxeografiya,

paleografiya, poetika, germeneytika, bibliografiya kabi fanlar bilan uzviy bog'liqligi ko'rsatilgan. Bu bog'liqlik matnshunoslik tadqiqotlarining mukammalligini ta'minlaydi.

Qo'llanmada miflar, afsonalar, rivoyatlar, xalq qo'shiqlari, dostonlar, xalq kitoblari matnlarini yozib olish, tartibga solish va nashr etish usullari yoritilgan. Bu jihat matnshunoslikning faqat yozma meros emas, balki og'zaki adabiy merosni ham qamrab olishini ko'rsatadi. Nashr turlari va ularning talablari. Asarda ilmiy, ilmiy-ommabop va ommabop nashrlarning xususiyatlari tahlil qilingan. Ilmiy nashrlarda matnlarning barcha variantlari ko'rsatiladi, izoh va ko'rsatkichlar beriladi. Ommabop nashrlarda esa keng kitobxonlar uchun qulay variantlar tayyorlanadi. Qo'lyozmachilik san'ati va kitobat. Habibullaev qo'lyozmachilik san'ati, kitobatchilik, naqqoshlik va xattotlik haqida ham qimmatli ma'lumotlar beradi. Qog'ozning kashf qilinishi va Samarqandda kitob yaratish an'analari kitobda keng tahlil qilingan. Matnshunoslikning amaliy ahamiyati. Qo'llanma matnlarni tanqidiy nashrga tayyorlash, nusxalar solishtirish, variantlarni qayd etish, ilmiy izoh berish kabi amaliy jarayonlarning metodikasini ko'rsatib beradi. Shu bois u nafaqat nazariy manba, balki tadqiqotchilar uchun bevosita amaliy qo'llanmadir.

Alimulla Habibullaevning "Matnshunoslik va adabiy manbashunoslik" qo'llanmasi o'zbek filologiyasi, tarixshunosligi va madaniyatshunosligida muhim ilmiy va amaliy manba hisoblanadi. Qo'llanma orqali manbashunoslik va matnshunoslikning asosiy tushunchalari, metodologiyasi hamda amaliy usullari mukammal yoritilgan. Kitob qo'lyozmalarni yig'ish, tartibga solish, fihrist tuzish, matnlarni tahlil qilish va nashrga tayyorlashda bebaho ilmiy yordamchi sifatida xizmat qilmoqda. Shu jihatdan u bugungi kunda ham o'z ahamiyatini yo'qotmagan ilmiy qo'llanmalardan biridir. Manbashunoslik va matnshunoslikdan qisqacha ma'lumot beruvchi ushbu qo'llanma o'zbek tilida bu sohada qo'yilgan birinchi, qadam bo'lib, u asosan o'rta asrlar arabiy, forsiy va turkiy adabiy meros materiallari asosida yuzaga kelgan. Qo'llanmada nazariy qism alohida ajratib olinmay, fan asoslari bilan uning rivojlanish bosqichlari birga berib borildi. Buning sababi har ikkala soha — manbashunoslikda ham matnshunoslikda ham nazariy masalalarda hali bir to'xtamga kelinmagan ilmiy munozarali jihatlarining mavjudligidir. Mazkur qo'llanma ikki bo'limdan iborat bo'lib, biri Manbashunoslik, ikkinchisi esa Matnshunoslik asoslari deya yuritilgan. Har ikkala bo'limda ham soha bo'yicha 16 dan ziyod mavzular to'plami mavjud. Endi biz har bir bo'limning mavzularini tavsiflab, ularning amaliy ahamiyatini tasniflashga harakat qilamiz. Birinchi bo'lim Manbashunoslik haqida umumiy ma'lumotlardan boshlanadi va bu sohaga doir predmet hamda tarixiy jihatdan tadqiq qilinadi. Manbashunoslik yozma manbalarni yig'ish, qidirib topish, tartibga solish va ulardan ilmiy foydalanish yo'llarini o'rgatuvchi fandir. Manbashunoslik fani o'z rivojining dastlabki bosqichlaridanoq nazariy yo'nalishdan ko'ra amaliyotga yaqinroq holda rivojlangan. Manbashunoslikning amaliy sohasini ham yaxlit qamrab oluvchi kitob yoki darslik yo'q. Biroq bu sohada, amalda juda ko'p ishlar qilingan, kitob xazinasida kitoblarning sohasiga ko'ra alohida xonalarda saqlanishi, ularga ro'yxat tuzib qo'yilganligi o'sha davr amaliy manbashunosligini ko'rsatuvchi dalildir. Barcha

yirik kitob xazinalari bunday tartibga ehtiyoj sezganlar. Buxoroda saroy kitob xazinalaridan tashqari bir qancha madrasalarda ham kutubxonalar bo'lgan. XI—XII asrlar amaliy manbashunoslik sohasida ro'y bergan muhim voqealardan biri davlat arxivlari va ko'plab kutubxonalarning barpo etilishi bo'ldi. Bu davrdagi kutubxonalar haqida mufassal ma'lumotlar saqlanib qolgan. G'aznaviylar davrida Xorazm, Rey, Xamadon, Isfahon singari yirik shaharlarining kutubxonalari Xurosondagi barcha iste'dodli va o'qimishli kishilarni o'ziga tortuvchi markazlar bo'lib qolgan edi deb yozgan edi ak. Semyonov⁴⁶. Uchinchi mavzu esa manbalarning tur va shakllari deya nomlanib, manbalarni tili, kelib chiqish joyi, tarixiga ko'ra, shakli, janri hamda yozilgan materialiga va mazmuniga ko'ra tasniflaganlari haqida ma'lumot berilgan. Bu sohalarning zarurati manbashunoslik va matnshunoslik uchun bir xilda bo'lmasa-da, ish asnosida ularga u yoki bu munosabat bilan murojaat qilishga to'g'ri keladi. Yozma manbalar tarixidan deb nomalanuvchi bu bo'limda yozuv tarixi, qo'lyozma manbalar, ularning yozuv tarixi bilan birgalikda rivojlanib borishi, piktografik yozuv, iyeroglif yozuv, mixxat yozuvi, paleografiya sohasi haqida yetarlicha ma'lumot berilgan, keyingi mavzuda turli yozuvda va davrlarda vujudga kelgan manbalar haqida yoritilib, xat turlari haqida dalillar keltirilgan. Avesto yozuvi, xorazm yozuvi, so'g'd yozuvi, kushon, run yozuvi, uyg'ur hamda mo'g'ul yozuvlari haqida ham fikrlar bildirilgan, atamalar izohlangan. Yettinchi mavzu manba tushunchasiga ta'rif berilib, eng qadimiy manbalar, Avesto kitobi, turli qadimiy qissalar hamda ularning qanday qilib saqlanib qolganligi haqida fikrlar keltirib o'tilgan. Shundan so'ng esa islom manbashunosligi, shakllanishi hamda rivojlanish tarixi, yuzaga kelish tarixi bayon qilingan. Eng muqaddas manba bo'lmish "Qur'oni Karim" vahiy orqali payg'ambarimizga yetkazilgani hamda o'sha davr muhiti, Qur'oni Karim haqida muhim ma'lumotlar yozilgan. To'qqizinchi mavzu esa adabiyotshunoslikka oid qadimiy manbalar bo'lib, "Devonu lug'otit-turk", tazkirachilik, aruz vazni, qofiya, muammo janri, badiiy san'atlar va boshqalar haqida bir qancha adabiy risolalar paydo bo'ldi. Saybakning aruzga doir ikki risolasi, Sayfi Buxoriyning "Aruz", "Radoyif ul-ash'or" risolalari, Kamoliddin Husaynning muammo haqidagi risolasi, Jomiyning muammo va qofiya yuzasidan yaratgan risolalari, Navoiyning "Mezon ul-avzon", "Majolis un-nafois" va "Risolai muammo" asarlari, Boburning vazn va qofiyaga doir

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XITOZAN(CHITOSAN)NING BIOLOGIK XUSUSIYATLARI VA AHAMIYATI

Annotatsiya. Xitozan — tabiiy aminopolisaxarid bo'lib, u β -(1→4)-bog'langan D-glyukozamin va N-atsetil-D-glyukozamin birliklaridan tashkil topadi. Xitozan antimikrob, immunomodulyator, lipid va glyukoza metabolizmiga ta'sir etib qishloq xo'jaligi, farmatsevtika, oziq-ovqat sanoati va ekologiyada amaliy ahamiyati katta. Xitozan yara tiklovchi va probiotiklarni yetkazuvchi ta'sirga ham egadir.

Kalit so'zlar: xitozan, chitosan, antimikrob, immunomodulyatsiya, lipidlar, yara tiklanishi.

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BIOLOGICAL PROPERTIES AND SIGNIFICANCE OF CHITOSAN

Abstract: Chitosan is a natural aminopolysaccharide composed of β -(1→4)-linked D-glucosamine and N-acetyl-D-glucosamine units. Chitosan exhibits antimicrobial and immunomodulatory properties, influences lipid and glucose metabolism, and holds significant practical importance in agriculture, pharmaceuticals, the food industry, and ecology. Chitosan also promotes wound healing and serves as a delivery agent for probiotics.

Keywords: chitosan, antimicrobial, immunomodulation, lipids, wound healing.

Kirish.

Xitozan — dunyoda keng o'rganilgan tabiiy polimerlardan biri bo'lib, u chitinning N-deatsilatsiyasi orqali olinadi. Chitin esa ko'plab dengiz organizmlari (qisqichbaqasimonlar) va ba'zi zamburug'larning hujayra devorlarida uchraydi. Xitozanning ahamiyati uning biologik parchalanuvchi, notoksik va biologik faol modda bo'lganida yotadi. Xitozan tibbiyot, farmatsevtika, qishloq xo'jaligi, oziq-ovqat va ekologiya sohalarida keng tatbiq etilmoqda.

Ma'lumotlar tahlili.

Xitozan tasodifiy taqsimlangan β -(1→4)-bog'langan D-glyukozamin va N-asetil-d-glyukozamindan tashkil topgan chiziqli polisaxariddir. U qisqichbaqalar va boshqa qisqichbaqasimonlarning xitin qobig'ini davolashdan olingan. deasetilatsiya jarayoniga olib keladigan natriy gidroksid kabi ishqoriy modda. Uni qo'ziqorin

manbasidan ham olish mumkin. Deatsetillanish foizini NMR spektroskopiyasi yordamida aniqlash mumkin va u tijorat xitozanlarida 60% dan 100% gacha. Savdoda ishlab chiqarilgan xitosanning molekulyar og'irligi 3800 dan 20 000 Daltongacha. Chitosanning aminokislotalarining pKa qiymati ~ 6,5 ni tashkil qiladi, bu neytral pH da sezilarli protonatsiyaga olib keladi, pH pasayishi va deatsetillanish foizi bilan ortadi. Bu xususiyat xitosanni ham suvda eriydigan, ham biologik yopishtiruvchi qiladi, shilliq qavatlar kabi manfiy zaryadlangan yuzalarga osongina bog'lanadi [1]. Bu biyomoslashuvchan va biologik parchalanadigan polimer bo'lib, epiteliya sirtlari bo'ylab qutbli dorilarni tashishni sezilarli darajada yaxshilaydi[2]. Xitozan ko'plab Gram-musbat va Gram-manfiy bakteriyalar hamda zamburug'larga qarshi inhibitor ta'sir ko'rsatadi. Bu ta'sir mexanizmi to'g'ridan-to'g'ri hujayra membranasini destabilizatsiyalash, ion almashinuvni buzish va hujayra devori funksiyasini yo'qotish orqali amalga oshadi. Xitozan manfiy zaryadli bakterial yuzalar bilan elektrostatik o'zaro ta'sirga kirishadi, natijada membrana integriteti buziladi. Adabiyotlarda xitozan va uning hosilalarining antibakterial va antitoksik xususiyatlari bir qator empirik tadqiqotlar orqali tasdiqlangan [3]. □Xitozan immun tizimini modulyatsiyalovchi xususiyatlarga ega. U makrofaglar va neytral hujayralarning faolligini rag'batlantirishi, interferon va boshqa himoya mediatorlarini oshirishi mumkinligi haqida ma'lumotlar mavjud. Shu bilan birga, xitozan qishloq xo'jaligida o'simliklar immunitetini oshirish va virus infeksiyalariga qarshi kurashishda ishlatilgan [4].

Xulosa

Xitozan — ko'p funktsiyali, biologik jihatdan faolligi yuqori polimer bo'lib, uning antibakterial, immunomodulyatsion va metabolik ta'siri turli sohalarda amaliy qo'llanilishini ta'minlaydi. U antibakterial, antifungal, immunomodulyator va antioksidant xususiyatlari tufayli organizmning turli kasalliklarga qarshi himoya mexanizmlarini kuchaytiradi. Shuningdek, xitozan metabolik jarayonlarni faollashtirib, lipid va uglevod almashinuvini tartibga solishda muhim rol o'ynaydi. Ekologik toza va bioparchalanadigan xususiyatlari uni farmatsevtik preparatlar, biopolimer qoplamalar hamda biologik faol qo'shimchalar ishlab chiqarishda istiqbolli manbaga aylantiradi. Shunday qilib, xitozan zamonaviy biotibbiyot va biologiyada keng qo'llanish imkoniyatiga ega bo'lgan muhim tabiiy biopolimer sifatida e'tirof etiladi.

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INNOVATIVE METHODOLOGICAL SYSTEM FOR PREPARING PRESCHOOL CHILDREN FOR SCHOOL EDUCATION THROUGH A PEDAGOGICAL TRAJECTORY

Abstract: *The article discusses ongoing reforms aimed at further improving and developing the preschool education system in Uzbekistan. It highlights the methodological system for preparing children for school education within the educational activities of preschool institutions and examines practical issues related to its implementation. The study emphasizes the creation of conditions for the comprehensive intellectual, moral, aesthetic, and physical development of preschool children, the introduction of innovative approaches, and the integration of advanced pedagogical and information-communication technologies. The methodological system addresses children's developmental needs, age-specific psychological characteristics, and ensures holistic development through the application of various methods, while maintaining the quality and effectiveness of education.*

Key Concepts: *Preschool education system, institution, younger generation, intellectual development, cognitive skills, spiritual potential, school preparation, improvement.*

Introduction

Extensive reforms are being implemented in Uzbekistan to monitor preschool education activities, enhance the professional skills of educators, consolidate children's personal qualities, and expand coverage in preschool institutions. The main objectives include creating conditions for the comprehensive intellectual, moral, aesthetic, and physical development of preschool children, integrating innovations into the preschool education system, and employing advanced pedagogical and information-communication technologies.

Meeting the developmental needs of children, nurturing their abilities and potential, and applying diverse pedagogical methods to ensure their holistic growth require the development of theoretical and methodological foundations. These foundations support a system that ensures the consistency between educational quality and effectiveness.

One of the main responsibilities of the educator is to organize the daily activities of children meaningfully and teach them to solve problem situations. As a result, each child develops the ability to navigate various life situations independently and effectively.

Methodological Directions for “School Preparation”

Pedagogical and psychological observations indicate that the preparation of preschool children for school is implemented in the following areas:

Physical Development: Characterized by children’s health, motor skills, coordination of hand and visual movements, and overall physical fitness.

Cognitive Activity: Children develop as individuals through engagement with their environment, adults, peers, plants, and animals, while acquiring social skills.

Intellectual Readiness: Reflected in the ability to think freely and logically, and to approach tasks independently and creatively.

Speech Development and Metacognitive Skills: The child’s academic performance in school largely depends on the development of speech and logical thinking. Metacognitive skills are fostered through storytelling, reflection, verbal explanation, and imaginative activities. Drawing and completing educational tasks also contribute to intellectual development.

Family and Social Environment: The preparation of 6–7-year-old children for school is closely linked with family education. Children learn to analyze social events, understand the social roles of individuals, and respect others’ labor. It is insufficient to teach only the physical attributes of objects; children should understand that products are created through human labor, involving various professionals, which demonstrates the social significance of work.

Holistic Preparation of 6–7-Year-Old Children

Children at this age begin to comprehend knowledge collectively and recognize the social importance of labor. Teaching distinctions among objects through collaborative family activities is essential. School attendance marks an important stage in a child’s life, forming a foundation for future success. Play activities gradually transition into structured learning activities.

School preparation requires that children adapt to a more structured daily routine, reduced free activity time, and increased responsibilities associated with learning. Research indicates that school readiness is directly related to psychological development. Components of metacognitive skills serve as a bridge between preschool and primary education.

The holistic preparation of 6–7-year-old children includes:

Elementary mathematical concepts

Speech, reading, and writing skills

Socio-emotional and creative development competencies

Cognitive development is closely linked to knowledge acquisition. Children understand the world, analyze events, and express personal opinions. Sensory perception helps children grasp the unique characteristics of objects, while intellectual activities allow them to perform educational tasks, following instructions, and developing critical thinking skills.

A high level of speech development is a crucial means for intellectual readiness. Clear and fluent speech, vocabulary expansion, and independent thinking

determine school readiness. The requirements for a future student ensure the effectiveness of school education.

Integration of Preschool and Primary Education

Comparison of current preschool and primary education programs reveals continuity in certain areas, such as language and mathematics. Optimizing the transition is reflected in educational methods and tools. Although preschool activities and school lessons have unique characteristics, both share general internal features such as structured content, organizational and temporal limits, teacher guidance, and scientific rigor.

Preschool activities develop initial elements of educational activity, self-regulation skills, and goal-oriented intellectual work, preparing children aged 6–7 to actively engage in new learning conditions. Continuity between preschool and primary education ensures the comprehensive development of the child.

Methodological Innovations in School Preparation

The study focused on improving methods for preparing children for school based on the State Standard for Preschool Education and the “First Step” curriculum. The following methodological approaches were implemented:

Learning Geometric Shapes and Numbers: Integrating curriculum requirements with first-grade natural science and mathematics. Activities included “Who is this?”, “What is this?”, and effective use of Abacus technology.

Learning Cause-and-Effect Relationships: Developing logical thinking through questions like “Why?” and “What happens next?” using serial and narrative picture sequences.

Sequential Task Execution: Implemented in “Science and Nature,” “Canat,” and “Role-Play and Dramatization” centers using “Speech and Physical Activity,” “Architect,” and “Engineer” technologies to foster logical and creative thinking.

Reverse Learning Method: Ensured didactic support and encouraged children to complete tasks independently at home, fostering motivation for self-directed activity.

Play-Based School Preparation Programs: Implemented via “Smart Step” and “Erudit” programs emphasizing freedom, visual aids, and contextual relevance. The recommended methodological system aims to effectively structure children’s academic trajectory. It covers all developmental areas and provides a roadmap for school preparation. The learning path is flexible, adaptive, and problem-solving, ensuring academic and integrative exercises that promote interaction between the teacher and child.

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POSSIBILITIES FOR THE DEVELOPMENT OF SPORTS TOURISM IN UZBEKISTAN

Abstract. *The article provides a systematic overview of the prerequisites and avenues for the development of sports tourism in Uzbekistan. Drawing on official statistics, international indices, and industry sources, it compares resource, infrastructural, and institutional factors, identifies market niches (alpine–mountain, mass running, adventure/active, and training-camp tourism), assesses barriers, and formulates policy measures. The theoretical framework builds on M. Weed’s conceptualization of sports tourism, T. Hinch and J. Higham’s development models, R. Buckley’s approach to managing risk in adventure tourism, and the contemporary Visitor Use Management (VUM) framework. The empirical base includes data from the Agency of Statistics of Uzbekistan, the World Economic Forum, the World Bank, UNESCO, and sectoral reports. An analytical table of indicators and sources is presented. Practice-oriented recommendations are proposed for Uzbekistan’s tourism stakeholders.*

Keywords: *sports tourism, mountain tourism, running events, adventure tourism, Uzbekistan.*

Introduction

The post-pandemic cycle restored tourism’s global contribution to GDP to 10 % in 2024, reaffirming the sector’s strategic role in employment and regional development [1]. For Uzbekistan, sports tourism is a promising vector for diversifying the tourism offering: the country has exhibited steady growth in inbound flows (7,957.2 thousand foreign citizens in 2024) and an expanding physical culture and sports infrastructure [2]. In international comparisons, the institutional environment has become more favorable: in the Travel & Tourism Development Index (TTDI) the country rose to 78th place (2024) [3]. At the national level, a market review synthesizes infrastructural achievements, growth dynamics, and modernization gaps, and highlights diversification into eco- and gastronomic tourism – a context within which sports-tourism niches can be purposefully positioned [4].

The study’s theoretical framework synthesizes several key concepts. At its core is M. Weed’s portfolio approach [5], which views sports events as a complementary system for destination positioning. This is complemented by T. Hinch and J. Higham’s spatio-temporal models [6], which align types of sport

activity with territorial characteristics and seasonality. For adventure tourism, R. Buckley's concept of managed risk is used [7], emphasizing the importance of safety procedures. The contemporary managerial dimension is represented by the interagency Visitor Use Management (VUM) model (K. Cahill et al.) [8], designed to regulate recreational loads. Finally, climatic factors and their impact on seasonality are analyzed drawing on the syntheses of D. Scott and S. Gössling [9].

Objective – to identify and analytically describe opportunities for developing sports-tourism segments in Uzbekistan on the basis of verified statistical and factual data.

Materials and Methods

Methodologically, the study is a review-analytical work with elements of benchmarking, implemented in four steps: compilation and verification of official statistics (inbound flows, infrastructure indicators); analysis of international indices and conservation registries; case analysis of events and locations; synthesis of theoretical propositions and visitor-use management practices (VUM). Open sources were used from the Agency of Statistics of Uzbekistan (stat.uz), the World Economic Forum (TTDI-2024), the World Bank, UNESCO, as well as sectoral and media reports on mass starts and ski resorts.

Results and Discussion

To analyze the potential of sports tourism in Uzbekistan, we adapted and operationalized key theoretical tenets. M. Weed's portfolio approach was modified: the event portfolio is tied to specific regional clusters in Uzbekistan and aligned with seasonality and infrastructural capacity. The spatio-temporal frame of T. Hinch and J. Higham ("sport → space → season") underpinned a product matrix, which we augmented with indicators of site throughput and calculated "climatic windows." R. Buckley's risk scale was integrated into management solutions (guide requirements, avalanche safety) and formed the basis of the applied "risk–reward–capacity" index (RRC-index) we propose, assessing the balance between the objective difficulty of a route (Risk), its recreational value (Reward), and permissible anthropogenic load (Capacity). Finally, the VUM cycle was borrowed in full but adapted to sports tourism via a climatic module (heat stress, avalanche hazard) and threshold values for routes and events. The proposed sport–space–season matrix aligns with national diversification pathways identified in recent market research (eco-/gastronomy tracks), enabling complementary packaging with sports-tourism products (ski–run–trek) for shoulder-season smoothing.

1. Resource and infrastructural base

- Mountain and conservation assets. Within the Republic of Uzbekistan lie components of the World Heritage property "Western Tien-Shan" (2016), characterized by high biodiversity and an elevation range of 700–4,503 m, creating conditions for trekking, ski touring, and mountaineering [10]. A key backbone of active recreation is the Ugam–Chatkal National Park, with a registered area of about $\approx 5,069 \text{ km}^2$ (WDPA/Protected Planet).

- Ski infrastructure. Amirsoy is the country's largest resort. According to the industry catalogue Skiresort, the total length of prepared slopes is 15.7 km, with 6

lifts in operation [11]. Developed ski infrastructure provides an “anchor” for winter sports tourism and training programs.

- Physical culture and sports facilities. By 2024, there were 53,314 sports facilities nationwide [12], confirming the scale of the infrastructural base for mass and club events.

2. Event (running) and mass-participation sport

Mass starts are a rapidly growing segment with demonstrated economic and image effects for destinations [13]. The VII Tashkent International Marathon in April 2025 drew about 11,500 participants from 52 countries [14], setting a new series record – indicative of the potential of urban event tourism.

3. Demand and macro-environment

As noted, inbound flows to Uzbekistan reached 7,957.2 thousand in 2024, providing a solid foundation for diversifying the product line toward sports niches. Uzbekistan’s improved TTDI (WEF) standing to 78th place in 2024, driven by factor conditions and the business environment, enhances predictability for investors in sports clusters. Related services are also expanding: the volume of services in sports, entertainment, and recreation for January–April 2025 amounted to 1,235.7 billion UZS (+18.6 % y/y) [15]. These quantitative dynamics are consistent with broader market tendencies documented in a country-level review that underscores portfolio diversification and capacity-building in adjacent segments (e.g., eco- and gastronomic tourism), supporting the case for scalable sports-tourism offerings [4].

4. Climatic and environmental sustainability

According to the World Bank Group and the Asian Development Bank [16], Uzbekistan will face further warming and increased climate risks by century’s end, necessitating adaptations (season shifts, managing loads on natural areas). The meta-review by D. Scott and S. Gössling [9] shows how climatic factors are already altering demand and the configuration of offerings, including ski and desert-based active recreation. Accordingly, sustainable use of natural locations calls for implementing Visitor Use Management as a reproducible procedure for setting “desired conditions,” indicators, and monitoring [8].

To systematize the empirical material and define managerial priorities, we present a consolidated analytical matrix of sports-tourism segments. The matrix operationalizes four groups of variables:

1. anchor assets (natural–geographical locations and specialized infrastructure);
2. available statistical indicators (from official and sectoral sources);
3. development barriers (infrastructural, institutional, environmental, and safety-related);
4. proposed measures (clustering, visitor-use regulation, safety standards, product packaging).

This format simultaneously reflects resource endowment, supply status, and the necessary managerial response for each segment, while ensuring reproducibility of subsequent monitoring (using an identical set of indicators).

Table 1

Analytical matrix: segments, assets, indicators, and measures

Anchor assets (locations/infrastructure)	Available indicators (year)	Current status	Key barriers	Proposed measures
Alpine–mountain tourism				
Amirsoy (15.7 km of slopes; 6 lifts); Ugam–Chatkal NP ($\approx 5,069 \text{ km}^2$); “Western Tien-Shan” component (UNESCO)	Slope length; number of lifts; PA area	15.7 km; 6; $5,069 \text{ km}^2$ (2024–2025)	Seasonality; ecosystem load	Development of “green” logistics; VUM visitation maps; guide and avalanche-safety standards.
Running/event tourism				
Tashkent International Marathon (VII edition)	Participants, geography	$\approx 11,500$ from 52 countries (2025)	Route capacity and urban mobility	“Event portfolio,” shoulder-season calendar; urban navigation; Event Impact Model.
Adventure/active tourism				
Trekking/ski-tour/climbing in Western Tien-Shan; cycling and water activities	PA visitation; routes	Qualitatively expanding supply	Safety; standardization	Integrate routes into VUM; guide training; insurance standards.
Training camps (high-altitude)				
High-altitude Tien-Shan sites; sports bases	Number of camps/season	Growth potential	Infrastructural bottlenecks	PPP programs for bases; medical-physiological support.
Institutional environment				
Regulatory base, e-visa/visa-free; TTDI-2024	TTDI rank	78th place (2024)	Cluster-actor coordination	“One-stop shop” for events; cluster roadmaps; KPI monitoring; brand-architecture and product-portfolio diversification (eco/gastronomy $\leftrightarrow$ sports bundles)

As Table 1 indicates, the alpine–mountain segment exhibits the greatest “maturity”: the availability of specialized infrastructure and the proximity of key locations to agglomerated demand create readiness for scaling, provided that visitor-use procedures and safety standards are implemented. The running event segment is highly replicable across regional centers and serves as a “soft” lever of seasonal smoothing, whereas adventure and water activities require priority standardization of routes, guide training, and alignment with environmental regulations. Finally, the institutional block (visa regimes, actor coordination, open data) operates as a universal multiplier for all segments and should be accompanied by a measurable system of KPIs and regular publication of updated series.

Recommendations

Synthesizing the characteristics in Table 1 yields the following sequence of managerial steps:

1. Cluster formation around the most capacious locations and event “anchors” (“Tien-Shan – Charvak – Tashkent”). Link winter, summer, and event products into a unified route matrix (ski–run–trek); develop shoulder seasons (March–April; October–November) through running and cycling events. Rationale – M. Weed’s portfolio approach and the event logic of F. Bazzanella, and is consistent with country-level diversification pathways reported by N. T. Azizova et al.

2. Implementation of Visitor Use Management (VUM) at “hot spots” (Chimgan, Uram-Say, high-mountain cirques), involving the setting of desired conditions, load indicators (erosion, trail width, activity-type conflict), zoning rules and seasonal limits, and monitoring/regulation procedures.

3. Introduction of safety and insurance standards for operators and participants, and workforce development for adventure tourism (guide, avalanche safety, first aid), accounting for R. Buckley’s thesis on “managed risk” as product value and grounded in the proposed RRC approach to route prioritization.

4. Development of the event ecosystem (road running, trail running, road/MTB cycling): product packaging and an annual calendar focused on shoulder seasons, unified requirements for routes and medical provision, an ex-ante/ex-post system for assessing economic impact, and a “Run Uzbekistan” brand platform. Evidence of demand – the trajectory of the Tashkent Marathon.

5. Fine-tuning statistical reporting (harmonized indicator definitions, machine-readable tables) for reproducible progress monitoring; support for simplified entry regimes (e-visa/30-day visa-free for selected countries); expansion of English-language navigation and services.

Conclusion

Uzbekistan possesses a unique combination of Western Tien-Shan natural assets, expanding sports infrastructure, and a favorable institutional dynamic. The quantitative base (growth in inbound flows, 53,314 sports facilities, expansion of adjacent services, TTDI improvement) points to the scalability of sports tourism – contingent on the implementation of VUM practices, safety standardization, and a cluster-based product approach. The identified segments – alpine–mountain, running event, adventure, and training-camp – constitute a realistic “growth matrix” over a 3–5-year horizon with a multiplicative effect for regions.

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FAVQULODDA VAZIYATLARDA AHOLINI HIMOYA QILISHNING HOZIRGI HOLATI VA KELAJAKDAGI YECHIMLARI

***Annotatsiya.** Ushbu maqolada mavjud vaziyat va favqulodda vaziyatlarda aholini himoya qilish bo'yicha kelajakdagi potentsial echimlar tahlil qilinadi. So'nggi o'n yilliklarda sodir bo'lgan turli xil asosiy favqulodda vaziyatlar, jumladan, tabiiy ofatlar, kasalliklar va mojarolar ko'rib chiqiladi. Mavjud favqulodda vaziyatlarni boshqarish tizimlari va siyosatlari baholanadi, bunda ularning inson hayotini himoya qilish qobiliyatiga e'tibor beriladi. Texnologiya, infratuzilma, kommunikatsiya tizimlari, jamoatchilik tayyorgarligi va turli xil malakaviy bilimlar va boshqa sohalaridagi potentsial yaxshilanishlar muhokama qilinadi. Asosiy tavsiyalar favqulodda xizmatlarga sarmoyani ko'paytirish, idoralar o'rtasidagi muvofiqlashtirishni yaxshilash, yangi texnologiyalardan foydalanish va tabiiy ofatlarga tayyorgarlik bo'yicha xalq ta'limini kuchaytirishni o'z ichiga oladi. Ushbu tavsiyalarni amalga oshirish jamiyatlarning kelajakdagi inqirozlarga chidamliligini sezilarli darajada oshirishi mumkin.*

***Kalit so'zlar:** favqulodda vaziyatlarni boshqarish, tabiiy ofatlarga tayyorgarlik, jamoat xavfsizligi, inqirozga qarshi kurash, fuqarolik mudofaasi.*

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CURRENT STATUS AND FUTURE SOLUTIONS OF POPULATION PROTECTION IN EMERGENCY SITUATIONS

***Annotation:** This article analyzes potential future solutions for protecting the population in current and emergency situations. Various major emergencies that have occurred over the past decades, including natural disasters, diseases, and conflicts, are reviewed. Existing emergency management systems and policies are evaluated, with a focus on their ability to protect human life. Potential improvements in areas such as technology, infrastructure, communication systems, public preparedness, and various professional skills are discussed. Key recommendations include increasing investment in emergency services, improving inter-agency coordination, utilizing new technologies, and strengthening public education on disaster preparedness. Implementing these recommendations could significantly enhance the resilience of societies to future crises.*

Keywords: *emergency management, disaster preparedness, public safety, crisis response, civil defense.*

Kirish.

Hayotning katta yo'qotilishiga tahdid soladigan favqulodda vaziyatlar butun dunyo bo'ylab jamoalar uchun baxtsiz haqiqat bo'lib qolmoqda. Zilzilalar, bo'ronlar va suv toshqinlari kabi tabiiy ofatlar ham, qurolli to'qnashuvlar va kasallik epidemiyalari kabi inson omili bilan bog'liq inqirozlar, samarali boshqarilmasa, og'ir oqibatlariga olib keladigan tezda nazoratdan chiqib ketishi mumkin. So'nggi bir necha o'n yilliklar davomida dunyo yuqori o'lim, iqtisodiy zarar va insoniyat azobiga olib keladigan ko'plab yirik falokatlarga guvoh bo'ldi. Masalan, 200 000 dan ortiq odamning hayotiga zomin bo'lgan 2004 yil Hind okeanidagi tsunami, 2014 yil G'arbiy Afrikada 11 000 dan ortiq kishining o'limiga sabab bo'lgan Ebola epidemiyasi va 2011 yildan beri taxminan yarim million kishining o'limiga olib kelgan davom etayotgan Suriya fuqarolik urushi.

Favqulodda vaziyatlar xizmatlari va tayyorgarlik tizimlari so'nggi paytlarda sezilarli darajada rivojlangan bo'lsa-da, jamiyatlarning inqirozlar paytida aholini etarli darajada himoya qilish qobiliyati haqida jiddiy xavotirlar mavjud [1]. Ushbu maqola favqulodda vaziyatlarda inson hayotini himoya qilish bo'yicha hozirgi holat va kelajakdagi siyosat yo'nalishlarini tahlil qiladi. U mavjud tizimlardagi katta bo'shliqlar va xatarlarni o'rganadi, javob qobiliyatini oshirishi mumkin bo'lgan texnologiya va infratuzilmadagi innovatsiyalarni hujjatlashtiradi va muqarrar ravishda yuzaga keladigan global tahdidlarga qarshi aholi xavfsizligini yaxshilash bo'yicha tavsiyalar beradi.

Hozirgi favqulodda vaziyatlarni boshqarish tizimlari va siyosatlari. Aksariyat rivojlangan mamlakatlarda favqulodda vaziyatlarni boshqarishning murakkab tuzilmalari mavjud bo'lib, ular inqiroz paytida aholini tayyorlash va himoya qilish uchun mo'ljallangan [2]. Ular potentsial xavflarni o'lchash uchun xavfni baholash tartib-qoidalaridan foydalanadi, ofatlar yuzaga kelganda qarshi choralar ko'rish uchun choralar ko'radi va javob samaradorligini oshirish uchun ko'p agentliklarni muvofiqlashtirishni o'z ichiga oladi. Muayyan tabiiy ofatlarga moyil bo'lgan davlatlar zilzilaga chidamli qurilish qoidalari va suv toshqini sug'urtasi sxemalari kabi qo'shimcha maqsadli siyosatlarga ega bo'lishi kerak.

Biroq, ko'plab kamchiliklar mavjud favqulodda vaziyatlar tizimlarini og'irlashtiradi. Muhim infratuzilmaga investitsiyalarning yetarli emasligi keng tarqalgan bo'lib, suv toshqini kuchayishiga olib keladigan va evakuatsiyaga putur etkazadigan to'g'on va to'g'onlarning qulashi misol bo'la oladi. Kasallik avj olishlari yoki siklonlar kabi yangi paydo bo'lgan tahdidlarni tezda aniqlashga mo'ljallangan oldindan ogohlantirish tizimlari kam ta'minlangan hududlarda ham mavjud emas. Bundan tashqari, ko'plab favqulodda vaziyatlar agentliklari eskirgan uskunalar, cho'zilgan byudjetlar va xodimlarning yuqori almashinuvidan aziyat chekmoqda.

Idoralararo muvofiqlashtirish tez-tez o'zini yomon ko'rsatdi, bu "Katrina" to'foni paytida tasvirlangan, bunda tortishuvchi organlar va noto'g'ri taqsimlangan

resurslar halokatni yanada kuchaytirgan [3]. Zilzilalar yoki virusli epidemiyalari kabi inqirozlarga duchor bo'lgan ko'plab mamlakatlarda keng jamoatchilik uchun tayyorgarlik bo'yicha ta'lim va ofatlarga javob berish bo'yicha treninglar cheklangan. Bundan tashqari, siyosiy befarqlik ko'pincha tabiiy ofatga tayyor bo'lishni chetlab o'tadi, chunki hukumatlar falokat boshlanmaguncha resurslarni boshqa joyga yo'naltiradi.

Tegishli siyosat o'zgarishlari orqali bunday kamchiliklar bartaraf etilmasa, butun dunyo bo'ylab jamiyatlar yanada yuqori ta'sirli favqulodda vaziyatlar yuzaga kelgan taqdirda jiddiy ta'sir ko'rsatadi.

Potentsial yechimlar va takomillashtirish.

Infratuzilmaning barqarorligini mustahkamlash. Bir nechta texnologiyalar asosiy infratuzilmani favqulodda vaziyatlarga chidamlaroq qilishi mumkin [4]. Masalan, o'z-o'zini davolash sxemalari bo'lgan aqlli elektr tarmoqlari ofatlar paytida yuzaga keladigan ommaviy o'chirishlarning oldini oladi. Yomg'ir suvini yig'ish kabi markazlashtirilmagan toza suv manbalarini joriy etish, agar markaziy ta'minot uzilib qolsa, zaxirani ta'minlaydi. Suv toshqini chidamliligi g'ovakli qoplamalar, er osti bo'ronli suv sardobalari va suv toshqinlarini nazorat qilish eshiklari orqali yaxshilanadi.

Mudofaa infratuzilmasini modernizatsiya qilishga ko'proq mablag' sarflash va jamoat ob'ektlari uchun qat'iy qurilish qoidalariga rioya qilish aholiga kelajakdagi favqulodda vaziyatlarni yaxshiroq ob-havoda o'tkazishga yordam beradi.

Erta ogohlantirish tizimlarini takomillashtirish. Erta aniqlash va tahdidlarni kuzatish tizimlarini kengaytirish javob bo'linmalariga inqirozlar paydo bo'lishi bilanoq tezkor tayyorgarlik choralari ko'rishga yordam beradi. Sun'iy yo'ldosh texnologiyalari va smartfon ilovalari kambag'al mamlakatlarda mussonli bo'ron yoki yuqumli kasalliklar kuzatuvini arzonga oshirishi mumkin [5]. Zilzilaga moyil bo'lgan hududlarda zilziladan erda ogohlantirish tizimlarini poezd tormozlari yoki zavodni o'chirish kalitlari kabi avtomatlashtirilgan favqulodda mexanizmlarga ulash infratuzilmaga etkazilgan zarar va qurbonlarni kamaytiradi.

Arzon narxlardagi datchiklar, dron monitoringi va idoralararo ma'lumotlar almashish kabi texnologiyalar orqali erda ogohlantirish qobiliyatini oshirish favqulodda vaziyatga tezroq javob berish uchun juda muhimdir.

Idoralararo muvofiqlashtirishni takomillashtirish.

Ko'p qirrali ofatlar paytida javob berish samaradorligi sog'liqni saqlash xizmatlari, harbiy bo'linmalar, gumanitar organlar va birinchi tibbiy yordam ko'rsatuvchilar kabi turli idoralar o'rtasidagi silliq muvofiqlashtirishga bog'liq. Haqiqiy mashqlar orqali muntazam ravishda birgalikdagi mashg'ulotlar inqiroz paytida bir-birining imkoniyatlari va cheklovlarini tushunishga yordam beradi. Umumiy protsessual ko'rsatmalarga rioya qilish, masalan, keng tarqalgan qabul qilingan Incident Command System tizimi, turli tashkiliy madaniyatlarga qaramay, hamkorlikda javob berishni yanada osonlashtiradi.

Favqulodda vaziyatlarni boshqarish sohalarida umumiy muvofiqlashtirish axloqini rivojlantirish turli idoralar tartibsizlik sharoitida sinergik tarzda ishlashi kerak bo'lganda operatsion samaradorlikni optimallashtiradi.

Aholining xabardorligi va tayyorgarligini oshirish.

Jamoatchilikning xatti-harakati zilzilalar yoki virusli epidemiylar kabi tez boshlangan favqulodda vaziyatlardan o'limni belgilovchi hal qiluvchi omil hisoblanadi [6]. Shunga qaramay, tadqiqotlar shuni ko'rsatadiki, individual va uy xo'jaliklarining tabiiy ofatga tayyorligi deyarli hamma uchun qoniqarsizligicha qolmoqda. Jamiyatning barqarorligini oshirish, shuning uchun ijtimoiy media va maktab ta'lim kampaniyalari orqali jamoatchilikning xavf-xatarlar va javob protokollari haqida xabardorligini oshirishni kafolatlaydi.

Hukumatlar bo'lajak inqirozlar paytida misli ko'rilmagan hayotni saqlab qolish uchun birinchi yordam, evakuatsiya va ofat to'plamini tayyorlash kabi favqulodda vaziyatlarga javob berish bo'yicha ommaviy treninglarni yanada kuchaytirishi kerak.

Natijalar.

Tahlil uchta asosiy yo'nalishda favqulodda vaziyatlarga tayyorgarlik ko'rishda muhim kamchiliklarni aniqladi: evakuatsiya yo'llari, ogohlantirish tizimlari va zaif guruhlar uchun resurslar. Sohil bo'yida joylashgan metro hududlarida evakuatsiya qilish imkoniyatlari to'liq etarli emasligi aniqlandi. Tampa ko'rfazi hududida evakuatsiya yo'llari 2,8 million aholi uchun faqat 3 ta asosiy magistral va 2 ta ikkinchi darajali yo'llarni o'z ichiga oladi. 3-toifali bo'ron uchun hududni tozalash uchun 48 soat kerak bo'ladi, bu yo'nalishlar hatto qarama-qarshi oqim operatsiyalarida ham boshqarishi mumkin bo'lgan 24 soatdan ancha oshadi. Magistral yo'llarni yangilash va temir yo'l va suv transportidan foydalanish evakuatsiya imkoniyatlarini sezilarli darajada kengaytirishi mumkin [7].

Ogohlantirish tizimlari sinov paytida ko'plab zaif aholiga kira olmadi. San-Diego okrugida ingliz tilida so'zlashmaydigan 345 000 uy xo'jaliklari o'rganilgan 2 yil davomida hech qachon tarjima qilingan favqulodda matnlar va qo'ng'iroqlarni olmagan. Ko'p tilli ogohlantirish xabarlarini taqdim etish ushbu tayyorgarlik bo'shlig'ini to'ldirishi mumkin.

Aksariyat hududlarda alohida ehtiyojli aholi ham resurslarga ega emas edi. Marikopa okrugida atigi 4 ta favqulodda boshpanada elektr quvvati uzilib qolganda hayotni saqlab qolish uchun generatorlar va tibbiy asbob-uskunalar mavjud edi, bu esa 378 000 dan ortiq keksa va nogiron aholini yuqori xavf ostida qoldirdi [8]. Zaif guruhlar uchun qo'shimcha boshpanalarni jihozlash ushbu nomutanositlikni bartaraf qiladi.

Kelajakda tabiiy ofatlarga javob berishni o'zgartirishi kutilayotgan ilg'or texnologiyalar ham ko'rib chiqildi. Bashoratli bo'ron modellari sinov okruglarida tornadolar uchun erta ogohlantirish vaqtini 5 daqiqadan 15 daqiqagacha oshirdi. O'rnatish mumkin bo'lgan mikrogrid quvvat yechimlari 2 haftalik o'chirish simulyatsiyasi davomida 100% ish vaqtini ta'minlab, yordam vositalarining uzluksiz ishlashiga imkon berdi. Bunday innovatsiyalarni yo'naltirilgan tadqiqot

grantlari orqali yanada moliyalashtirish hayotni saqlab qolish uchun keyingi avlod favqulodda vositalarini taqdim etishi mumkin [9].

Umumiy qilib aytganda, hozirgi ofatlarga tayyorgarlik asosiy himoyani ta'minlashda, evakuatsiya imkoniyatlarini oshirish, ogohlantirish tizimlarini qamrab olish, zaif qatlamlar uchun resurslar va rivojlanayotgan texnologiyalar mintaqalar bo'ylab halokatli miqyosdagi inqirozlarga samarali javob berish uchun hali ham zarur [10]. Muhim infratuzilmani yangilashga va hayotni saqlab qoluvchi texnologiyalarni rivojlantirishga e'tibor og'ir sharoitlarda aholini himoya qilish uchun zarur bo'lgan chidamlilikni oshiradi.

Xulosa.

Xulosa qilib aytganda, iqlim o'zgarishi, urbanizatsiya va global harakatchanlik tabiiy va inson tomonidan qo'zg'atilgan xavf-xatarlarga ta'sir qilishni kuchaytirganda, yirik favqulodda vaziyatlar muqarrar ravishda butun dunyo bo'ylab jamoalarga xavf tug'diradi. Iqlim o'zgarishini yumshatish kabi yechimlar uzoq muddatli xavfni kamaytirishi mumkin bo'lsa-da, mudofaa infratuzilmasini yangilash, erta ogohlantirish tizimlari, idoralararo muvofiqlashtirish va jamoat tayyorgarligi jamiyatlarga keyingi inqiroz boshlanganda odamlarning halok bo'lishiga qarshi yaqin muddatli buferlarni ta'minlaydi. Favqulodda vaziyatlarni boshqarish tizimlarida bunday muhim yangilanishlarni amalga oshirish uchun barqaror sarmoya va siyosiy iroda zarur. Aholi xavfsizligini ta'minlashga qaratilgan vijdonli sa'y-harakatlar bilan, hatto eng jiddiy ta'sirga uchragan mintaqalar ham qiyinchiliklarga chidamli bo'lishga intilishlari mumkin.

Favqulodda vaziyatlarda aholini muhofaza qilish bo'yicha mavjud vaziyatni tahlil qilish ham taraqqiyotni, ham davom etayotgan muammolarni ko'rsatadi. Ko'pgina mamlakatlarda qurbonlar va iqtisodiy yo'qotishlarni minimallashtirishga qaratilgan huquqiy asoslar va favqulodda vaziyatlarga javob berish agentliklari yaratilgan. Biroq, pandemiyalar, iqlim bilan bog'liq ofatlar va geosiyosiy mojarolar kabi so'nggi global voqealar muvofiqlashtirish, resurslarni taqsimlash va jamoatchilikni xabardor qilishdagi bo'shliqlarni ochib berdi.

Muhim masalalardan biri rivojlangan va rivojlanayotgan davlatlar o'rtasidagi tayyorgarlikdagi nomutanosiblikdir. Ba'zi mamlakatlarda ilg'or erta ogohlantirish tizimlari va mustahkam infratuzilma mavjud bo'lsa-da, ba'zilarida hatto xavf-xatar bilan bog'liq asosiy vositalar ham mavjud emas. Bu tengsizlik tabiiy ofatlar paytidagi natijalarga sezilarli ta'sir ko'rsatadi. Masalan, aholini xavfsiz evakuatsiya qilish yoki tabiiy ofatdan keyingi muhim xizmatlarni ko'rsatish qobiliyati mamlakatning ijtimoiy-iqtisodiy holati va institutsional imkoniyatlariga qarab juda katta farq qiladi.

Yana bir muhim topilma - favqulodda vaziyatlarni samarali boshqarishda xalq ta'limi va jamoatchilik ishtirokining o'rni. Texnologik taraqqiyotga qaramasdan, individual va uy xo'jaliklarida tayyorgarlikning yo'qligi tashvishli bo'lib qolmoqda. Ko'pgina jamoalar omon qolishning asosiy strategiyalaridan bexabar yoki ishonchsizlik yoki noto'g'ri ma'lumot tufayli rasmiy ogohlantirishlarga amal qilmayapti.

Kelajakdagi yechimlar nuqtai nazaridan, sun'iy intellekt, geofazoviy tahlil va mobil aloqa platformalari kabi raqamli texnologiyalarni integratsiyalash istiqbolli ko'rinadi. Ushbu vositalar real vaqt rejimida qaror qabul qilishni kuchaytirishi va yordam va qutqaruv operatsiyalarining maqsadlilikini yaxshilashi mumkin. Biroq bunday innovatsiyalarni amalga oshirish infratuzilma, kadrlar tayyorlash va kiberxavfsizlik sohalariga sarmoya kiritishni talab qiladi.

Bundan tashqari, iqlim o'zgarishi favqulodda vaziyatlarning chastotasi va jiddiyligini oshirishi kutilmoqda, bu esa moslashuvchan strategiyalarni qabul qilishni talab qiladi. Barqarorlikni oshirish uchun shaharsozlik, barqaror qurilish va transchegaraviy hamkorlik ustuvor bo'lishi kerak. Hukumatlar, shuningdek, bolalar, qariyalar va nogironlar kabi zaif guruhlarining ehtiyojlarini inobatga olgan holda favqulodda vaziyatlarga tayyorlanishni qamrab olishi kerak.

Xulosa qilib aytish mumkinki, favqulodda vaziyatlarda aholini himoya qilishda muvaffaqiyatga erishilgan bo'lsa-da, tizimli takomillashtirish zarurati aniq. Kelajak uchun keng qamrovli va barqaror himoya tizimlarini yaratish uchun hukumatlar, fuqarolik jamiyati va xalqaro tashkilotlar ishtirokidagi ko'p tomonlama yondashuv zarur.

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AMUDARYO DELTASI YAYLOVLARINI KARTOGRAFIK TADQIQ QILISH: NAZARIY-USLUBIY ASOSLAR

Annotatsiya: Amudaryo deltasi Markaziy Osiyoning ekologik jihatdan eng zaif hududlaridan biri bo‘lib, yaylov resurslari chorvachilik va mahalliy aholi turmushida muhim o‘rin tutadi. Ushbu maqolada yaylovlarni kartografik tadqiq qilishning nazariy-uslubiy asoslari tahlil qilinadi. Suv resurslari boshqaruvi, ekologik oqimlar, biologik xilma-xillikning qisqarishi, tuproq sho‘rlanishi va landshaft degradatsiyasi bo‘yicha mavjud ilmiy adabiyotlar sharh qilindi. Masofadan zondlash (NDVI, SAVI, MNDWI) va GIS texnologiyalaridan foydalanish imkoniyatlari ko‘rsatildi. Xulosa o‘rnida, mavjud tadqiqotlar suv resurslarini oqilona boshqarish, yaylov monitoringi va ekotizim xizmatlarini baholashda asos bo‘lsa-da, irrigatsiya suvlarini kompleks GIS-modellari va cho‘llanish jarayonlarini prognozlash tizimlari yetarlicha ishlab chiqilmaganligi ta’kidlandi.

Kalit so‘zlar: Amudaryo deltasi, yaylov, sho‘rlanish, masofadan zondlash, GIS, ekotizim xizmatlari, irrigatsiya.

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CARTOGRAPHIC STUDY OF THE PASTURES OF THE AMU DARYA DELTA: THEORETICAL AND METHODOLOGICAL FOUNDATIONS

Abstract: *The Amu Darya delta is one of the most ecologically vulnerable regions in Central Asia, where pasture resources play a crucial role in livestock farming and the livelihoods of the local population. This article analyzes the theoretical and methodological foundations of cartographic studies of pastures. A review of existing scientific literature is provided on water resource management, ecological flows, biodiversity loss, soil salinization, and landscape degradation. The possibilities of using remote sensing (NDVI, SAVI, MNDWI) and GIS technologies are highlighted. In conclusion, it is emphasized that while existing studies serve as a basis for the rational management of water resources, pasture monitoring, and the assessment of ecosystem services, comprehensive GIS models for irrigation water management and systems for forecasting desertification processes have not been sufficiently developed.*

Keywords: *Amu Darya Delta, pasturelands, soil salinization, remote sensing (NDVI, SAVI, MNDWI), GIS technologies, ecosystem services, irrigation management.*

Kirish

Amudaryo deltasi hududi tabiiy-geografik jihatdan noyob bo‘lib, oxirgi 50 yil davomida Aral dengizi qurishi, suv resurslari kamayishi, antropogen yuklama va iqlim o‘zgarishlari oqibatida keskin degradatsiyaga uchragan. Yaylovlar chorvachilik va mahalliy aholi hayotida asosiy o‘rin tutsa-da, ularning barqarorligini ta‘minlash bo‘yicha ilmiy-uslubiy tadqiqotlar yetarlicha rivojlanmagan. Shu sababli kartografik tadqiqotlar, masofadan zondlash va GIS texnologiyalari asosida monitoring olib borish nazariy va amaliy jihatdan dolzarb hisoblanadi.

Asosiy qism

1.1. Ekologik oqimlar va suv resurslarini boshqarish nazariyalari

Amudaryo deltasi hududida yaylovlarning ekologik holatini o‘rganishda eng muhim nazariy asoslardan biri — bu ekologik oqimlar nazariyasidir. Daryo oqimining tabiiy rejimining buzilishi delta landshaftlariga va ularning yaylov sifatidagi barqarorligiga bevosita ta‘sir ko‘rsatadi. Tadqiqotlar shuni ko‘rsatadiki, Amudaryo oqimining kamida 30–40 foizi ekologik oqim sifatida tabiiy holda saqlanmasa, delta ekotizimlari minimal darajada ham tiklana olmaydi (Erdinger, 2011). Suv oqimining kamayishi natijasida delta hududlarida yem-xashak o‘simliklari qoplanishining kamayishi, hayvonot dunyosining qisqarishi va cho‘llanish jarayonlarining tezlashishi kuzatilmoqda (Micklin et al., 2014).

Sug‘orish tizimlari va suv taqsimoti ekotizim barqarorligiga kuchli ta‘sir ko‘rsatmoqda. Schlüter va hammualliflari (2005) tomonidan ishlab chiqilgan EPIC (Environmental Policy Integrated Climate) modeli Amudaryo deltasi sharoitida qo‘llanilib, suv resurslarining boshqaruvi, irrigatsiya tizimlari va tuproq unumdorligi o‘rtasidagi o‘zaro bog‘liqlik ilmiy asosda isbotlangan. Modellash natijalarida suv yetishmovchiligi sharoitida tuproq namligi 25–30% ga pasayishi, hosildorlik esa ayrim hollarda 2–3 baravar kamayishi qayd etilgan (Schlüter & others, 2005). Bu natijalar nafaqat qishloq xo‘jaligi uchun, balki yaylovlarning yem-xashak ishlab chiqarish salohiyatini baholashda ham muhim nazariy asos bo‘lib xizmat qiladi.

Micklin, Aladin va Plotnikov (2014) Aral dengizi havzasi va Amudaryo deltasi bo‘yicha olib borgan kuzatuvlarida suv oqimlarining kamayishi nafaqat dengizning qisqarishiga, balki deltadagi tabiiy landshaftlarning butunlay o‘zgarishiga olib kelganini ko‘rsatdi. Natijada, suv havzalari qurib, ularning o‘rnida sho‘rlangan maydonlar kengaydi, yaylovlarning sifat ko‘rsatkichlari pasaydi, hayvonot va o‘simlik dunyosi jiddiy qisqardi (Micklin et al., 2014).

So‘nggi yillarda olib borilgan xalqaro tadqiqotlarda ham suv resurslarini oqilona boshqarishning ahamiyati qayta-qayta ta‘kidlangan. Urazbaev (2022) tomonidan o‘tkazilgan kuzatuvlarda Priaralye hududida suv taqsimoti va ekotizim barqarorligi o‘rtasidagi bog‘liqlik ilmiy asoslab berildi. Tadqiqot natijalariga ko‘ra,

yaylovlarning yem-xashak ishlab chiqarish imkoniyatini saqlash uchun suv resurslarini integratsiyalashgan holda boshqarish zarur (Urazbaev, 2022).

Xuddi shu fikrlarni GIZ (2014) konferensiyasida ham mutaxassislar ta'kidlab, Orolbo'yi mintaqasida barqaror yaylov xo'jaligi yuritish uchun suv resurslarini xalqaro miqyosda hamkorlik asosida boshqarish kerakligi qayd etilgan. Aniq tavsiyalar sifatida suv taqsimotini ekotizim ehtiyojlari bilan uyg'unlashtirish, ekologik oqimlarni kafolatlash va irrigatsiya tizimlarida suvni tejash texnologiyalarini joriy etish zarurligi ko'rsatib o'tilgan (GIZ, 2014).

Shunday qilib, ekologik oqim nazariyalari va suv resurslarini boshqarish masalalari Amudaryo deltasi yaylovlarini kartografik tadqiq qilishning eng muhim ilmiy-uslubiy poydevorlaridan biri hisoblanadi. Bu yondashuv suv resurslari taqsimotining qanchalik muhimligini ko'rsatadi va yaylovlarning barqarorligini saqlash uchun zaruriy choralarni belgilash imkonini beradi.

1.2. Biologik xilma-xillik va ekotizim xizmatlari

Amudaryo deltasi tarixan Orolbo'yi hududining eng boy flora va faunasiga ega bo'lgan hududlaridan biri bo'lib, u o'zining yaylov resurslari, suv-botqoq ekotizimlari va hayvonot dunyosi bilan ajralib turgan. Biroq XX asrning ikkinchi yarmidan boshlab suv resurslarining keskin kamayishi, Aral dengizining qisqarishi va antropogen ta'sirlarning kuchayishi natijasida delta hududida biologik xilma-xillik keskin qisqardi (Micklin et al., 2014).

Plotnikov va Aladin (2023) o'z tadqiqotlarida Aral dengizi va uning deltalari hududidagi biologik xilma-xillikning ahamiyatini batafsil tahlil qilib, so'nggi 50 yil ichida ko'plab turlar butunlay yo'qolib ketganini qayd etadi. Ayniqsa, suv havzalari bilan bog'liq baliq turlari, suv qushlari va suv-botqoq o'simliklari deyarli yo'q bo'lib ketgan. Ularning o'rnini sho'rlanishga chidamli halofit o'simliklar egallagan (Plotnikov & Aladin, 2023).

Halofitlarning kengayishi yaylovlarning sifati va chorvachilik uchun yaroqliligini keskin pasaytirdi. Chunki sho'rga chidamli turlar yem-xashak qiymati jihatidan ancha past bo'lib, hayvonlarning oziqlanish darajasini qondira olmaydi. Natijada yaylovlarning yem-xashak ishlab chiqarish salohiyati 2–3 baravar qisqargan (Qadir & others, 2009).

Johansson va hammualliflar (2009) tomonidan o'tkazilgan dala kuzatuvlari ham grunt suvlari sho'rlanishi tufayli o'simlik tarkibida o'zgarishlar yuz berganini ko'rsatadi. Sug'oriladigan hududlarda grunt suvlarining minerallashuvi pastroq bo'lgani uchun nisbatan xilma-xillik saqlangan bo'lsa, sug'orilmaydigan hududlarda minerallashuv darajasi keskin yuqori bo'lib, bu hududlar faqat sho'rga chidamli o'simliklar bilan qoplangan (Johansson & others, 2009).

Biologik xilma-xillikning qisqarishi nafaqat o'simliklar, balki hayvonot dunyosiga ham ta'sir qilmoqda. Qushlar migratsiyasi kamaygan, yovvoyi hayvonlarning yashash hududi toraygan va ko'plab turlar yo'qolish xavfi ostida qolmoqda (Authors, 2020). Shu sababli, Amudaryo deltasi nafaqat mahalliy, balki global miqyosda ham ekologik xavf ostida deb baholanmoqda.

Ekotizim xizmatlari nuqtayi nazaridan qaralganda, Amudaryo deltasi yaylovlari o'zining yem-xashak ishlab chiqarish, tuproqni eroziyadan himoya

qilish, mahalliy iqlimni yumshatish, bioxilma-xillikni saqlash va aholining iqtisodiy faoliyatini qo'llab-quvvatlash kabi funksiyalarini asta-sekin yo'qotmoqda (FAO & UNEP, 2018). Bu jarayon hudud aholisining ijtimoiy-iqtisodiy hayotiga ham bevosita ta'sir etib, chorvachilik samaradorligini keskin kamaytirmoqda.

Xalqaro tajribalar shuni ko'rsatadiki, yaylovlarni faqat iqtisodiy manba sifatida emas, balki ekotizim xizmatlari ko'rsatadigan muhim resurs sifatida o'rganish kerak. Shu sababli Amudaryo deltasi yaylovlarini kartografik tadqiq qilishda biologik xilma-xillik ko'rsatkichlarini, o'simlik va hayvonot tarkibini muntazam monitoring qilish nazariy-uslubiy asos sifatida kiritilishi zarur.

1.3. Landshaftlarning dinamik o'zgarishi va masofadan zondlash metodlari

Amudaryo deltasi yaylovlari so'nggi yarim asr davomida kuchli ekologik va antropogen ta'sir ostida sezilarli darajada o'zgarib kelmoqda. Deltadagi suv resurslarining kamayishi, sug'orish tizimlarining kengayishi, iqlim o'zgarishlari va aholi xo'jalik faoliyati natijasida landshaftlarning tabiiy dinamikasi buzilgan. Shu sababli ularning o'zgarishini aniqlashda masofadan zondlash (remote sensing) va geoinformatsion tizimlar (GIS) asosiy ilmiy-uslubiy yondashuv sifatida qo'llanmoqda (Jiang & others, 2019).

Zan va hammualliflar (2022) tomonidan 1977–2019 yillar oralig'ida o'tkazilgan tadqiqotlar masofadan zondlash materiallariga asoslangan bo'lib, ular wetlands hududlari va yaylovlarning dinamikasini tahlil qildi. Natijalar shuni ko'rsatdiki, delta hududida o'tgan 40 yil ichida yaylovlarning hududiy yaxlitligi buzilib, ularning fragmentatsiyasi 1,7 baravar ortgan (Zan & others, 2022). Bu jarayon natijasida yirik yaylov massivi kichik bo'laklarga bo'linib, chorvachilik uchun foydalanish imkoniyatlari sezilarli darajada qisqargan.

Masofadan zondlashda keng qo'llaniladigan NDVI (Normalized Difference Vegetation Index) va SAVI (Soil Adjusted Vegetation Index) kabi vegetatsiya indeksleri yaylovlarning degradatsiya darajasini aniqlashda samarali natija bermoqda. NDVI ko'rsatkichlarining pasayishi o'simlik biomassasining qisqarishini, tuproq qoplamining yalang'ochlanishini va antropogen yuklamaning ortishini ifodalaydi (Ahmedov & others, 2016). Masalan, delta hududida 1990-yillarda o'rtacha NDVI qiymatlari 0.25–0.30 atrofida bo'lgan bo'lsa, 2010-yillarga kelib bu ko'rsatkich ayrim joylarda 0.10–0.15 gacha tushib ketgani qayd etilgan (Smith & others, 2017).

Jiang va hammualliflar (2019) tadqiqotlari ham masofadan zondlash usullari orqali yaylovlarning cho'llanish sur'atlarini aniqlash imkonini berdi. Ularning natijalariga ko'ra, Amudaryo deltasi hududida tuproq namligi bilan vegetatsiya qoplamining o'zgarishi o'rtasida kuchli korrelyatsiya mavjud bo'lib, suv tanqisligi davrlarida NDVI keskin pasaygan, bu esa cho'llanish jarayonining tezlashganidan dalolat beradi (Jiang et al., 2019).

Shuningdek, Erdinger (2011) tomonidan olib borilgan tadqiqotlarda Landsat tasvirlari asosida landshaftlarning uzoq muddatli o'zgarishlari xaritalashtirilib, suv oqimining kamayishi bilan bog'liq holda yaylovlarning maydoniy qisqarishi va sho'rlanish jarayonlari aniqlandi (Erdinger, 2011). Bu natijalar yaylovlarning

degradatsiya sur'atlarini aniqlashda masofadan zondlash metodlarining muhimligini yana bir bor tasdiqlaydi.

Masofadan zondlash faqatgina kosmik tasvirlarni tahlil qilish bilan chegaralanmay, balki GIS texnologiyalari yordamida landshaft indeksleri (fragmentatsiya darajasi, parchalanish, o'simlik zichligi) hisoblab chiqiladi. Bu usul delta hududida o'zgarishlarni hududiy va vaqt bo'yicha tahlil qilish, monitoring qilish hamda uzoq muddatli prognozlar ishlab chiqishda muhim ilmiy-uslubiy asos bo'lib xizmat qiladi (Zan & others, 2022).

Xulosa qilib aytganda, Amudaryo deltasi yaylovlarini kartografik tadqiq qilishda masofadan zondlash va GIS texnologiyalari markaziy ahamiyatga ega. Ular yordamida nafaqat mavjud holat baholanadi, balki yaylovlarning uzoq muddatli dinamikasi, degradatsiya sur'atlari va antropogen bosim oqibatlari ilmiy asosda aniqlanadi.

1.4. Suv va tuproq resurslarini monitoring qilish

Amudaryo deltasi hududida yaylovlarning ekologik barqarorligini ta'minlashda suv va tuproq resurslarini monitoring qilish muhim ilmiy-uslubiy asos hisoblanadi. Delta hududida suv oqimining kamayishi natijasida grunt suvlari sathi pasayib, minerallashuv darajasi oshmoqda. Johansson va hammualliflar (2009) tadqiqotlariga ko'ra, sug'oriladigan maydonlarda grunt suvlari minerallashuvi 3–5 g/l darajasida bo'lsa, sug'orilmaydigan va suv ta'minotidan uzilgan hududlarda bu ko'rsatkich 20 g/l gacha yetgan (Johansson & others, 2009). Bu jarayon natijasida tuproqning sho'rlanish darajasi oshib, ko'plab yem-xashak o'simliklari yo'qolib ketmoqda.

Sho'rlanish jarayonlari tuproq unumdorligining pasayishiga olib kelmoqda. Qadir va hammualliflar (2009) qayd etganidek, tuproqdagi ortiqcha natriy va xlor ionlari ildiz tizimining rivojlanishini cheklaydi, natijada o'simlik biomassasi 2–3 baravar kamayadi (Qadir & others, 2009). Bu jarayon chorvachilik uchun yem-xashak ishlab chiqarish hajmini keskin qisqartiradi. Shu sababli, sho'rlangan yerlardan foydalanishda bio-meliorativ choralar zarur bo'lib, jumladan halofit o'simliklar ekish, tuproqni yuvish, kaltsiy asosidagi o'g'itlardan foydalanish tavsiya etiladi (Qadir et al., 2008).

Jiang va hammualliflar (2019) tadqiqotlari shuni ko'rsatadiki, sho'rlanish jarayonlarini aniqlashda masofadan zondlash metodlari samarali natija beradi. Ularning natijalariga ko'ra, sho'rlangan hududlarda NDVI qiymatlari 0.10 dan past bo'lib, bu tuproq unumdorligining keskin pasayganidan dalolat beradi (Jiang & others, 2019). Shu orqali kosmik kuzatuvlar yordamida sho'rlanish jarayonini hududiy xaritalash va ularning dinamikasini aniqlash imkoniyati yaratiladi.

Amudaryo deltasi tuproqlarining monitoringi natijasida aniqlanganidek, har yili o'rtacha 10–12 mln tonna tuz qatlamlari tuproq yuzasiga chiqib, qattiq qobiq hosil qilmoqda (Micklin et al., 2014). Bu esa o'simliklarning ildiz otishini qiyinlashtirib, ularning tiklanish imkoniyatini kamaytiradi. Natijada yaylovlar cho'l landshaftlariga aylanib, yem-xashak resurslari kamayadi.

Urazbaev (2022) tomonidan olib borilgan monitoring ishlari ham Priaralye hududida tuproq sho'rlanishi va suv taqchilligi chorvachilik uchun asosiy

cheklovchi omil ekanini tasdiqlaydi. Tadqiqot natijalariga ko'ra, tuproq sho'rlanishi yuqori bo'lgan hududlarda yaylovlarning yem-xashak qiymati 50 foizdan ko'proq qisqargan (Urazbaev, 2022). Shu sababli ilmiy asoslangan meliorativ choralarni amalga oshirish delta yaylovlarini saqlashda muhim vazifalardan biridir.

Bundan tashqari, Yakubov va Kurbanbaev (2021) o'z tadqiqotlarida yaylovlardan foydalanishda tuproq monitoringining huquqiy va tashkiliy asoslarini ishlab chiqib, sho'rlangan va degradatsiyaga uchragan yerlarni nazorat qilish davlat kadastr tizimi orqali olib borilishi lozimligini qayd etadi (Yakubov & Kurbanbaev, 2021). Bu ilmiy-uslubiy yondashuv yaylovlarni boshqarishda zamonaviy kartografik va monitoring tizimlarini qo'llash zarurligini ko'rsatadi.

Xulosa qilib aytganda, suv va tuproq resurslarini monitoring qilish Amudaryo deltasi yaylovlarini kartografik tadqiq qilishning markaziy nazariy yo'nalishlaridan biridir. Bu orqali nafaqat degradatsiya jarayonlari aniqlanadi, balki ularga qarshi meliorativ choralar ishlab chiqish uchun ilmiy asos yaratiladi.

1.5. Masofadan zondlash va GIS asosida kartografik monitoring

Amudaryo deltasi yaylovlarini ilmiy-uslubiy tadqiq etishda eng zamonaviy yondashuvlardan biri bu — masofadan zondlash (RS) va geoinformatsion tizimlar (GIS) asosida kartografik monitoring olib borishdir. Bu usullar orqali ekotizimdagi o'zgarishlarni hududiy va vaqt jihatidan aniqlash, degradatsiya darajasini baholash hamda yaylovlarning ekologik barqarorligini ilmiy asosda xaritalash mumkin (Jiang & others, 2019).

Masofadan zondlash asosida kosmik tasvirlardan foydalanilib, yaylovlar monitoringi uchun NDVI, SAVI, EVI va MNDWI kabi indekslar hisoblab chiqiladi. Masalan, Erdinger (2011) tomonidan olib borilgan tadqiqotlarda Landsat tasvirlari yordamida Amudaryo deltasi hududida o'simlik biomassasining kamayishi va tuproqning yalang'ochlanishi kuzatilgan (Erdinger, 2011). Jiang va hammualliflar (2019) esa vegetatsiya indekslarini tuproq namligi bilan bog'lab, cho'llanish jarayonlarini monitoring qilish imkoniyatlarini ochib berdi (Jiang et al., 2019).

Zan va hammualliflar (2022) botqoq hududlarini kuzatishda masofadan zondlash va GIS integratsiyasidan foydalangan. Ularning tadqiqotlari shuni ko'rsatdiki, 1977–2019 yillarda yaylovlarning hududiy fragmentatsiyasi 1,7 baravar ortib, o'simlik qoplaminig uzluksizligi keskin pasaygan (Zan & others, 2022). GIS yordamida hisoblangan landshaft indeksleri (fragmentatsiya, parchalanish, o'simlik zichligi) natijalarida antropogen bosimning o'sishi yaqqol ko'rinadi.

Johansson (2009) va Qadir (2009) tadqiqotlari ham sho'rlanish darajasi va vegetatsiya o'zgarishini kosmik tasvirlar orqali aniqlashda GIS texnologiyalarining muhimligini ta'kidlagan (Johansson & others, 2009). Ayniqsa, tuproqning minerallasuvini baholash va uni kartografik modelda aks ettirish yaylovlardan foydalanishda muhim amaliy natijalar beradi.

Shuningdek, Urazbaev (2022) GIS asosida tuzilgan kartografik modellar yordamida PriArAle hududida yaylovlarning ekologik holatini baholab, sho'rlanish va suv taqchilligi eng yuqori bo'lgan hududlarni aniqlagan. Bu yondashuv yaylovlarni zonal boshqarish, ya'ni qaysi hududlarda chorvachilikni cheklash yoki

bio-meliorativ choralarni kuchaytirish zarurligini belgilash imkonini beradi (Urazbaev, 2022).

Xalqaro tajriba ham GIS texnologiyalarining samaradorligini ko'rsatadi. Masalan, Tajikiston va Qirg'iziston yaylovlari bo'yicha o'tkazilgan loyihalarda (Pasture Law, 2011 GIZ, 2014) GIS monitoringi yordamida yaylovlarning holati xaritalashtirilib, ularni boshqarishning yangi mexanizmlari ishlab chiqilgan (*Закон Кыргызской Республики о Пастбищах*, 2011), (GIZ, 2014). Ushbu tajribalar Amudaryo deltasi uchun ham dolzarb bo'lib, hududni barqaror boshqarishda qo'llanishi mumkin.

Umuman olganda, masofadan zondlash va GIS texnologiyalari Amudaryo deltasi yaylovlarini kartografik tadqiq qilishda nafaqat mavjud holatni tahlil qilish, balki kelajak prognozlarini ishlab chiqish, degradatsiya sur'atlarini baholash va resurslardan oqilona foydalanishni rejalashtirish imkonini beradi. Bu esa ekologik boshqaruv va barqaror rivojlanish strategiyalarini ishlab chiqishda muhim ilmiy asos bo'lib xizmat qiladi.

Xulosa

Amudaryo deltasi yaylovlarini kartografik tadqiq qilish bo'yicha o'rganilgan nazariy-uslubiy yondashuvlar shuni ko'rsatadiki, bu hudud murakkab ekologik, tabiiy va antropogen jarayonlar ta'siri ostida shakllanib, o'zining barqarorligini yo'qotmoqda. Suv resurslari boshqaruvi masalasi eng asosiy nazariy yo'nalishlardan biri bo'lib, ilmiy adabiyotlarda qayd etilishicha, Amudaryo oqimining kamida 30–40 foizi ekologik oqim sifatida saqlanmasa, delta ekotizimlarining minimal darajada ham tiklanishi imkonsiz (Micklin et al., 2014). Sug'orish tizimlarining noto'g'ri boshqarilishi natijasida tuproq unumdorligi 2–3 baravar pasaygani va yaylovlarning yem-xashak ishlab chiqarish salohiyati keskin kamaygani ilmiy modellash natijalari orqali asoslab berilgan (Schlüter et al., 2005).

Biologik xilma-xillikning qisqarishi ham delta yaylovlari barqarorligini izdan chiqarmoqda. Halofit turlarining kengayishi natijasida yem-xashak qiymati yuqori bo'lgan o'simliklar qisqarib, chorvachilik uchun yaroqli yaylov maydonlari toraymoqda (Plotnikov & Aladin, 2023). Hayvonot dunyosi ham keskin o'zgarib, suv-botqoq qushlari va baliqlar kamaygan, cho'l turlari esa ustunlik qila boshlagan (Micklin et al., 2014). Bu esa ekotizim xizmatlarining, jumladan, yem-xashak ishlab chiqarish, bioxilma-xillikni saqlash va tuproqni himoya qilish funksiyalarining susayishiga olib kelgan (FAO & UNEP, 2018).

Landshaftlarning dinamik o'zgarishi masofadan zondlash orqali aniq kuzatilmoqda. 1977–2019 yillarda yaylovlarning hududiy fragmentatsiyasi 1,7 baravar ortgani va NDVI qiymatlarining keskin pasaygani qayd etilgan (Zan & others, 2022). Bu degradatsiya jarayonlari cho'llanish sur'atlarini kuchaytirgan, sug'orish tizimlaridan chiqayotgan ortiqcha suv esa faqat vaqtincha va sun'iy tiklanishni ta'minlagan (Ahmedov & others, 2016).

Suv va tuproq monitoringi natijalari tuproq sho'rlanishi va grunt suvlarining minerallasuvi asosiy xavf omili ekanini ko'rsatmoqda. Sug'orilmaydigan hududlarda minerallasuv 20 g/l gacha ortib, yem-xashak biomassasi 50 foizdan ko'proq qisqargan (Zan & others, 2022). Sho'rlangan yerlardan foydalanishda bio-

meliorativ choralar — halofit ekish, daraxtzorlar barpo etish va agrotexnik tadbirlar zarurligi ta'kidlanmoqda (Qadir et al., 2008).

Masofadan zondlash va GIS texnologiyalari Amudaryo deltasi yaylovlarini kartografik tadqiq qilishda markaziy ilmiy-uslubiy vosita sifatida tan olingan. Bu yondashuvlar orqali NDVI, SAVI kabi vegetatsiya indeksleri va landshaft indikatorlari yordamida yaylovlarning degradatsiya darajasi, sho'rlanish ko'rsatkichlari va hududiy fragmentatsiyasi aniqlanmoqda (Zan & others, 2022). Xalqaro tajriba (Qirg'iziston va Tojikiston yaylovlaridagi loyihalar) ham GIS asosidagi monitoring tizimlarining samarali ekanini ko'rsatib, Amudaryo deltasi uchun moslashtirilgan yondashuvlarni taklif qilmoqda (*Закон Кыргызской Республики о Пастбищах*, 2011).

Umuman olganda, adabiyotlar tahlili shuni ko'rsatadiki, Amudaryo deltasi yaylovlarini kartografik tadqiq qilishning ilmiy-uslubiy asoslari quyidagilardan iborat: suv resurslarini oqilona boshqarish, biologik xilma-xillikni saqlash, landshaftlarning dinamikasini masofadan zondlash orqali kuzatish, tuproq va suv resurslarini monitoring qilish hamda GIS texnologiyalari yordamida kompleks kartografik modellar yaratish. Ushbu ilmiy poydevorlar hududni barqaror rivojlantirish, ekologik boshqaruvni takomillashtirish va chorvachilikni optimallashtirish uchun keng imkoniyatlar yaratadi.

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MASOFAVIY TA'LIM - SIRTQI O'QISHNING YANGI SHAKLI

Annotatsiya. Ushbu maqolada Oliy ta'lim tizimida masofaviy va sirtqi ta'lim shakllarining o'ziga xos jihatlari, o'quv jarayonini tashkil etish tartibi, o'xshash va farqli tomonlari hamda talabalarning bilim olish imkoniyatlari tahlil qilingan.

Tayanch so'zlar. masofaviy ta'lim, sinxron rejim, asinxron rejim, semestr, oraliq baholash, yakuniy baholash, metodik ko'rsatma, sirtqi ta'lim

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DISTANCE LEARNING – A NEW FORM OF PART-TIME EDUCATION

Annotation. The article analyzes the specific features of organizing the learning process in distance and part-time education within higher education, highlights their similarities and differences, and examines students' opportunities in mastering educational programs.

Keywords: distance learning, synchronous mode, asynchronous mode, semester, midterm evaluation, final evaluation, methodological guide, correspondence education

Oliy ta'lim tizimida masofadan o'qitish uslubi shakllari qo'llanilmoqda. Masofaviy ta'limning maqsadi axborot-kommunikatsiya texnologiyalaridan foydalanish asosida talabaning turar joyidan qat'i nazar, unga ta'lim dasturlarini o'zlashtirish uchun imkoniyat taqdim etish, talabalarning qiziqishlari, iqtidori va ehtiyojlariga muvofiq kasbiy salohiyatini rivojlantirishdan iborat, lekin bunday ta'rif sirtqi ta'limga ham berilishi mumkin[1, 2]. Shundan kelib chiqib ushbu maqolada masofaviy va sirtqi ta'limda o'quv jarayonini tashkil qilinishi tahlil qilingan va ularni bir-biriga mutanosiblik tomonlari aniqlangan.

Sirtqi va masofaviy ta'lim uchun talabalarni ta'lim tashkilotiga qabul qilish, ularning o'qishini ko'chirish, qayta tiklash va o'qishdan chetlashtirish boshqa ta'lim shakllari uchun qonunchilik hujjatlarida belgilangan tartibda bir xil shaklda amalga oshirilmoqda. Sirtqi va masofaviy ta'lim shakli to'lov-kontrakt asosida amalga oshirilmoqda, lekin ikkala ta'lim shaklida to'lov-kontrakt mablag'i miqdori bir-biridan farq qiladi.

Masofaviy ta'lim bo'yicha o'qish davomiyligi tegishli bakalavriat ta'lim yo'nalishi va magistratura mutaxassisligi bo'yicha kunduzgi ta'lim shakli uchun belgilangan o'qish davomiyligi muddatidan kam bo'lishi mumkin emasligi

belgilangan. Sirtqi ta'limda esa o'qish muddati kamida 5 yil qilib belgilangan. Bundan chiqdi, talabalar masofaviy ta'limda sirtqi ta'limga nisbatan kamroq o'qiydi.

Binobarin, masofaviy ta'lim bo'yicha o'quv jarayoni davlat ta'lim standarti va malaka talablari asosida ishlab chiqilgan o'quv reja va o'quv dasturlar asosida amalga oshiriladi. Sirtqi ta'limda esa o'quv jarayoni ta'lim sohalarining davlat ta'lim standartlari va tegishli ta'lim yo'nalishlari malaka talablari asosida tayyorlangan hamda O'zbekiston Respublikasi Oliy ta'lim, fan va innovatsiyalar vazirligi tomonidan kunduzgi ta'lim uchun tasdiqlangan o'quv rejasi va fan dasturlari asosida tashkil etiladi.

Masofaviy ta'lim shaklida o'qishga qabul qilingan talaba quyidagi hollarda oliy ta'lim tashkilotiga shaxsan tashrif buyurishi shartligi belgilangan:

-o'quv jarayoni boshlanishidan avval — masofaviy ta'limni boshqarish bo'yicha dasturiy ta'minot — LMS (Learning Management Systems) platformasida ro'yxatdan o'tish uchun;

-har semestr yakunida — yakuniy nazorat topshirish uchun.

Shuningdek, yakuniy davlat attestatsiyasi, bitiruv malakaviy va magistrlik ishi himoyasi bevosita oliy ta'lim tashkilotida an'anaviy tarzda amalga oshirilishi, ularni sinxron yoki asinxron rejimida qabul qilishga yo'l qo'yilmasligi belgilangan.

Sirtqi ta'lim talabasi uchun o'qishga qabul qilingan o'quv yili boshida (odatda, sentyabr-oktyabr oylarida) bevosita oliy ta'lim muassasasida 10 kunlik o'quv jarayoni bilan dastlabki tanishtiruv hamda semestr davomida o'qitiladigan fanlar bo'yicha qisqacha (ishchi o'quv rejasida belgilangan hajmda) ma'ruza, amaliy, laboratoriya va seminar mashg'ulotlari o'tkaziladi. Talabalarga mavzular bo'yicha topshiriqlar va ularni bajarish yuzasidan metodik ko'rsatmalar beriladi. O'quv sessiyasigacha bo'lgan muddatda sirtqi ta'limda o'qish mustaqil, jumladan, masofadan turib ta'lim olish shaklida amalga oshiriladi.

Ish faoliyatini masofaviy ta'lim bilan qo'shib olib borayotgan talabalarga semestr oxirida yakuniy baholashdan o'tish, bitiruvchilarga esa yakuniy davlat attestatsiyasini topshirish, bitiruv malakaviy va magistrlik ishini himoya qilish uchun kamida 15 kalendar kun muddatga ish haqi saqlangan holda ta'til beriladi. Sirtqi ta'lim talabasi ham har bir semestr davomida bir marta oliy ta'lim muassasasiga o'quv sessiyasiga chaqiriladi. Buning uchun unga o'quv sessiyasi boshlanishiga qadar (kamida 10 kun oldin) belgilangan shaklda xabarnoma yuboriladi.

Masofaviy ta'lim shaklida o'qiydigan talabalarga amaliyotlar o'quv rejada belgilangan muddatlarda mehnat faoliyatini olib borayotgan talabaning ish joyida, talabaning ish joyi bakalavriat ta'lim yo'nalishiga (magistratura mutaxassisligiga) mos bo'lmagan yoxud ish bilan ta'minlanmagan holda ta'lim tashkiloti bilan kelishuvga erishgan tashkilotlarda amalga oshiriladi. Sirtqi ta'lim talabalarining malakaviy amaliyotlari esa ishchi o'quv rejasida belgilangan muddatlarda amalga oshiriladi. Odatda, bitiruv malakaviy ishi oldi amaliyotidan boshqa amaliyotlar (ta'lim yo'nalishiga mos bo'lgan holda) talabaning ishlab turgan ish joyida mustaqil ravishda o'tkaziladi.

O'quv jarayonida barcha dars mashg'ulotlari, amaliyotlar va mustaqil ishlar hamda ular bo'yicha talabalarni baholash masofaviy ta'limni boshqarish bo'yicha dasturiy ta'minot — LMS platformasida nazarda tutilishi lozim. Dars mashg'ulotlari, talabalarining bilimni baholash va o'quv jarayonini nazorat qilish masofaviy ta'limni boshqarish bo'yicha dasturiy ta'minot — LMS platformasi orqali amalga oshiriladi.

Sirtqi ta'limda navbatdagi semestr davomida o'qitiladigan fanlar qisqacha (ishchi o'quv rejasida belgilangan hajmda) ma'ruza, amaliy, laboratoriya va seminar mashg'ulotlari orqali tanishtiriladi. Ushbu mashg'ulotlar talabaga navbatdagi semestr davomida fanlarni o'zlashtirishi va topshiriqlarni bajarishi uchun asosiy va qo'shimcha adabiyotlar bilan ishlash usullari va texnologiyalarini o'rgatishga qaratiladi. Mavzular bo'yicha topshiriqlar bilan ularni bajarish yuzasidan metodik ko'rsatmalar beriladi.

Talaba fan bo'yicha topshiriqlarni bajargandan so'ng, uni fan o'qituvchisiga belgilangan muddatlarda (odatda, masofadan turib Internet orqali) yuboradi hamda qayddan o'tkazadi. Fan o'qituvchisi talaba yuborgan materiallarni tekshirib, oraliq ishi sifatida baholaydi. Fan o'qituvchisi mavzular bo'yicha navbatdagi topshiriqlar va ko'rsatmalarni yuborishi, shuningdek, onlayn rejimida o'quv mashg'ulotlarini o'tkazishi mumkin.

Sirtqi ta'limda oraliq va yakuniy baholash turlari joriy qilingan bo'lsa, masofaviy ta'limda esa faqat yakuniy hazorat o'tkaziladi. Sirtqi ta'limdagi oraliq baholash masofaviy aloqa orqali onlayn rejimida o'tkazilishi ham mumkin.

Masofaviy ta'limda bir o'qituvchiga to'g'ri keladigan talabalar soni nisbatining cheklangan normativlari 1:50 nisbatda belgilangan. Sirtqi ta'limda esa o'qish bo'yicha oliy ta'lim yo'nalishlariga qarab bir o'qituvchiga to'g'ri keladigan talabalar soni nisbati 1:20 etib belgilangan. Bundan ko'rinib turibdiki, masofaviy ta'lim ucnun kam professor-o'qituvchilar jalb etiladi, lekin masofaviy o'qitish shaklida o'quv jarayonini tashkil etishda qilinadigan ishlar(o'quv reja va dasturlardagi barcha fanlardan masofaviy ta'lim texnologiyalaridan foydalanish orqali amalga oshiriladigan, o'quv kontentini qamrab oladigan elektron o'quv-metodik majmualar, shuningdek, ilmiy va o'quv adabiyotlarining elektron bazasi).

Shunday qilib, sirtqi ta'limda masofadan turib o'qitish talabalarining asosiy ish joyidan ajralmagan holda o'quv rejasidagi barcha fan dasturlarida belgilangan bilimlarni mustaqil masofadan turib o'zlashtirish asosida amalga oshirilishi mumkinligini hisobga olsak, sirtqi va masofaviy ta'lim bir-biriga yaqindir, ularning bir-biriga o'xshash tomonlari ko'pdir. Shuning uchun ham masofaviy ta'lim uslubi bu sirtqi o'qishning yangi shakli va mustaqil o'qishdir. Masofaviy o'qitish - eng yaxshi an'anaviy va innovatsion metodlar, o'qitish vositalari va shakllarini o'z ichiga olgan sirtqi va kunduzgi ta'lim singari axborot va telekommunikatsiya texnologiyalariga asoslangan ta'lim sohasidir. Bu insonning mustaqil fikrlash, holatni to'g'ri baholash, xulosa va bashorat qilish qobiliyatlarini rivojlantiradi.

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JIZZAX VILOYATIDA TABIIY RESURSLARNI MUHOFAZA QILISH VA ULARDAN OQILONA FOYDALANISH CHORA-TADBIRLARI

Annotatsiya. Maqolada asrlar davomida shakllangan geografik-biologik muhitga salbiy ta'sir ko'rsatayotgan omillar o'rganilgan. Inson faoliyati natijasida paydo bo'layotgan texnogen ob'ektlarni mintaqaning suv, tuproq resurslariga, o'simlik va hayvonot dunyosiga ta'sirini baholash maqsadida keng ko'lamli kuzatuv va ilmiy-tadqiqot ishlarini bajarish zarur.

Tayanch so'zlar: o'simlik va hayvonot dunyosi, oziq-ovqat mahsulotlari, biologik xilma-xillik, targ'ibot ishlari, muhofaza qilinadigan ob'ektlar, texnogen ob'ektlar.

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MEASURES FOR THE PROTECTION OF NATURAL RESOURCES AND THEIR RATIONAL USE IN JIZZAKH REGION

Annotation. The article examines factors that negatively affect the geographical and biological environment that has been formed over centuries. It is necessary to conduct large-scale monitoring and research to assess the impact of man-made objects arising as a result of human activity on water and soil resources, flora and fauna of the region.

Keywords: flora and fauna, food, biodiversity, propaganda, specially protected natural areas, anthropogenic objects.

Jizzax viloyatining tabiati, o'simlik va hayvonot dunyosi juda ham rang-barangdir va hayotda katta ahamiyatga egadir. O'simliklar nam saqllovchi, daryolar va soylar suvini bir me'yorda saqlab turuvchi, qumlarni mustahkamlovchi hamda havoni toza saqlab turuvchi kabi muhim omil bo'lish bilan birga kishilarga oziq-ovqat manbalaridan tashqari dam olib, hordiq chiqarib, estetik zavq beradigan muhitni tashkil etadi. Oldin aytib o'tganimizdek, Jizzax viloyati hududini saxro, cho'l, adir, baland yaylov mintaqasida shularga xos o'simlik va hayvonot dunyosi mavjud. O'simliklar aholi uchun nafaqatgina ozuqa, o'tin manbai bo'libgina qolmasdan balki, yovvoyilari dori-darmon tayyorlashda, har xil buyoqlar olishda katta ahamiyatga ega. Viloyatda tarkibida har xil dori-darmonlarga ega bo'lgan mevali (yong'oq, bodom, do'lana) daraxtlar, anzur piyoz, zira, ismaloq va ravoch kabi o'simliklar bor. Bu o'simliklarning mevasi viloyat aholisini oziq-ovqat bilan ta'minlashda muhim o'rin tutadi.

Shimoliy Nurota tog'ining shimoliy yon bag'rida, Molgo'zar tog'ining Ravot va Zomin daryolar xavzasida qalin yong'oqzorlar bor. Turkiston tog' tizmasi shimoliy yon bag'rida zira o'sadigan maydonlar bor. Pistalitog' va Shimoliy Nurota tog'larining ravochi aholi tomonidan sevib iste'mol qilinadi. Viloyat cho'llarida yantoqzorlar uchraydi.

Keyingi yillarda viloyatda aholi va qishloq xo'jaliklari faoliyatida tabiatdan betartib foydalanishi natijasida uning tabiiy holatida sezilarli darajada o'zgarishlar yuz berib, asrlar davomida shakllangan geografik-biologik muhitga salbiy ta'sir ko'rsatmoqda[1-5]. Ayniqsa qishloq xo'jaligida adirlar, tog' oldi va cho'l zonalarida erlar betartib o'zlashtirilishi, chorvachilik va har xil rekreatsion ob'ektlar rejasiz joylashishi, tog-kon sanoati ta'siri, yaylovlarda mollarni haddan tashqari ko'pligi, dorivor, foydali o'simliklarni tartibsiz yig'ib olinishi, hayvonlarni ovlash kabi salbiy unsurlar natijasida ekologik muvozanat o'zgarishi yuz berib, ba'zi o'simlik va hayvonlar turi kamayib yoki yo'qolib ketmoqda. Natijada anzur piyoz, zira, arxar, kiyik va bir qator o'simliklar, hayvonlar turi kamayib ketmoqda. Viloyatda ayrim shaxslar tomonidan o'simliklarni, ayniqsa dorivor va oziq-ovqat o'simliklarning piyozlarini, urug'ini, mevasini, bargini va ildizini ruxsatsiz, o'zboshimchalik bilan qoida-qonunga xilof ravishda yig'ib-terib olishlari tufayli ularning turi kamayib ketmoqda. Bu salbiy holatlarni oldini olish maqsadida O'zbekiston Respublikasi Vazirlar Mahkamasining 1998 yil 1 apreldagi 139-son qaroriga binoan O'zbekiston Respublikasi biologik xilma-xillikni saqlash milliy strategiya va harakat rejasini ishlab chiqildi. Milliy strategiya va harakatlar rejasini amalga oshirish va ularning o'tkazilishini nazorat qilish bo'yicha ishlarni tashkil etish uchun Biologik rang-baranglik milliy komissiyasi tuzildi. Bu rejaga muvofiq O'zbekiston hukumati, Birlashgan Millatlar tashkilotining Rivojlantirish Dasturi va Global ekologik jamg'armasi tomonidan amalga oshiriladigan Nurota-Qizilqum biosfera rezervati loyihasi ishlab chiqildi. Ushbu loyiha asosida yurtimizning tabiat muhofazasi, xalqimizni tarixiy va madaniy meroslarini saqlanishi hamda mahalliy aholining an'alarini va iqtisodiyotini barqaror rivojlanishi ko'zda tutildi.

Bu loyiha hozirgi kundagi eng dolzarb masala bo'lgan aholini tabiatga bo'ladigan hurmatini oshiradigan targ'ibot ishlarini ham bajarishni imkonini beradi. Jizzax viloyatida bir qator muhofazaga olingan va kelajakda olinishi zarur bo'lgan hududlar bor (1-jadval).

Bundan tashqari O'zbekiston Respublikasi Vazirlar Mahkamasining 1999 yil 20 oktyabrdagi 469-sonli qaroriga binoan Sangzor tog' oldi yer osti suv konlariga Respublika miqyosidagi maxsus muhofaza qilinadigan tabiiy hududlar maqomi(statusi) berildi. Bundan Sangzor daryosini ikki qirg'og'idagi yuz metrlik masofadagi yerlar qattiq muhofazada bo'lishi ko'zda tutildi. Ayniqsa er osti suv resurslari paydo bo'ladigan maydonlarda aholini xo'jalik faoliyatini cheklash ko'zda tutilishi atmosfera va suv boyliklari pokiza saqlanishiga, tuproqning eroziyaga uchrashi va ifloslanishiga chek qo'yilishiga, o'simlik va hayvonot turlarini kamayib ketishining oldi olinishiga, natijada iqtisodiyot juda katta zarar ko'rish, aholi salomatligiga salbiy ta'sir etishini ko'rishimiz mumkin.

1-jadval

Jizzax viloyatida muhofazaga olingan va kelajakda olinishi zarur bo'lgan hududlar

№	Qo'riqsona, milliy bog' buyurtmalar nomi	va	Geografik o'rni	Tashkil etilgan yili	Maydoni, gektar hisobida	Muhofaza qilinadigan ob'ektlar
1. Qo'riqxonalar						
1	Zomin o'rmon quruqxonasi	tog'	Zomin tumaniga qarashli Turkiston G'uralash tizmasining dovoni atrofi	1926	10500	Tog' landshafti va u erdagi archazorlar hamda tog' echkisi, tog' quyi, oq tirnoqli ayiq, sibir takasi kabi hayvonlar muhofaza qilinadi
2	Nurota yong'oqzor-mevo qo'riqxonasi	tog'	Forish tumaniga qarashli Shimoliy Nurota tizmasida joylashgan	1975	22500	Tog' landshafti va u erdagi o'simliklar (yong'oq-zor, olma, ravoch, olisha, tut), hayvonlar (to'ng'iz, tulki, jayra, burgut, lochin) muhofaza qilinadi
2. Xalq (milliy) bog'lari						
3	Jizzax (milliy) bog'i	xalq	Zomin tumanida Zominsuv daryosi-ning yuqori xavza-sida joylashgan	1977	31503	Tog' landshafti va u erdagi o'simliklar (archazorlar) va hayvonlar dunyosi hamda rekreatsiya hududi (dam olish maskani) muhofaza qilinadi
3. Buyurtmalar						
4	Arnasoy		Jizzax viloyatining shimoliy qismida joylashgan	1977	63000	Arnasoy faunasini boyitib borish
4. Kelajakda muhofaza qilinadigan ob'ektlar						
5	Qirqqiz yodgorligi	tabiat	Zomin, Jizzax tumanlarida	-	-	Molgo'zar tizmasi Furalash soyning yuqori qismida joylashgan tabiat yaratgan har xil shakllar, jumladan «Qirqqiz» qal'asini tabiiy holicha saqlash
6	Novqa		Baxmal tumani Chumqortog' tizmasining shimoliy qismida	-	-	O'ta toza, chuchuk mikro ma'danlarga boy karst yoriqlari va g'orlardan oqib chiquvchi buloq va uning atrofidagi daraxtlarni tabiiy holicha saqlash
7	Avliyo		Fallaorol tumani Molguzar tizmasining g'arbiy qismida	-	-	O'ta toza, chuchuk mikro ma'danlarga boy karst yoriqlari va g'orlardan oqib chiquvchi buloq va uning atrofidagi man-zaralarini tabiiy holicha saqlash
8	Yettibuloq		Jizzax tumani Molguzar tizmasi-shimoliy Uobsoy qismida, xavzasida Teshik dara	-	-	O'ta toza, chuchuk mikro ma'danlarga boy karst yoriqlari va g'orlardan oqib chiquvchi buloq va uning atrofidagi manzaralarini tabiiy holicha saqlash

Shunday qilib, inson faoliyati natijasida paydo bo'layotgan texnogen ob'ektlarni mintaqaning suv, tuproq resurslariga, o'simlik va hayvonot dunyosiga ta'sirini baholash maqsadida keng ko'lamli kuzatuv va ilmiy-tadqiqot ishlarini bajarish zarur. Bu ishlar biologiya, zoologiya, botanika, gidrologiya, gidrogeologiya va gidromelioratsiya fanlar yo'nalishlarini o'z ichiga oladi. Bu kuzatuv va tadqiqot ishlarni Davlat ilmiy-texnik dasturlari, xorijiy va respublika ishbilarmonlar xomiyligida bajarilishini ta'minlash hamda Jizzax viloyatining rang-barang, xilma-xil, ajoyib o'simlik va hayvonot dunyosini muhofaza qilish uchun yangi xalqaro grantlar olish ishlarini qo'llab quvvatlash zarurdir.

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THE USE OF DIGITAL TECHNOLOGIES IN LIGHT INDUSTRY ENTERPRISES

Abstract. *The article covers the issues of developing the organization of production based on digital technologies in industrial enterprises, analyzes existing problems in this field, studies the factors hindering digitalization processes, and describes the directions of digitalization of production. Features of modern digital production systems are revealed.*

Keywords. *production process, digital economy, digital technology, automation, software, artificial intelligence, smart enterprise, blockchain.*

Introduction. In modern conditions, the digitalization of economic processes and information technologies is penetrating into all spheres of activity. The new development strategy of Uzbekistan for 2022-2026 also plans to make the digital economy the main "driver" of economic development and increase its volume by at least 2.5 times. The task is to increase the volume of software production by 5 times, their exports by 10 times to 500 million dollars. To fulfill these tasks, large-scale measures have been outlined to widely introduce and support the digital economy, and as part of these tasks, new electronic document management systems are being introduced in the country, electronic payments are developing and the regulatory framework in the field of electronic commerce is being improved, electronic infrastructure and commerce are being formed, digital technologies are being introduced in all areas of the economy. Moving to transformation step by step is a step in the process.

With the introduction of digital technologies into production processes, new requirements are being placed on the sources of competitive advantage of enterprises, on effective concepts of their functioning and management. Taking into account the specifics of the transition to the digital economy, forecasting possible problems, as well as developing solutions and proposals to minimize negative consequences are becoming the main condition for organizing the company's activities. An important aspect of achieving competitive advantage is the system of effective management of available resources and business processes in industrial enterprises, based on innovative technologies and methods of optimizing business processes.

Literature review. Digital technologies are a part of our lives today and are widely used in practice in various fields. Several scientists expressed their opinion about digitization in the manufacturing process.

The term "digital economy" was first used in 1994 by Canadian economist Don Tapscott. In his work, the author talked about the impact of digitalization on the economy. He considered the reduction of transaction costs and the emergence

of completely new business models to be one of the main advantages of digitalization.

V.A. In his research, Plotnikov defined digitization as "a modern stage in the development of informatization, characterized by a combination of a new device and software, characterized by the widespread use of digital technologies for the creation, processing, transmission, storage and visualization of information." He also lists several advantages that businesses receive when using digital technologies.:

- the flexibility of production increases due to its rapid restructuring, dynamic changes in the characteristics of the production process, which creates a competitive advantage and leads to an increase in potential profits.;

- provides information integration of product lifecycle stages from development to disposal, which allows us not only to optimize production, but also to effectively and comprehensively address issues of quality, environmental safety, creation of new business opportunities, etc.

Brynjolfsson and Priests (2002) first promoted the digitization of the economy as a topic of discussion in the mid-1990s, providing the first definitions recognized in these definitions as a means of meeting businesses and consumers in virtual worlds.

With the development of digitalization, the company's business models are constantly changing. Therefore, many authors interpret the definition of digitization in different ways. For example, Alexander Kutsman characterizes the digital economy as "a modern type of economy characterized by the priority role of information and knowledge based on the active use of digital technologies to identify, store, and process resources in the production of tangible products and services." Aksenov R. K. He argues that the digital economy is based on the production of electronic products and e-commerce services. Aksenov R. under e-commerce. The electronic movement of capital and electronic products also implies the process of electronic information exchange.

Issues such as the effective use of new information technologies in various sectors of the national economy, methods of introducing digitalization systems into them, principles of digital modeling based on new information systems, evaluation of the effectiveness of using automated information systems in corporate governance, their control, and conditions for the development of the digital economy are reflected in Kabulov's scientific research (1998).

E.In Muminova's study, studies were conducted on the effectiveness of using blockchain technologies in the development of the country's industry, the importance of electronic commerce and electronic contracts in enterprise cooperation. Openness as a result of the ongoing reforms in Uzbekistan, the development of international economic and political ties have created opportunities for modernization, technical and technological re-equipment of industries in the country. As you know, the digital economy also plays an important role in creating added value today. As a result of the ongoing reforms in the sectors of the economy,

the processes observed on the basis of the impact of digital information acquire a key decisive force in the strategic development of industrial enterprises.

Decree of the President of the Republic of Uzbekistan dated October 10, 2020 No. PF — 6079 On the approval of the strategy "digital Uzbekistan-2030" and Measures for its Effective Implementation also noted that the following activities will be carried out in order to develop digital technologies in the real sector of the economy:

- S ensuring automation and management of all stages of the enterprise's supply chain, as well as reducing logistics and procurement costs due to this;

- S improving the quality of products and services through the introduction of modern information systems and software products, reducing their cost, production shutdowns, and increasing the transparency of financial and economic activities;

- C Improving the regulatory framework for the introduction of innovative automated control systems and software products;

- Step-by-step automation of workplaces and robotization of production processes, as well as the introduction of artificial intelligence technologies;

- S improving the mechanisms of interaction with customers (clients) in order to increase sales and improve customer service;

- C Improvement of the management information acceptance support system, including the implementation of a real-time business analysis system;

- S to increase the share of large business entities that have implemented an enterprise resource management system (shp) to 90% in 2025;

With the transition of the economy to a new technological stage, there is a need to modernize the country's production structures, organizational and economic support for production processes, and the formation of modern approaches to management methods. In the context of deepening economic reforms, the processes of automation and robotization of production at industrial enterprises, the introduction of advanced methods and techniques of production organization, and increasing the level of its digital intellectualization are rapidly developing. Modern approaches to the organization and management of production are based on a complete exchange of information, reducing the number of workers and employees in a short time, increasing their competence, and introducing flexible production systems and robotic complexes. To do this, it is necessary to pay attention to the development of innovative, high-tech production. In the field of digital production, such modern trends as the "industrial Internet of things", "additive manufacturing technologies", "cloud technologies", "artificial intelligence", and "intelligent robotic manufacturing" are developing, and the organization uses simulation and economic mathematical modeling in decision-making. The following advantages and risks of digital transformation of industrial enterprises can be cited.

Pros and cons of risks

New breakthrough digital technologies, artificial intelligence, industrial Internet of things, big data analysis, dependence on borrowed imported

technologies, violation of one's own competence, the presence of hidden "bookmarks" in hardware and software

New sales markets, business models, innovative productions, media services the risk of rapid capture of innovative markets by companies in economically developed countries.

Growth of labor productivity, production efficiency, automation, robotization, job cuts, termination of some special jobs, unemployment, social conflicts

Increased efficiency and standardization of services, exclusion of intermediaries, uberization of transport, medicine, education, services, legal uncertainty, increased fraud, ethical issues, social stratification

In modern conditions, the organization of production is considered as a process of effectively combining highly qualified personnel (workers) with the necessary competencies with innovative tools and products of labor in a certain environment and at a certain time, based on the digitalization of product lifecycle management.

In our opinion, digitalization of production is hindered by such factors as the fact that enterprises continue to use outdated technologies (64%), the lack of specialists with certain experience, knowledge and skills (61%) and weak integration links between new technologies (62%). According to the results of research in the field of digital transformation of production, enterprises using digital technologies and management methods receive 26% more profit than their competitors. The financial results of enterprises that pay little attention to management with sufficient investment in digital technologies are 11% lower, and due to the modernization of the management process, only 9% of additional income can be obtained.

The current economic situation with the beginning of the fourth industrial revolution

is characterized. As part of this revolution, digitized "smart" enterprises are being created. Such enterprises provide an opportunity to produce products that are competitive in the domestic and foreign markets. But the process of large-scale introduction of digital technologies into production processes at industrial enterprises operating in our country today is unsatisfactory. The following circumstances prevent this:

- the lack of a legislative framework governing the new economic order, or its inconsistency with the technological changes taking place at the present stage;
- the emergence of new technologies, objects and subjects of economic relations, the rapid growth of information, which has become a form of capital
- insufficient training of qualified personnel, lack of human capital;
- large amounts of data create large information flows and risks associated with ensuring information security during data transmission, processing and storage;
- the lack of financial resources of the enterprise and the high cost of projects aimed at digitalization of the industry;

- the conservative nature of individual industries. Little attention is paid to these processes, knowing that the widespread use of digital technologies opens up new opportunities for enterprises.

Developing an effective approach to managing business processes and new technologies in an enterprise is not an easy task. The application of innovative management theories and methodologies is required to ensure the sustainable development of an industrial enterprise. The processes taking place in an enterprise require constant attention from management, process owners, and staff involved in the implementation of business processes. In the process of process improvement and optimization, it is necessary to maintain the level of efficiency and progress achieved as a result of the implementation of the process approach. The modern method of the digital economy is characterized by the development of a new generation of enterprise management concepts. These concepts are characterized by processes such as industrial robots, uncontrolled transport, the use of software-based equipment for digital control, the use of 3D printers, storage of large amounts of data in cloud technologies, artificial intelligence, the industrial Internet of Things (Internet of Things, IoT), innovations in blockchain, simulation and mathematical modeling and forecasting., cybersecurity.

When implementing the algorithm of the digital transformation process of an enterprise, depending on the chosen priority, it can be suggested to use the following modern concepts in enterprise management. For example, the use of IoT technologies makes it possible to transform an organization's business processes and significantly increase operational efficiency by reducing the duration of production and the duration of the production cycle; reduce operating costs and increase energy efficiency; reduce the number and duration of equipment downtime, and increase its utilization rate.; provides improved product quality.

The use of multi-coordinate machining centers based on digital control also makes it possible to move working tools during machining when performing turning, grinding, and grinding operations. Such four- to six-axis equipment ensures the simultaneous execution of several processes when processing any complex parts, which, in turn, leads to a shorter production cycle. Digital production ensures a high level of labor productivity and high product quality, remote collaboration between project participants, and contributes to a significant improvement in cost control.

The use of hardware and software complexes for production and control leads to the prevention of errors that occur under the influence of the human factor. The development of the industrial Internet of Things. as a result of the use of artificial intelligence based on neural network technologies, it becomes possible to create a "smart production" capable of promptly making decisions about the rational organization of production in the face of problematic situations. The modern paradigm (visibility) of production organization reflects the possibility of adapting equipment to the production of a variety of products, reducing the number of workers employed in production and maintenance, and moving to the production of

new types of products based on the introduction of flexible technologies and robotic systems.

Digital control-based equipment makes it possible to control production processes with high accuracy and make independent decisions based on the data obtained. There are several levels of modern digital production systems. At the physical level, sensors, sensors, and equipment networks are located in the workshops.

Programmable logic controllers (PLC - programmable Logic Controller) are installed at the control and management level of the equipment, with the help of which information is collected.

The highest level of management consists of enterprise resource planning systems (erp-Enterprise Resource Planning), which are hosted on data center servers.

The organization of digital production makes it possible to reduce the time interval between the order for the design of a product in accordance with the needs of consumers and the manufacture of finished products based on a digital model. The use of digital manufacturing technologies allows industrial robots to create complex-looking products using 3D printers.

The breakthrough of the digital production concept is that already at the stage of product modeling in a virtual environment, production costs are reduced by identifying and eliminating errors. The use of blockchain technologies improves the activities of an enterprise or organization in the field of financial transactions and transactions with tangible and intangible assets, as well as changes the management system by tracking and recording completed transactions (external and internal).

Summarizing the above, the following algorithm (algorithm) is proposed for improving the implementation of digital technologies in industrial enterprises:

When forming a roadmap, it is necessary to take into account the level of material and technical potential and the need for its modernization, as well as the level of personnel potential of the enterprise and the need to improve the skills and motivation of the organization's personnel.

Conclusion

In conclusion, it can be noted that the decision to use modern technologies in the organization of production affects the activities of the entire enterprise, and it is necessary to take into account the risks that may arise with it. Only a thorough planning and comprehensive study of promising technologies, their pros and cons, can you get the desired effect. It is also necessary to take into account the peculiarities of the management of the enterprise in the conditions of digitization. It is possible to create flexible organizational structures using digital information technologies. During the period of digitization, the organization and management of the activities of an industrial enterprise imposes requirements on the head of the organization for professional knowledge, skills and qualifications in both management, production technologies and IT technologies.

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XORIY TILLARNI O'RGATISHDA YOQIMLI PSIXOLOGIK MUHITNI YARATISHNING BA'ZI USULLARI

Annotatsiya: Ushbu maqola xorijiy tillarni o'qitishda o'quvchilarning kreativ fikrlash ko'nikmalarini rivojlantirish masalalariga bag'ishlangan. Unda kreativ fikrlashning mohiyati, uning xorijiy tilni o'rganishdagi ahamiyati va asosiy yondashuvlar yoritilgan.

Kalit so'zlar: Konfutsiy, Psixologik muhit, Xorijiy tillarni o'qitish, dustona munosabat, ijodiy yondashuv, muammoli vaziyatlar, Guruh bo'lib ishlash, mammo va his tuyg'ular, yutuqlarini e'tirof etish, interaktiv o'qitish usullari, innovatsion metodlar, muloqot uchun qulay sharoitlar, psixologik jihatlar.

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SOME METHODS OF CREATING A POSITIVE PSYCHOLOGICAL ENVIRONMENT IN TEACHING FOREIGN LANGUAGES

Abstract: This article is devoted to the issues of developing students' creative thinking skills in the process of teaching foreign languages. It highlights the essence of creative thinking, its importance in language learning, and the main approaches to fostering it.

Keywords: Confucius, psychological environment, foreign language teaching, friendly relations, creative approach, problem situations, group work, emotions and feelings, recognition of achievements, interactive teaching methods, innovative methods, favorable communication conditions, psychological aspects.

“Ta'lim insonni ijtimoiy va axloqiy jihatdan mukammallashtiradi.”
(Aristotel)

Bugungi globalashuv davrida chet tilini o'rganish nafaqat bilim, balki zaruratga aylanmoqda. Tilni samarali o'rganishning eng muhim omillaridan biri — bu tabiiy til muhitini yaratishdir. Tabiiy til muhiti o'quvchining chet tilini sun'iy emas, balki hayotda qanday ishlatilsa, xuddi shunday shaklda o'zlashtirishiga imkon beradi. Bu yondashuv tilni dars mavzusi sifatida emas, balki muloqot vositasi sifatida qabul qilishga yordam beradi. Tabiiy til muhitining asosiy maqsadi chet

tilidan real hayotiy vaziyatlarda foydalanish imkoniyatini yaratishdir. Bunday sharoitda o'quvchi xuddi chet elda yashayotgandek tajriba orttiradi. O'qituvchi dars davomida imkon qadar chet tilida gapirishi, o'quvchilarni ham o'zaro shu tilda suhbatlashishga undashi lozim. Oddiy salomlashishdan tortib, mashg'ulotning barcha bosqichlarida chet tilidan foydalanish o'quvchilarni faol muloqotga jalb qiladi.

Sinfda yoqimli psixologik muhitni hosil qilish – o'quvchilarning bilim olishga bo'lgan qiziqishini oshirish, o'zaro hurmat, do'stona munosabat va ijobiy imotsiyalarni shakllantirishda muhim ahamiyatga ega. Yoqimli munosabatlarni hosil qilish uchun quyidagi samarali usullarni keltirish mumkin :

O'qituvchi va o'quvchi o'rtasida ishonchli munosabat yaratish- o'qituvchi va o'quvchi o'rtasida o'zaro ishonchli munosabatni yarata olish zarur. Buning uchun avvalo o'quvchilarga do'stona munosabatda bo'lish kerak. Shu bilan birga har bir oquvchining fikrini qadrlash hamda uni diqqat bilan tinglash zarur. Bundan tashqari o'quvchilarni tanqid qilish o'rniga ularga yo'l yo'riq ko'rsatish, to'g'ri maslahat berish, vaqti vaqti bilan ijobiy taraflarini ta'kidlab turish kerak.

O'quvchilar o'rtasida o'zaro hurmat va hamkorlik o'rnatish- o'quvchilar o'rtasida o'zaro hurmat va hamkorlik o'rnatish olish kerak. Ushbu maqsadda dastlab guruh - guruh bo'lib ishlash maqsadlarini tashkil etish zarur. Shu bilan birga o'quvchilarni bir-biriga ijobiy fikr aytishni hamda bir-birini rag'batlantirishni o'rgatish zarur. Bundan tashqari o'quvchilarga Zo'rovonlik, masxara qilish va kamsitishning oldini olish kerak bo'ladi.

Emotsional salomatlikni qo'llab quvvatlash- o'quvchilar o'rtasida Emotional salomatlikni qo'llab quvvatlash zarur deb hisoblayman. Bunda albatta darslar davomida dam olish yoki gimnastik mashqlar tashkil etish zarur bo'ladi. Bundan tashqari sinfda o'quvchilarga erkin ifoda qila olish, mavjud muammo va his tuyg'ular bilan bo'lishish imkoniyatini yaratish kerak.

Ijobiy intizom va kichik qoidalar barpo etish -sinfda o'qituvchi va o'quvchilar o'rtasida ijobiy intizom muhitini barpo etish hamda sinf uchun kichik qoidalar joriy etish mumkin. Bunday vaziyatda o'qituvchi sinf qoidalarini o'quvchilar bilan birga tuzishi shart. Shuni ta'kidlash joizki, o'quvchilar tomonidan yo'l qo'yilgan xatoliklarda ularni intizomni buzganligi uchun jazolash emas, ularni tushunishga harakat qilish kerak.

Chet tilini o'rgatish texnologiyasi — bu chet tillarini samarali o'rgatishga qaratilgan usullar, vositalar, platformalar va texnologik yechimlar majmuasidir. Bugungi kunda bu soha an'anaviy dars metodlaridan tortib, zamonaviy raqamli vositalargacha bo'lgan keng doirani qamrab oladi.

Tilni tabiiy muhitda o'rgatishda rolli o'yinlar muhim o'rin tutadi. Masalan, restoranda buyurtma berish, aeroportda ro'yxatdan o'tish yoki do'konda xarid qilish kabi vaziyatlarni taqlid qilish o'quvchilarni hayotiy tajribaga tayyorlaydi. Bunday mashg'ulotlarda xatolar qo'rqinchli bo'lmay qoladi, aksincha o'quvchilarning ishonchi ortadi. Shuningdek, filmlar, seriallar, qo'shiqlar va podkastlar kabi multimedia vositalaridan foydalanish tinglab tushunish ko'nikmasini rivojlantiradi. Zamonaviy davrda esa sun'iy intellekt, jumladan ChatGPT kabi chatbotlar bilan

muloqot qilish tilni yanada faol qo'llash imkonini beradi. O'qituvchi dars jarayonida turli metodlardan foydalansa samaradorlik oshadi. Muammoli vaziyatlarni yaratish, kichik sahnalar ijro etish, o'quvchilarga ijobiy fikr-mulohaza berish va turli o'yinlardan foydalanish darsni jonli qiladi. Masalan, "Siz notanish mamlakat aeroportidasiz va yudingiz yo'qolib qoldi" kabi topshiriqlar o'quvchilardan ijodkorlikni talab etadi va ularni faol gapirishga undaydi.

Chet tilini o'rgatishda psixologik muhit ham hal qiluvchi ahamiyatga ega. O'qituvchi o'z kayfiyatini darsxonaga olib kirmasligi, o'quvchilarni tabassum bilan kutib olishi va ijobiy kayfiyat yaratishi kerak. Ideal dars talabchanlik, ishchan muhit va qulay muloqot uyg'unligidan iborat bo'lishi lozim. Bunda o'qituvchining aktyorlik mahorati, ovoz ohangi va hazil tuyg'usi ham muhim o'rin tutadi. Hazil o'quvchilarda ijobiy emotsiyalar uyg'otadi, darsni qiziqarli qiladi va samaradorlikni oshiradi.

Xulosa qilib aytganda, chet tilini samarali o'rgatish uchun metodik yondashuv va psixologik muhit uyg'un bo'lishi zarur. Yoqimli va tabiiy muhit o'quvchilarni erkinlashtiradi, ularning o'ziga ishonchini oshiradi, xatodan qo'rqmasdan so'zlashishga undaydi va tilni haqiqiy aloqa vositasi sifatida o'zlashtirish imkonini beradi. Shunday qilib, muvaffaqiyatli darsning kaliti metodik mahorat bilan bir qatorda ijobiy psixologik muhit yaratishda namoyon bo'ladi. Ushbu maqolada psixologik jihatni, shuningdek, ma'lum bir jamoaning o'zaro munosabatlari, ya'ni o'quvchi va o'qituvchi o'rtasidagi munosabatlar, shuningdek, dars o'tilayotgan atmosfera sifatida ko'rib chiqish taklif qilinmoqda.

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THE ROLE OF CENTRAL ASIA IN QATAR'S FOREIGN POLICY: OPPORTUNITIES AND PRIORITY DIRECTIONS

Annotation: *This article explores the role and significance of Central Asia in Qatar's foreign policy. In recent years, Qatar has intensified its cooperation with the region's countries, particularly in the fields of energy, investment, and trade. At the same time, diplomatic dialogue and cultural exchanges have been expanding considerably. The study focuses on the main priorities of cooperation, the opportunities available for both sides, and the implications of these processes for regional stability and development.*

Keywords: *Central Asia, Qatar, Uzbekistan, diplomatic relations, investment, trade and economic cooperation, international relations.*

In the current era of globalization, the foreign policy activities of small states are assuming an increasingly significant role in international relations. Their external strategies are often shaped by factors such as economic interests, security concerns, and the pursuit of regional stability. Among such states, Qatar has emerged as an active diplomatic player in the Middle East, gradually attaining a distinctive standing in the international arena through its economic potential and experience in mediation.

One of the defining features of Qatar's foreign policy is its effective utilization of energy resources, the expansion of investment opportunities, and active engagement in the global diplomatic arena. At the same time, Qatar seeks to develop its foreign relations not only with Middle Eastern countries but also with other regions, including Central Asia.

Central Asia holds exceptional geopolitical, geo-economic, and geostrategic significance. The region is rich in natural resources, situated at the crossroads of major transport and communication corridors, and plays a vital role in global security matters. For Qatar, cooperation with Central Asian states presents opportunities to access new markets, implement investment projects, enhance logistical networks, and expand its influence on the international stage.

The relevance of this topic lies in the fact that the Central Asian dimension of Qatar's foreign policy remains insufficiently studied, while at present a new stage of bilateral and multilateral cooperation is emerging. In particular, the prospects for expanding economic, diplomatic, and cultural-humanitarian collaboration with Uzbekistan and other regional states deserve special attention.

In this regard, the present article analyzes the core principles of Qatar's foreign policy, examines the formation and development of its relations with Central Asian states, and highlights - on a theoretical and analytical basis - the role and priority directions of Central Asia in Qatar's external strategy.

Qatar's foreign policy began to take shape after the country gained independence from the United Kingdom on September 3, 1971. Its underlying concept was directed toward consolidating national sovereignty, ensuring economic stability, and enhancing its standing in the international arena. In the immediate post-independence years, Qatar's foreign policy was primarily focused on regional security issues. However, following the accession of Sheikh Hamad bin Khalifa Al Thani to the throne in 1995, the state embarked on a more proactive and independent course. From this period onward, Qatar increasingly asserted itself as a small but influential geopolitical actor within the Middle East.

One of the key principles of Qatar's foreign policy is the use of energy resources as an instrument of diplomacy. Since the late 1990s, the country has become one of the world's leading producers and exporters of liquefied natural gas (LNG). According to 2023 data, Qatar accounted for nearly 20 percent of global LNG exports, ranking alongside Australia and the United States as a dominant supplier. Its energy potential has enabled Qatar to conclude long-term agreements with Japan, South Korea, India, China, and member states of the European Union. For instance, in 2022, QatarEnergy signed a 15-year contract with Germany for LNG supply. Such agreements provide Qatar not only with substantial economic revenues but also with enhanced political leverage in the international arena.

Another principle of Qatar's foreign policy is mediation diplomacy. Doha has frequently been recognized as a "neutral negotiation platform" for resolving international conflicts. For instance, in 2008, under Qatar's mediation, the "Doha Agreement" was signed to end the political crisis in Lebanon. During the 2010s, Qatar also hosted peace talks between the Sudanese government and rebel groups in Darfur. One of the most significant examples of its mediation role was the negotiation process on Afghanistan in 2020–2021, when Qatar facilitated dialogue between the United States and representatives of the Taliban movement. Notably, the U.S.–Taliban agreement signed in Doha in February 2020 considerably enhanced Qatar's international prestige. Furthermore, Qatar has been actively engaged in the Palestinian issue, providing billions of dollars in humanitarian aid to the Gaza Strip while positioning itself as a key mediator.

Thus, Qatar's post-independence foreign policy concept, energy diplomacy, and mediation practice together constitute the three main pillars of its external strategy. While the effective use of energy wealth has strengthened the country's economic power, mediation diplomacy has enabled it to gain recognition as an influential and conciliatory actor in international relations, despite its status as a small state. These factors have transformed Qatar into a significant geopolitical hub not only in the Middle East but also on the global stage.

The first stage of diplomatic relations between Qatar and the Central Asian states began to take shape in the late 1990s and early 2000s. For instance, official

diplomatic ties between Qatar and Kazakhstan were established in July 1993. Kazakhstan opened its embassy in Doha in May 2007, while Qatar inaugurated its embassy in Astana in October 2016. During this period, as the Middle East and GCC countries became one of the key directions of Kazakhstan's foreign policy, Qatar likewise viewed Kazakhstan as a promising partner for cooperation.

Alongside the consolidation of diplomatic relations, high-level visits marked the development of bilateral ties. In May 1997, Kazakhstan's Foreign Minister K. Tokayev visited Qatar, followed by an official visit of Qatari Foreign Minister Hamad bin Jassim Al-Thani to Kazakhstan in April 1998. In April 1999, Sheikh Hamad bin Khalifa Al Thani paid his first visit to Kazakhstan, during which Qatar allocated USD 6.8 million to support the construction of the new capital, Astana (Embassy of Qatar in Kazakhstan).

In January 2014, Sheikh Tamim bin Hamad Al Thani visited Kazakhstan, where the two countries signed agreements on taxation, as well as memoranda in the fields of energy and investment. A more recent visit took place on 7 June 2023, when Sheikh Tamim Al Thani met with President Tokayev in Astana to discuss multiple avenues of cooperation, including Qatar's participation in the Astana International Forum (Astana Times, 2024). Furthermore, Qatar's financial contributions to Kazakhstan - including investments worth approximately USD 35 million in healthcare facilities, schools, and social infrastructure - have further strengthened bilateral relations.

Diplomatic relations between Qatar and Uzbekistan have also developed steadily. Official ties were established on 27 November 1997. In June 2023, at the invitation of the President of Uzbekistan, Sheikh Tamim bin Hamad Al Thani paid his first official state visit to the country. During the meeting held in Samarkand, the parties discussed avenues for enhancing strategic potential in energy, tourism, agriculture, transport, and logistics. They also signed investment agreements worth USD 12 billion, representing Qatar's largest investments in Uzbekistan (Uzbekistan.org, 2023).

Subsequently, on 2 October 2023, President Shavkat Mirziyoyev and Sheikh Tamim met in Doha, where they agreed to develop a "road map" aimed at expanding political dialogue, trade and economic cooperation, as well as scientific, cultural, and humanitarian ties. Moreover, in September 2022, on the sidelines of the SCO Summit, Qatar obtained the status of "Dialogue Partner," and on 7 May 2023, Qatar inaugurated its diplomatic mission in Tashkent.

Intergovernmental cooperation has also expanded with major projects in energy, transport, logistics, and agriculture. One of the most significant initiatives includes collaboration with Nebras Power on the planned construction of a 1,600 MW thermal power plant in Syrdarya region (Nebras Power, 2022).

Relations with Kyrgyzstan and Tajikistan have also been gradually consolidated. At the beginning of 2023, as part of a Central Asian tour initiated outside Uzbekistan, a Qatari delegation led by Sheikh Tamim bin Hamad Al Thani visited Kyrgyzstan and Tajikistan. In Bishkek, 13 cooperation agreements were signed, including in the field of military collaboration. During the visit to Dushanbe,

15 documents were concluded, covering areas such as hydropower, agriculture, and tourism. Notably, in Tajikistan, the official opening ceremony of the Central Cathedral Mosque of Dushanbe - largely financed by Qatar - was held; approximately 70% of the construction costs of this mosque were covered by Qatari funding.

Relations with Turkmenistan have similarly been strengthened through diplomatic infrastructure. Qatar opened its embassy in Ashgabat in 1996, and during the official visit of the President of Turkmenistan to Doha in March 2023, a new embassy building was inaugurated. On this occasion, the heads of state held discussions on expanding bilateral cooperation, thereby reinforcing the political foundation of their relations.

In relations between Central Asia and Qatar, steady growth is observed through reciprocal diplomatic visits, the opening of embassies, and high-level meetings. Economic volumes, investment participation, and political trust with Kazakhstan and Uzbekistan, the establishment of new cooperation formats with Tajikistan and Kyrgyzstan, and the expansion of diplomatic infrastructure with Turkmenistan serve as clear examples of this trend. These developments confirm that Qatar's foreign policy in Central Asia constitutes a distinctive and consistent direction.

Trade and economic cooperation between Qatar and the Central Asian states is developing dynamically, and recent large-scale initiatives and practical agreements are taking this process to a new stage. For instance, in order to expand economic ties with Kazakhstan, a meeting was held on July 3, 2023, in Astana between Murat Karimsakov, Chairman of the International Chamber of Commerce of Kazakhstan, and Ahmad Mohammed Al-Sayed, Qatar's Minister of State for Foreign Affairs in charge of foreign trade. Subsequently, major investment programs were discussed - Qatar plans to invest approximately USD 20 billion into the Kazakh economy, covering such key sectors as energy, agriculture, telecommunications, finance, construction, logistics, high technology, and the green economy.

In 2023, the trade turnover amounted to USD 9.9 million, with Kazakhstan exporting meat and livestock products worth USD 5.6 million to Qatar. The overall export potential is estimated at USD 240 million.

Trade and economic relations with Uzbekistan have also begun to revive. On February 26, 2025, Deputy Chairman of the Chamber of Commerce and Industry of Uzbekistan, D. Kurbanov, met with Sheikh Khalifa bin Jassim Al-Thani, Chairman of the Qatar Chamber of Commerce. During the meeting, issues such as expanding trade and economic cooperation, attracting investment, facilitating business exchanges, and organizing delegation visits were discussed.

Furthermore, the establishment of the Uzbekistan–Qatar Business Council in Doha on October 1, 2023 has served as an important mechanism for the systematic development of bilateral relations.

According to a report published by The Peninsula Qatar on November 12, 2024, Uzbekistan expressed its readiness to cooperate with Qatari investors in

agriculture, construction materials, tourism, real estate, and other sectors. Although bilateral trade turnover in 2025 remains relatively modest, both sides declared through the press their intention to expand trade volumes. The Prime Minister stated that in 2024 trade reached USD 1.8 million, with plans to further increase this figure in the coming years. In addition, major economic cooperation agreements similar to those signed with Kazakhstan are gradually being established with Uzbekistan as well - for instance, trade, economic, and investment agreements are regularly reviewed and are expanding year by year.

These processes constitute the following key pillars in shaping the Qatar–Central Asia economic cooperation model:

1. Foreign capital potential and attracted investments – USD 20 billion investment commitments to Kazakhstan and the institutionalization of trade and investment dialogue with Uzbekistan;

2. Diversification of export–import structures – exchange in meat, livestock, energy, agriculture, and other sectors;

3. Activation of inter-organizational mechanisms – strengthening of trade and industrial ties through chambers of commerce, business councils, and cooperation forums;

4. Trade growth strategies – despite relatively low volumes, the development of continuous mechanisms aimed at increasing flows, such as annual enhancements in partnership levels.

This trade and economic cooperation moves forward as a consistent effort not only to strengthen political but also economic foundations between the countries. Construction projects, energy investments, trade flows, and diplomatic visits complement each other and unfold in close connection with the political, diplomatic, and economic principles outlined in the above sections.

Economic Cooperation – Energy, Transport-Logistics, and Investments.

Qatar identifies economic cooperation with Central Asia as a strategic priority, demonstrating significant potential in the fields of energy, transport and logistics, as well as investments.

Cooperation with Kazakhstan in the Energy and Infrastructure Sectors.

On March 21, 2024, during negotiations held in Doha between Kazakhstan's Prime Minister Olzhas Bektenov and Qatar's Deputy Prime Minister Sheikh Mohammed bin Abdulrahman Al-Thani, an agreement was reached to implement strategic investment projects worth \$17.6 billion [Times of Central Asia]. Within this framework, projects include the construction of gas processing plants worth \$5.7 billion, the second line of the Aktobe–Kostanay and Beineu–Bozoi–Shymkent gas pipelines valued at \$7.7 billion, a 1,100 MW combined-cycle gas power plant and a 350 MW hydroelectric power station worth \$2.7 billion, as well as enterprises for deep processing of wheat, peas, and dairy products [Astana Times].

According to another source, on October 10, 2024, Kazakhstan's upper house of parliament ratified this strategic cooperation agreement, under which nine projects will be implemented in the fields of telecommunications, energy, transport,

petrochemicals, agriculture, and finance. Under this arrangement, Qatar's investments are projected to reach \$20 billion.

Furthermore, a report by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) indicates that in 2024, Kazakhstan attracted a total of \$15.7 billion in investments, of which \$11 billion came from Qatar's UCC Holding. These projects encompass gas processing facilities, a new compressor station, and the development of two additional transit pipelines [Astana Times].

Economic Cooperation with Uzbekistan.

On November 10, 2024, during a meeting in Doha, members of the Qatari Businessmen Association (QBA) were advised to explore investment opportunities in Uzbekistan's agribusiness, energy, and mining sectors, according to Gulf Times.

Furthermore, Uzbekistan's Minister of Investment, Industry, and Trade, Laziz Kudratov, emphasized that in 2023 the country attracted a total of \$22.4 billion in foreign direct investment (FDI). He also set a target of mobilizing \$250 billion in FDI by 2030 [Global Finance Magazine].

Earlier, in May 2023, it had been proposed to establish a joint Uzbekistan–Qatar Business Forum. The aim of this platform was to expand cooperation in two primary directions - particularly in infrastructure, industry, energy, and agriculture.

Cooperation with Tajikistan.

On October 8, 2024, during his visit to Qatar, President Emomali Rahmon of Tajikistan discussed with Qatari officials a range of priority areas for firm economic partnership, including agriculture, transport infrastructure, logistics, civil aviation, and tourism, alongside Uzbekistan.

Within the framework of this visit, the establishment of a Joint Economic and Investment Fund between Qatar and Tajikistan was considered [Embassy of Tajikistan in Qatar, 2024]. The fund is expected to mobilize investments in energy, industry, mining, and logistics sectors.

A representative of the Qatar Businessmen Association (QBA) highlighted that Kyrgyzstan had already invested \$62 million in the first phase of the Diar Dushanbe residential project in Tajikistan [The Peninsula Qatar, 2023].

Cooperation with Turkmenistan

In March 2023, during the visit of the President of Turkmenistan to Qatar, the two states ratified the Agreement on the Promotion and Protection of International Investments. This development is considered an important foundation for expanding investment cooperation.

□ Furthermore, Turkmenistan announced its intention for Qatar to become one of the major financial partners in the TAPI (Turkmenistan–Afghanistan–Pakistan–India) gas pipeline project. source

□ In March 2025, during a meeting held in Doha, the parties went as far as to discuss cooperation in the fields of energy, investment, and transport, including the Serhetabat–Herat section of the TAPI project.

□ Qatar was initially a member of the Ashgabat Agreement, signed in 2011. Although it withdrew from participation in 2013, this still highlights Qatar's strategic focus on the transport and logistics sector. Source

Cooperation with Kyrgyzstan

In June 2023, during an interview with QNA, the Chairman of the National Investment Agency of Kyrgyzstan emphasized Qatar's growing interest in the fields of aviation, energy, construction, and real estate.

□ At the same time, Kyrgyzstan is exploring opportunities for the export of bio-supplements and natural products - including fruits, meat, and forestry products - to Qatar, which could provide Qatar with a reliable source of high-quality imports.

Cultural and Humanitarian Sphere: Education, Sports, Culture, and Religious-Educational Projects

In its foreign policy towards Central Asia, Qatar prioritizes not only economic and political interests but also cultural and humanitarian diplomacy. Within this framework, Qatar actively implements its "soft power" strategy.

Education Sector – Established in 1997, Education City has become a global hub of education. The complex currently hosts branches of leading U.S. and U.K. universities, such as Georgetown University, Carnegie Mellon University, and UCL Qatar. This platform is also open to youth from Central Asia, with students from Kazakhstan, Uzbekistan, and Kyrgyzstan currently studying there. For Qatar, this represents an opportunity to help shape the region's future elites and foster long-term cooperation.

Healthcare and Education Projects – Qatar has also engaged in humanitarian and socially oriented initiatives in Central Asia. For instance, in 2017 Qatar allocated 35 million USD to support the construction of two maternity hospitals in Almaty and a school in Astana. (Source: Tengrinews.kz, January 16, 2017)

Culture and Sports – Qatar consistently emphasizes the development of cultural and sports cooperation with Central Asian countries. For instance, during the 2022 FIFA World Cup [FIFA official site, Qatar 2022 volunteering platform], volunteers from Uzbekistan and Kazakhstan actively participated, highlighting expanding ties through sports diplomacy. Moreover, Qatar has promoted collaboration with Central Asian youth through sports scholarships and football academies, creating new opportunities for engagement.

Religious and Educational Projects – Through non-governmental organizations such as Qatar Charity and the Sheikh Eid Foundation, Qatar has funded a number of socio-religious initiatives in Uzbekistan, Kazakhstan, and Kyrgyzstan. These projects include the construction of mosques, schools, and cultural centers, strengthening Qatar's religious-educational influence in the region.

Qatar's increasing foreign policy activism in recent years - particularly its efforts to expand relations with Central Asian countries - demonstrates its emergence as a new geopolitical and geoeconomic actor in the region. Between 2012 and 2023, Qatar opened embassies in all Central Asian states, thereby consolidating diplomatic relations on an institutional basis. This process is directly

linked to the three pillars of Qatar's foreign policy: energy exports, mediation diplomacy, and economic partnership.

For Central Asian countries, cooperation with Qatar offers opportunities to attract foreign investment, expand transport and logistics capacities, implement joint projects in the energy sector, and strengthen their international standing. At the same time, it is crucial for the countries of the region to pursue a balanced approach, aligning Qatar's interests with their own national priorities.

Thus, the intensification of ties between Qatar and Central Asia holds strategic significance for the region, creating new opportunities in terms of regional security, sustainable development, and participation in a multipolar international system.

The analysis demonstrates that Qatar's growing presence in Central Asia is not merely limited to economic investment and humanitarian initiatives, but reflects a broader strategic effort to diversify its foreign policy beyond the Middle East. Through energy diplomacy, mediation, and large-scale investments, Qatar seeks to strengthen its influence in a region traditionally dominated by major powers such as Russia and China. Unlike these actors, Qatar employs a combination of soft power instruments – including cultural, educational, and religious projects – which enables it to position itself as a complementary rather than confrontational partner.

At the same time, Qatar's initiatives intersect with the interests of Turkey and Iran, both of which also emphasize cultural and religious affinity with Central Asia. While Turkey promotes pan-Turkic cooperation and Iran relies on historical and religious ties, Qatar frames its engagement around financial capacity, mediation reputation, and global connectivity. This diversification allows Central Asian states to benefit from an expanded network of partnerships, while reducing over-dependence on traditional actors.

However, Qatar's long-term role in the region will depend on its ability to maintain a balanced approach that respects local priorities, ensures tangible benefits for Central Asian economies, and avoids perceptions of external overreach. If managed effectively, Qatar's involvement could contribute to a more multipolar balance in Central Asia, supporting the region's aspirations for sustainable development, security, and international diversification.

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RECENT DIAGNOSTIC ADVANCEMENTS IN CHRONIC VIRAL HEPATITIS B

Abstract: *Chronic hepatitis B virus (HBV) infection remains a global public health problem, affecting over 250 million people worldwide and causing significant morbidity and mortality due to cirrhosis and hepatocellular carcinoma. Traditional diagnostic approaches such as HBsAg detection, HBV DNA quantification, and serological markers remain central to clinical practice. This review summarizes the latest diagnostic advancements in HBV, highlighting their relevance for global and regional practice, with particular emphasis on applicability in Central Asia.*

Keywords: *chronic hepatitis B, HBcrAg, pre-genomic RNA, biomarkers, elastography, digital PCR, artificial intelligence, Uzbekistan.*

Introduction. Hepatitis B virus infection is a major cause of liver-related disease worldwide, particularly in regions with high prevalence such as Asia and sub-Saharan Africa. Despite widespread vaccination programs, HBV remains endemic in Central Asia, including Uzbekistan, where co-infection with hepatitis D virus further complicates clinical outcomes [1]. Traditional diagnostics, including HBsAg and HBV DNA testing, although widely used, have limitations in predicting treatment response and long-term outcomes. Recent technological advancements aim to overcome these gaps and support personalized management [2].

However, in recent years novel diagnostic technologies have emerged, improving accuracy in evaluating viral replication, liver fibrosis, and treatment response. Among them, hepatitis B core-related antigen (HBcrAg), pre-genomic RNA (pgRNA), next-generation sequencing (NGS), and digital droplet PCR (ddPCR) have shown potential for refining disease monitoring. Non-invasive tools, including transient elastography and serum fibrosis panels, provide valuable alternatives to liver biopsy. Artificial intelligence (AI) and machine learning-based algorithms are increasingly applied for predictive modeling and interpretation of complex biomarker patterns.

Emerging biomarkers. Hepatitis B core-related antigen (HBcrAg): HBcrAg reflects transcriptional activity of covalently closed circular DNA (cccDNA), providing better insight into viral persistence. Studies have shown that HBcrAg

correlates with HBV DNA and intrahepatic cccDNA levels, serving as a potential surrogate marker for monitoring disease activity and therapeutic response [3].

Pre-genomic RNA (pgRNA): Serum HBV pgRNA represents active transcription from cccDNA and predicts viral rebound after nucleos(t)ide analogue discontinuation. Measurement of pgRNA by sensitive PCR methods has become an important research tool with potential for clinical application [4].

Advanced molecular diagnostics. Digital droplet PCR (ddPCR): ddPCR offers higher sensitivity than conventional PCR, enabling precise quantification of low-level viremia and resistance mutations. This is particularly relevant for patients under long-term antiviral therapy.

Next-generation sequencing (NGS): NGS allows simultaneous detection of viral genotypes, mutations, and quasispecies diversity. It is essential for studying drug resistance, immune escape variants, and regional genotype distribution, including HBV genotype D, which predominates in Central Asia [5,8].

CRISPR-based diagnostics: Though still in development, CRISPR/Cas systems are being explored for rapid and highly specific HBV DNA detection, holding promise for point-of-care applications.

Non-invasive assessment of liver damage

Liver biopsy, once the gold standard, is increasingly being replaced by non-invasive techniques:

Transient elastography (FibroScan): widely adopted for assessing fibrosis and cirrhosis, offering real-time results.

Magnetic resonance elastography (MRE): provides highly accurate fibrosis staging, though less available in resource-limited settings.

Serum fibrosis panels (FIB-4, APRI, ELF score): validated for fibrosis prediction and used as alternatives in primary care [6,9].

Imaging and artificial intelligence. Ultrasound-based elastography combined with AI algorithms enhances diagnostic accuracy in differentiating fibrosis stages. Machine learning models using laboratory and imaging data improve prediction of disease progression and treatment response. Such approaches may be particularly useful in Uzbekistan, where access to advanced molecular tests remains limited.

Regional perspectives. In Uzbekistan and neighboring Central Asian countries, HBV remains a pressing problem. Genotype D predominates, often associated with poorer response to interferon therapy and higher risk of progression [5,10]. Local studies emphasize the need for integrating advanced diagnostics, including non-invasive fibrosis assessment and molecular biomarkers, into clinical practice. The implementation of modern technologies could improve early detection and optimize treatment strategies in Samarkand and other high-burden regions.

Conclusion

Recent diagnostic advancements in HBV, including novel biomarkers (HBcrAg, pgRNA), molecular methods (ddPCR, NGS), non-invasive fibrosis assessment, and AI-supported imaging, provide new opportunities for precision medicine. While implementation remains limited in low-resource regions,

integration of these tools into clinical practice will significantly improve disease monitoring and patient outcomes. Expanding access to advanced diagnostics in Central Asia, particularly Uzbekistan, is essential for better management of HBV and reduction of its burden.

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NEW APPROACHES TO TREATING CHRONIC VIRAL HEPATITIS B

Abstract: *Chronic hepatitis B virus (HBV) infection remains a major global health problem, affecting over 250 million people worldwide. Despite the effectiveness of nucleos(t)ide analogues and interferon therapy in controlling viral replication, functional cure defined as hepatitis B surface antigen (HBsAg) loss remains rare. This review summarizes recent advances in novel therapies for chronic HBV, their mechanisms of action, and future perspectives for achieving functional cure.*

Keywords: *chronic hepatitis B, siRNA, capsid inhibitors, CRISPR, therapeutic vaccines, immune modulation, functional cure.*

Introduction

Chronic HBV infection is a leading cause of cirrhosis and hepatocellular carcinoma worldwide [1]. Current treatment options are limited to nucleos(t)ide analogues (NAs) and pegylated interferon-alpha (Peg-IFN α). While these therapies suppress viral replication and improve survival, they rarely achieve functional cure. Consequently, new approaches are urgently needed to eliminate cccDNA reservoirs and restore antiviral immunity [2].

Current therapies and their limitations. Nucleos(t)ide analogues such as entecavir and tenofovir effectively inhibit reverse transcription, but long-term therapy is often required, and viral rebound occurs after cessation [3]. Peg-IFN α induces immune-mediated clearance but is limited by tolerability and modest efficacy. Thus, there is an unmet need for therapies that target viral persistence and enhance immune control [4].

Small interfering RNAs and antisense oligonucleotides. RNA interference-based drugs, including siRNAs and antisense oligonucleotides, target viral transcripts, reducing HBsAg production. Clinical trials have demonstrated significant HBsAg decline when siRNAs are combined with NAs [2,8]. These therapies hold promise for breaking immune tolerance by reducing antigen load.

Capsid assembly modulators. Capsid assembly modulators disrupt nucleocapsid formation and block HBV replication at an early stage. Recent phase II trials reported reductions in viral DNA and RNA when combined with NAs [3]. This approach could complement siRNA-based strategies for deeper suppression of HBV replication.

CRISPR-based gene editing. Gene editing technologies such as CRISPR-Cas systems have been investigated for direct targeting of cccDNA, potentially eliminating the viral reservoir. Preclinical studies demonstrated efficient cleavage

of cccDNA and reduction in viral replication [4]. However, delivery methods and off-target effects remain key challenges.

Therapeutic vaccines and immune modulation. Therapeutic vaccines aim to restore HBV-specific T cell responses, which are typically exhausted in chronic infection. Several vaccine candidates showed improved immune activity, particularly when combined with siRNAs or immune checkpoint inhibitors [2]. Russian experts, including Surkova and Ivashkin (2021), emphasize the potential of immune-based therapies in combination regimens [5,9]. In recent years, novel treatment strategies have been developed targeting multiple steps of the HBV life cycle, as well as host immune responses. These include small interfering RNAs (siRNAs), antisense oligonucleotides, capsid assembly modulators, CRISPR-based gene editing, therapeutic vaccines, immune checkpoint inhibitors and combination regimens. Russian researchers also highlight the need to integrate these approaches into clinical practice, considering local epidemiological patterns and treatment availability.

Combination therapies. Most experts agree that no single agent is likely to achieve functional cure. Instead, combination strategies targeting multiple viral and immune pathways appear most promising [1]. Chulanov and colleagues (2023) note that integrating novel antivirals with immunomodulators could optimize outcomes in Russian patients, considering regional genotype distribution [6].

Perspectives. NGS and biomarker-based patient stratification may guide therapy selection in the near future. Bakulin and Ivashkin (2024) suggest that personalized approaches integrating virological and immunological markers are critical for effective therapy implementation in Russia [10].

Conclusion. Novel therapies for chronic HBV are moving beyond viral suppression toward functional cure. siRNAs, capsid inhibitors, CRISPR, and therapeutic vaccines represent exciting advances, especially in combination. Both international and Russian studies [1–7] underline the importance of developing standardized algorithms for integrating these therapies into clinical practice. Achieving functional cure will likely depend on personalized, multi-targeted approaches.

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RADIATSIYAVIY XAVFSIZLIGINI BOSHQARISH TIZIMINI TAKOMILLASHISH, IONLASHTIRUVCHI NURLANISHNI ANIQLASH VA O'LCHASHDA ISHLATILADIGAN USKUNALARNING AHAMIYATI

Annotatsiya. Radioaktiv moddalarning kelib chiqishi, nur manbalari va turlari, moddalar atomi, uning yadrosi haqida batavsil tushunchalar, radiofsol nuklidlar, ionlashtiruvchi nurlanishlarning manbalari, sinflanishi, nurlanishga yoliqish hodisasi, atomning parchalanishi natijasiga ta'sir qiluvchi omillar, radioaktivlikni, aktivlikni, nurlanish dozasini o'lchash birliklari, ularni tibbiyotda qo'llanilishi, nurlanishlar ta'sirining biologik, genetik oqibati, butun jamiyatning harakatlariga atrof-muhitning xolati bog'liq bo'lib, barcha radiatsiyaviy xavfsizlik masalalariga taalluqli va ta'sirga ega bo'lgan resurslar Milliy va Xalqaro tashkilotlar haqida fikr yuritiladi.

Kalitli so'zlar va iboralar: atom, yadro, radiofsol nuklidlar, nur manbalari va turlari, ionlashtiruvchi nurlanish, atom parchalanishi, tibbiyotda qo'llanilishi, radioaktivlikni, aktivlikni, nurlanish dozasini o'lchash, Milliy va Xalqaro tashkilotlar

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IMPROVEMENT OF THE RADIATION SAFETY MANAGEMENT SYSTEM, IMPORTANCE OF EQUIPMENT USED IN DETECTION AND MEASUREMENT OF IONIZING RADIATION.

Abstract. The origin of radioactive substances, sources and types of radiation, detailed concepts about the atom of substances, its nucleus, radionuclides, sources of ionizing radiation, classification, the phenomenon of exposure to radiation, factors affecting the result of atomic fission, units of measurement of radioactivity, activity, radiation dose, their use in medicine, biological, genetic consequences of radiation exposure, the state of the environment depends on the actions of the entire society, and all resources related to radiation safety issues and affecting national and international organizations are discussed.

Keywords: *atom, nucleus, radionuclides, sources and types of radiation, ionizing radiation, atomic fission, use in medicine, measurement of radioactivity, activity, radiation dose, national and international organizations*

Kirish. nurlanishdan foydalanilgan sanoat korxonalari sonining yildan- yilga ortishi, ishlatiladigan va ishlab chiqariladigan turli tabiiy va sun'iy moddalarga bo'lgan ehtiyojnini ham arzonligi, ham tabiiy xolda yurtimizda qazib chiqarilishi sababli XX asrning 90-yillari o'rtasida kelib, rasmiy chop etilgan ma'lumotlarga ko'ra, kimyoviy moddalarning soni 10 mingdan oshib ketgan bo'lsa, hozirgi vaqtda kelib ushbu ko'rsatgich 100 mingdan oshib ketdi. Ko'plab kimyoviy moddalar xavfsizlik qoidalariga rioya etilmagan holat foydalanayotgani natijasida, nafaqat korxonalarga, balki atrofdagi aholini sog'lig'iga ham xavfli ta'sir qilmoqda. Buni isboti sifatida texnik adabiyotlardagi ma'lumotlar tahlili shuni ko'rsatadiki, uch mingdan ortiq turli kimyoviy moddalar bilan insonlar har kuni muloqatda bo'layapti.

Radiatsiyaviy nurlardan avvallari ham tinchlik maqsadlarida ishlatilgan va hozirgi vaqtda ham foydalanilmoqda, er kurrasidagi mamlakatlarda tinchlik maqsadlarda ishlatilishining hilma-hilligi ushbu radiaktiv moddalarni harbiy maqsadlarda ham qollashga imkon berdi. Yadroviy qirq'in qurollarini kashf etilishi va undan hayotda foydalanishi butun yer yuzi aholisini xushyorlikka chaqirdi. Shu sababli radiatsiyaviy xavfsizlik masalalari eng muhim ehtiyojga aylandi.

Radiatsiyaviy xavfsizlik masalalari bilan alohida olingan mamlakatlar qatori, Xalqaro tashkilotlar ham mashg'ul bo'lib kelmoqda. O'zbekistonda radiatsiyaviy xavfsizlikning huquqiy asoslari sifatida 2000 yil "Radiatsiyaviy xavfsizlik to'g'risida"gi Qonun qabul qilindi va unga 2011 yil o'zgartirishlar kiritish zarurati tug'ildi.

Muammoning qo'yilishi. Respublikamizda kimyo sanoatini yanada rivojlantirish uchun yetarli xom-ashyo omborini mavjudligi natijasida zamonaviy, sifatli va arzon kimyo mahsulotlarni ishlab chiqarish imkonini yaratilishi mamlakatimizning kimyoviy sanoatini rivojlangan davlatlar qatorida ekanligini tasdiqlaydi.

Kimyoviy korxonalarimizda mahsulot ishlab chiqarish jarayonini o'ziga xos xususiyatlariga ko'ra ular respublikamizning Samarqand, Fargona, Navoiy, Toshkent viloyatlari va Zarafshon, Qo'qon, Chirchiq, Olmaliq, Ohangaron, Bekobod va boshqa shaharlariga faoliyat olib boradilar. Bu korxonalarimiz ishlab chiqargan mahsulotlaridan "O'zbekqishloqsuvxo'jalik", "Go'shtsutsanoat", "Kommunal xo'jaligi", tog' jinslarini va terini qayta ishlash, to'qimachilik, oziq-ovqat, qurilish materiallari va boshqa bir qator xalq xo'jaligi taramog'idagi korxonalar keng ko'lamda foydalanadilar.

Kimyoviy va radiatsion moddalarni ishlab chiqaruvchi korxonalarda texnologik jarayonini olib borishda xavfsizlik qoidalariga amal qilmaslik, yo'l qo'yilgan xatoliklari, nazorat uskunalari ma'nan va jismoniy eskirishi, texnologik qurilmani, uning qismlarini ishlatish muddatini o'tib ketganligi, tabiiy va texnogen xususiyatli favqulodda vaziyatlarda, ba'zi hollarda esa, terrorchilik

guruxlarining nojo'ya hatti-harakatlari tufayli avariya sodir bo'lishi natijasida kuchli ta'sir etuvchi zaharli suyuq, qattiq va gazsimon kimyaviy moddalarni atrof-muhitga tarqalishi mumkin. Misol tariqasida yirik avariya bo'yicha Xalqaro ma'lumotlar Markazining tahliliga asosan 350 ta o'ta xavfli moddalar bilan faoliyat olib boruvchi korxonalarda 1970-1998 yillar davomida yo'l qo'yilgan xatoliklar tufayli sodir bo'lgan avariya larning oqibatida 13000 kishi halok bo'lgan, 100.000 kishi esa kimyoviy zaharlanish natijasida turli jarohatlar olgan.

Shuning uchun respublikamiz miqyosida tarkibida radioaktiv elementlar bo'lgan tog' jinslarini ishlab chiqarish sanoati, O'zbekiston Respublikasi Fanlar Akademiyasi "Yadro fizikasi" Ilmiy tadqiqot institutida tibbiyot sohasi uchun radioizotoplarni ishlab chiqarish va boshqa qator korxona va muassasalarda foydalaniladigan radioizotoplarni tashxiz qilish va o'lchov asboblari, jihozlar tarkibida radioaktiv xususiyatli moddalarni qo'llanishi, bunday moddalarning xossalari, inson organizmiga ta'sir ko'rsatish darajasining nazariy asoslarini va muhofazalanish usullarini bilishni, avariya sodir bo'lgan joylarda oqibatlarini bartaraf etish borasida to'g'ri harakat qilib, kerakli ma'lumotlarga ega bo'lishini taqozo etadi.

Atom energetikasi an'anaviy energiya manbalaridan bir qator afzalliklarga ega, ammo ularning xavfsizligini ta'minlash, atom energobloklari me'yoriy ish tartibini tashkil etish va avariya xavfini minimallashtirishni talab qiladi.

Radioaktivlik tabiiy va sun'iy bo'lib, tabiatda uchraydigan noturg'un yadrolarning erkin ravishda tartibsiz parchalanishiga tabiiy radioaktivlik deyiladi va uran, radiy, radon, plutoniy kabi massa soni 83 dan yuqori bo'lgan 40 dan oshiq tabiiy radioaktiv element va 270 dan oshiq radioaktiv qo'shilmalar bunga misol bo'ladi.

Kimyoviy element yadrosiga protonlar, alfa zarrachalar va neytronlar ta'sir qilganda sun'iy radioaktivlik paydo bo'ladi va natijada qo'zg'algan holatdan turg'un holatga o'tish jarayoni yuqori energiya ning α -alfa, β -beta zarrachalar va γ -gamma nurlanishlar ko'rinishida chiqarib tashlanishidan yuz beradi. Shu bilan birga, tabiiy va sun'iy radioaktivlik o'rtasida biror -bir printsiptial farq yo'qligiga e'tibor qaratiladi, ularda radioaktivlik umumiy qonuniyatlar asosida kechadi.

Yadroning aylanma harakat qilishi ikki turga bo'linadi, biri - radioaktiv parchalanish va ikkinchisi yadro reaksiyalari. Radioaktivlik atom yadrosining murakkab strukturaviy tuzilishiga ega ekanligini tasdiqlovchi yana bir hodisa hisoblanadi. Tabiiy radioaktivlik fenomeni frantsuz fizigi A Bekkerel 1896 yilda tomonidan kashf etilgan bo'lib, tasodifan uran rudasining bir qismi turgan shkafga qora qog'ozga mahkam o'ralgan fotoplyonkani qo'yib ketadi. Ertasi kuni qora plyonka oqarib qolganini aniqladi. O'sha paytda fiziklar kuzatilgan hodisani tushuntira olmadilar.

Zamonaviy dunyoda shaxs o'z muhitiga deyarli ta'sir qila olmaydi. Butun jamiyatning harakatlariga atrof-muhitning xolati bog'liq bo'lib, barcha radiatsiyaviy xavfsizlik masalalariga taalluqli va ta'sirga ega bo'lgan resurslar Milliy va Xalqaro tashkilotlarning qo'lida bo'ladi.

Radiatsiyaviy xavfsizlik tizimini ishlab chiqish va rivojlantirishda bog'lovchi bo'gin mustaqil notijorat uyushmasi - Radiologik himoya bo'yicha Xalqaro komissiyaning (ICRP) tavsiyalari hisoblanadi. ICRPda dunyoning o'ttizta mamlakatidan ikki yuzdan ortiq odam ixtiyoriy ravishda ishlaydi, ular o'z sohasida hurmatli mutaxassislardir. Komissiya milliy va xalqaro tashkilotlarning badallari hisobidan moliyalashtiriladi, ular orasida eng katta hissa Yevropa davlatlari va AQSHdan keladi.

- ICRP bilan birgalikda boshqa ixtisoslashgan xalqaro tashkilotlar ham radiatsiyaviy xavfsizlik tizimini yaratishda ishtirok etadilar. Bular:

- BMTning Atom radiatsiyasining ta'sirini tekshirish ilmiy qo'mitasi (UNSCEAR);

- Radiologik birliklar, o'lchovlar bo'yicha Xalqaro komissiya (ICRU);
- Xalqaro mehnat tashkiloti (XMT);
- Jahon sog'liqni saqlash tashkiloti (ISST);
- BMTning Oziq-ovqat va qishloq xo'jaligi tashkiloti (FAO);
- Xalqaro atom energiyasi Agentligi (MAGATE);
- Iqtisodiy hamkorlik va taraqqiyot tashkilotining (NEA/OECD) Yadro energetikasi Agentligi;

- Radiatsiyadan himoya qilish xalqaro assotsiatsiyasi.

Hozirgi vaqtda xalqaro radiatsiyaviy xavfsizlik tizimini ishlab chiqish va joriy etishda quydagi amaliyot paydo bo'ldi:

UNSCEAR vaqti-vaqti bilan atom nurlanishining ta'siri bo'yicha mavjud ma'lumotlarni umumlashtiradi.

ICRP, SCEAR hisobotlariga asoslanib, o'z tavsiyalarini chiqaradi, keyinchalik ular MAGATening xavfsizlik standartlarida mustahkamlanadi. Davlatlar Xalqaro shartnomalarga muvofiq, o'zlarining Milliy me'yoriy hujjatlarini ishlab chiqishda ushbu standartlardan foydalanadilar.

Atom energiyasi bo'yicha Xalqaro Agentlik (AEXA; MAGATE) — atom energiyasidan foydalanish bo'yicha hukumatlararo tashkilot, BMTning Nyu York konferensiyasi qaroriga binoan tashkil etilgan. Nizomi 1956-yil sentabrda qabul qilinib, 1957-yil 29 iyulda kuchga kirgan. Bosh qarorgohi — Avstriya davlatining Vena shahrida joylashgan. AEXAga 1997yildah beri 114 mamlakat a'zo bo'lib, AEXA maxsus tashkilotlar qatoriga kirishiga qaramay, alohida maqomga ega emas. BMT bilan uning aloqalari 1957-yil 14 noyabrda BMT Bosh Assambleyasi bilan imzolangan bitimga muvofiq amalga oshiriladi. Ushbu bitim va AEXA Nizomiga asosan Agentlik har yilda kamida bir marta o'z faoliyati to'g'risida BMT Bosh Assambleyasi yoki zarurat paydo bo'lganda, uning Xavfsizlik Kengashi oldida hisobot beradi. Agentlikning asosiy maqsadi- atom energiyasidan tinchlik yo'lida foydalanish sohasida xalqaro hamkorlikni rivojlantirishdan iborat. Turli mamlakatlarda o'z ilmiy- tadqiqot laboratoriyalari bor. AEXA rivojlanayotgan davlatlarga yadro xavfsizligi va radiatsion himoya uchun zarur bo'lgan asbob-uskunalar bilan yordamlashadi.

ICRP tavsiyalari dunyoning ko'plab mamlakatlari milliy standartlarida o'z aksini topgan. Biroq, barcha davlatlar bu tavsiyalarni to'liq qo'llamaydi. AQSH

standartlari asosan 1977 yildagi ICRP tavsiyalariga asoslanadi va AQSHning tartibga soluvchi tuzilmasining mustaqilligi bilan belgilanib, uzoq vaqt davomida Xalqaro tavsiyalarni shakllantirish uchun asos bo'lgan. 2008 yilda AQSH yadroviy tartibga solish komissiyasi milliy qoidalarni qayta ko'rib chiqish jarayonini boshladi, lekin natijada u deyarli o'zgarishsiz qoldi. Ancha vaqt davom etgan muhokamadan so'ng, amaldagi qonunchilik xodimlar va aholi uchun etarli darajada himoyani ta'minladi va doza chegaralarini yanada pasaytirish xavfsizlikning sezilarli o'sishiga olib kelmasligi va yangi standartlarni joriy etish harajatlarini qoplamasligi aniqlandi.

Radiatsiyadan himoya qilish borasida radiologik himoya sifatida ham tanilgan Xalqaro atom energiyasi agentligi tomonidan "odamlarni ionlashtiruvchi nurlanish" ta'sirining zararli omillaridan himoya qilish va bunga erishish vositalari" deb atalgan bitimga ko'ra inson tanasi tashqaridagi radiatsiya manbasidan yoki radioaktiv ifloslanishni yutish natijasida yuzaga kelgan ichki nurlanish tufayli kasallik yuzaga keladi. Ushbu bitim va AEXA Nizomiga asosan agentlik har yili kamida bir marta faoliyati to'g'risida BMT Bosh Assambleyasi yoki zarurat paydo bo'lganda uning Xavfsizlik Kengashi oldida hisobot beradi. Agentlikning asosiy maqsadi atom energiyasidan tinchlik yo'lida foydalanish sohasida xalqaro hamkorlikni rivojlantirishdan iborat.



Atom energiyasi bo'yicha xalqaro Agentlik (AEXA) ning boshqaruvchi davlatlari,

Kengashning Bosh konferensiya zali va MAGATening ramziy belgisi
Agentlik oliy organi — Bosh Konferensiya a'zo davlatlarning vakillaridan tashkil topgan va har yili navbatdagi sessiyaga yig'iladi. Nizom bo'yicha navbatdan

tashqari sessiyalar o'tkazish ham ko'zda tutilgan. AEXA Boshqaruvchilar Kengashi agentlik ishlab chiqqan dastur, atom energiyasi sohasida umumiy siyosat va boshqaruv ishlarini amalga oshiradi. Mazkur kengash tarkibiga 35 davlat vakillari kiradi.

Ionlashtiruvchi nurlanish sanoat va tibbiyotda ko'p qo'llanadi va tirik to'qimalarga mikroskopik zarar etkazish orqali sog'liq uchun katta xavf tug'diradi. Ionlashtiruvchi nurlanishning sog'liqqa ta'sirini ikki xili mavjud:

a) „to'qima“ ta'sirini ionlashtiruvchi nurlanishni yuqori darajadagi ta'sirida kelib chiqaradi, ularni sodir bo'lishi aniqligi sababli „deterministik“ ta'sirlar deb ham ataladi, an'anaviy ravishda kulrang birlik bilan ko'rsatiladi va o'tkir radiatsiya sindromiga olib keladi.

b) past darajadagi nurlanish ta'siridan saraton kasalligini kelib chiqish xavfi statistik jihatdan yuqori bo'ladi va an'anaviy ravishda zivert(Zv) birligi yordamida aniqlanadi.

Radiatsiyadan himoyalaniishning asosiy sharti vaqt, masofa va himoya qilish kabi oddiy himoya choralari yordamida dozani oldini olish yoki uni kamaytirishdan iborat, y'ani ta'sir qilish muddati zarur bo'lgan vaqt bilan cheklanishi kerak bo'ladi, nurlanish manbasidan masofa maksimal darajada bo'lishi kerak va iloji boricha manba yoki tekshiruvchi himoyalaniishi zarur.

Kasbiy yoki favqulodda ta'sir qilishda tashqi nurlanish dozasini o'lchash uchun shaxsiy dozimetrlar qo'llanadi. Radiatsiyadan himoya qilish va dozimetriyani baholash uchun radiatsiyadan himoya qilish Radiatsiya birliklari va o'lchovlari bo'yicha Xalqaro komissiya ma'lum darajadagi nurlanishning inson tanasiga biologik ta'sirini hisoblash uchun foydalaniladigan tavsiyalar va ma'lumotlarni e'lon qiladi.

AEXAning asosiy faoliyatiga kiradigan sohalar:

- qurol-yarog' ishlab chiqaradigan yadro texnologiyasini qattiq nazoratga olish;
- yadro energetikasi sohasida yordam ko'rsatish;
- radioaktiv chiqindilarni to'g'ri va xavfsiz ko'mish;
- shu sohaga oid Me'yor va Qoidalarni ekspert-yuristlar yordamida tayyorlash;
- ilmiy- tadqiqot dasturlarini qo'llab-quvvatlash;
- avariyalarga oid dasturlar ishlab chiqish;
- qishloq xo'jaligida yadroviy usullar va radioaktiv moddalar yordamida hosildorlik va tuproq unumdorligini oshirish;
- qishloq xo'jaligi va chorvachilikda hasharotlar va kasalliklarga qarshi kurashda yordam berish va boshqalar.

O'zbekiston Respublikasi 1994-yil 21 yanvarda AEXAga a'zo bo'lib, xalqaro standartlarni tan olish, atom energiyasidan xalq xo'jaligida foydalanish, radioaktiv moddalar bilan xavf-xatarsiz ishlashda xalqaro standartlar, qonun-qoidalarga rioya qilishni o'z zimmasiga oldi.

Insonning sezgi organlari tomonidan ionlashtiruvchi nurlanish darhol his qilinmaydi, shuning uchun uni aniqlash va o'lchashda Geyger -Myuller

sanagichi kabi asboblar qo'l kelladi.



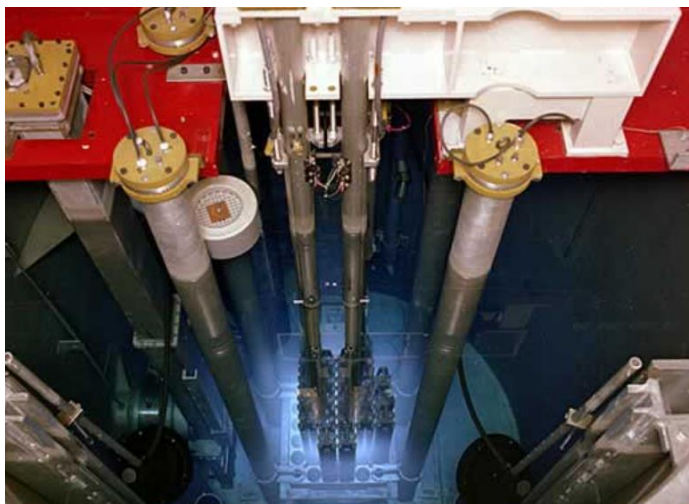
Geyger-Myuller sanagichining ko'rinishi

Geyger-Myuller sanagichi ionlashtiruvchi nurlanishni aniqlash va o'lchash uchun ishlatiladigan elektron asbob hisoblanadi. Radiatsiya dozimetriyasi, radiologik himoya eksperti mental fizika va yadro sanoati kabi yo'nalishlarda keng qo'llanadi. Geyger-Myuller trubkasida ishlab chiqilgan ionlanish effekti yordamida ionlashtiruvchi alfa, beta zarralari va gamma nurlanishlari aniqlanadi. Ushbu trubka, qo'lda radiatsiyani o'lchash asbobi sifatida keng foydalanishda ehtimol, dunyodagi eng mashhur radiatsiyani aniqlash asboblardan biri hisoblanadi. Geyger-Myuller trubkasini sinash ishlari ilk bor 1908-yilda Manchester universitetida amalga oshirilgan. Sanagich gaz razryadli bo'lib, uning ichiga past bosimdagi inert gaz to'ldiriladi. Gazning ionlashishi bittagina yadroviy zarra tushishi natijasida ro'y beradi. Yuzaga kelgan musbat ionlar katodga, yani sanagich devoriga, sanagich ichidagi tola hisoblangan elektronlar esa anodga qarab harakatlanadi. Anodning yuzasi juda kichik bo'lgani uchun kuch chiziqlarining zichligi unda juda yuqori bo'ladi. Natijada elektr maydonning kuchlanganligini qiymati yetarli darajada katta bo'ladi. Potentsiallar farqining elektrodlar orasida kattaligi hamda gaz bosimining pastligi tufayli anodga qarab harakatlanayotgan elektronlar katta tezlanish oladi va ikkilamchi ionlashishni hosil qiladi. Yangi yuzaga kelgan ionlar ham, o'z navbatida ionizatsiyani yuzaga keltira oladigan darajada yuqori tezlikka erishadi. Kuchaytirish koeffitsiyentining qiymati 108 dan 1010 gacha yetishi mumkin.

Sanagichning „o'lik vaqti“ deb sanagich bitta zarrani qayd qilgandan keyin, ikkinchi zarrani qayd qilish uchun tayyor bo'lishiga ketgan vaqtga aytiladi. Gaz razryadli sanagichlar uchun „o'lik vaqt“ 10^{-4} s ni tashkil etadi. Ikkita zarrani ketma-ket qayd qilishi uchun ketgan vaqt sanagichning ajrata olish qobilyatini xarakterlaydi. Ionlashtirish jarayoni avtomatik ravishda pasayuvchi sanagichlarning ajratish qobilyati 104 implus/s ga teng bo'ladi. Ya'ni ular bir sekund ichida 10 000 tagacha zaryadlangan zarrani qayd qilishi mumkin. Geyger-Myuller sanagichlari har qanday ko'rinishdagi nurlanishlarni qayd qilishi mumkin, lekin, asosan elektronlarni qayd qilishda qo'llanadi, γ -to'lqinlarning ionlashtirish qobilyati unchalik katta bo'lmaganligi tufayli ular unchalik yaxshi qayd qilinmaydi (100 tadan 1 tasi qayd qilinishi mumkin). β -zarralarni qayd etish uchun CTC-5, AC-1 va boshqa sanagichlardan foydalaniladi. α -zarralarni qayd qilish uchun esa MTC-17, CBT-7 kabi sanagichlar qo'llanadi.

Biroq, o'tkir radiatsiyaviy sindromda o'ta baland energiyali zarralar organik va noorganik moddalarga sezilarli ta'sir ko'rsatishi mumkin, bunga Cherenkov nurlanishida suvni yoritilishi misol bo'la oladi.

Cherenkov nurlanishi elektron zarrachani zaryadlangan dielektrik muhitdan o'sha muhitdagi yorug'likning faza tezligidan katta tezlikda o'tib, elektromagnit radiatsiya chiqarish hodisasiga asoslangan. Klassik namuna sifatida ushbu nurlanishining suv osti yadroviy reaktoridagi xarakterli ko'k nuri hisoblanadi. Tovushdan tezroq harakat sodir bo'lganda o'tkir ovoz eshitiladi. Bu hodisa 1958 - yilgi Nobel mukofoti sovrindori sovet olimi Pavel Cherenkov sharafiga nomlangan.



Atom reaktori havosiga o'rnatilgan
Cherenkov nurlanishi

2019-yilda Dartmut va Dartmut-Xitkokning Norris saraton markazi tadqiqotchilari guruxi radiatsiya terapiyasidan o'tayotgan bemorlarni nazorat qilishda yorug'lik biologik tizimlardan yorug'lik emissiyasini ko'rish uchun maxsus ishlab chiqilgan CDose deb nomlangan kamera tasvirlash tizimi yordamida kuzatildi. O'nlab yillar davomida bemorlar miya saratoni uchun radiatsiya muolajalarini olayotganda „yorqin yoki ko'k yorug'lik chaqnashi“ kabi hodisalar haqida xabar berishgan, ammo ta'sir hech qachon eksperimental ravishda kuzatilmagan.

Turli meditsina, yadro energetikasi, izlanish va ishlab chiqarish kabi sohalarda ionlashgan nurlanishdan foydalanish chog'da bu nurlanish ta'siriga qarshi tegishli chora-tadbirlar amalga oshirilmasa, foydalanuvchilar sog'liq'ga katta xavf tugdiradi, inson hujayralariga, tirik to'qimalariga va organlariga zarar etkazadi, baland kuchli dozalarda radiatsiyaviy kuyish va nurlanish kasalligini yuzaga keltiradi. Bundan tashqari past darajadagi dozalarning uzoq vaqt davomida organizmga ta'siri saraton kasaliga duchor qiladi. Xalqaro radiologik himoya bo'yicha komissiyasi (ICRP) ionlashtiruvchi nurlanishdan himoya qilish va qabul qilingan dozani inson salomatligiga ta'siri bo'yicha ko'rsatmani va yoriqnomini ishlab chiqdi. Bunga asosan yuqori zaryadli protonlar, geliy yadrolarini ionlari kabi energetik zaryadlangan yadrolardan iborat galaktik nurlar hisoblanib, bulutli

kameralar yordamida hosil bo'lgan ionlashtiruvchi nurlanishni ko'rish imkoni vujudga keladi.

Ionlashtiruvchi nurlanishlar bevosita yoki bilvosita ionlashtirgich shaklida guruxlanishi mumkin. Har qanday massali etarli kinetik energiyaga ega zaryadlangan zarracha, Kulon kuchi yordamida o'zaro ta'sir orqali atomlarni to'g'ridan-to'g'ri fundamental ionlashtirishi mumkin, atom yadrolari, elektronlar, kosmik nurlar hisoblangan muonlar, zaryadlangan pionlar, protonlar va elektronlardan ajratilgan energetik zaryadlangan yadrolar kiradi. Bu zarralar ionlashtiruvchi bo'lishiga etarli kinetik energiyaga ega bo'lib, ular yorug'lik tezligiga yaqin tezlikda harakat qiladi. Lekin har bir zarracha turining harakatlanishi sezilarli o'zgarishib turadi. Masalan, C ning taxminan 5% da odatdagi alfa zarrachasi harakat qiladi, lekin 33 eV (faqat ionlash uchun etarli) bo'lgan elektron C ning taxminan 1% dayoq harakatini boshlaydi. Bevozita ionlashtiruvchi nurlanishning birinchi turlaridan ikkitasi radioaktiv parchalanish paytida atom yadrosidan chiqarilgan geliy yadrolari bo'lgan alfa zarralari va beta zarralari deb ataladigan energetik elektronlardir.

Relyativistik protonlar tabiiy kosmik nurlarning asosi hisoblanadi, biroq geliy ionlarini hamda og'irroq atom yadrolarini ham o'z tarkibiga kiritadi. Havo molekulalari tomonidan bunday zarralar ko'pincha atmosferada to'xtatilib, qisqa muddatli zaryadlangan pionlarni yuzaga keltiradi.

Radiatsiya xavfi belgisi sifatida Xalqaro radiatsiya xavfining shartli belgisi uchburchak shaklida 60° kenglikdagi uchta sektor shakliga ega bo'lib, markazda kichik doira bilan bir-biriga nisbatan 120° masofada joylashgan va sariq fonda qora rangda bajarilgan.



Yangi radiatsiya xavfi belgisi

2007 yil ISO radioaktivlik xavfi belgisi qabul qilindi. Qizil fon favqulodda xavfni bildiradi. Yangi radiatsiya xavfi belgisi mutaxassislarga mo'ljallangan va belgi noto'g'ri foydalanish yoki buzish natijasida o'ta kuchli radiatsiya maydonlari

paydo bo'lishi mumkin bo'lgan joylarda yoki jihozlarda foydalanish uchun mo'ljallangan. Maqsad shundan iboratki, oddiy foydalanuvchi hech qachon bunday belgini ko'rmaydi, ammo jihoz qisman demontaj qilingandan so'ng, odam ishni to'xtatib, voqea joyini tark etishi kerakligi haqida ogohlantiruvchi belgi paydo bo'ladi, unda uchburchak, bosh suyagi, ko'ndalang suyak belgilari va "keting!" (yugurayotgan odam silueti va ko'rsatgich o'q) bilan to'ldirildi. Yangi belgi an'anaviy avvalgi radiatsiyaviy xavfning shartli belgining ma'nosi bilan tanish bo'lmaganlar uchun uni yanada tushunarli qilish uchun mo'ljallangan.

Turli odamlar organizmiga va matolarga radiatsiyani bir xil ekvivalent dozada ta'siri natijasida yuzaga kelishi mumkin nurlanish kasalligidan, ayniqsa qalqonsimon va jinsiy bezlar ko'proq xavfli genetik zarar ko'radi. Shuning uchun nurlanish dozalari har xil organlar va materiallarni turli koeffitsientlar bilan hisobga olish kerak, bu materialning og'irlik koeffitsienti deyiladi. Ekvivalent doza qiymatini tegishli og'irlik faktoriga ko'paytirish va barcha to'qimalarni yig'ish orqali va odam tanasi uchun umumiy ta'sirni aks ettiruvchi samarali doza olinadi.

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KASBIY VA IJTIMOIIY KOMPETENSIYALARNI SHAKLLANTIRISHDA FAROSATLI YONDASHUV

Annotatsiya: Mazkur maqolada davlat boshqaruvi tizimida faoliyat yuritayotgan fuqarolik xizmatchilarida kasbiy va ijtimoiy kompetensiyalarni shakllantirish jarayonida farosatli (intellektual-emotsional) yondashuvning ahamiyati tahlil qilinadi. Farosatli yondashuv xodimlarning axloqiy yetukligi, ijtimoiy mas'uliyati, kommunikativ madaniyati va holatga qarab qaror qabul qilish qobiliyatini shakllantirishda muhim omil sifatida e'tirof etiladi. Tadqiqotda zamonaviy boshqaruvda talab etilayotgan kompetensiyalar tahlil qilinib, ularni rivojlantirishga xizmat qiluvchi sotsiologik jihatlari va ijtimoiy mexanizmlar yoritilgan. Xususan, farosatli yondashuvning kognitiv, emotsional va refleksiv jihatlari davlat xizmatchilari faoliyatida o'z aksini topishi lozimligi asoslab berilgan. Shuningdek, maqolada O'zbekiston Respublikasi davlat fuqarolik xizmati tizimidagi amaldagi yondashuvlar bilan xorijiy tajriba taqqosiy tahlil qilinadi. Natijalarda kompetensiyalarni shakllantirishda doimiy o'rganish, kasbiy refleksiya va ijtimoiy moslashuvchanlikni qo'llab-quvvatlovchi muhit yaratish zarurligi ta'kidlanadi.

Kalit so'zlar: farosatli yondashuv, strategiya, kommunikativ ko'nikma, ijtimoiy kompetensiya, davlat boshqaruvi, fuqarolik xizmatchisi, emotsional intellekt, refleksiv tahlil, xalqaro tajriba.

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A PRUDENT APPROACH TO THE DEVELOPMENT OF PROFESSIONAL AND SOCIAL COMPETENCIES

Abstract: This article analyzes the importance of a thoughtful (intellectual-emotional) approach in the process of forming professional and social competencies in civil servants working in the public administration system. A thoughtful approach is recognized as an important factor in the formation of employees' moral maturity, social responsibility, communicative culture, and the ability to make decisions based on the situation. The study analyzes the competencies required in modern management and highlights the sociology and social mechanisms that serve their development. In particular, it is substantiated that the cognitive, emotional, and

reflexive aspects of a thoughtful approach should be reflected in the activities of civil servants. The article also provides a comparative analysis of current approaches in the public civil service system of the Republic of Uzbekistan with foreign experience. The results emphasize the need to create an environment that supports continuous learning, professional reflection, and social adaptability in the formation of competencies.

Keywords: *insightful approach, strategy, communication skills, social competence, public administration, civil servant, emotional intelligence, reflexive analysis, international experience.*

Introduction

In today's globalization environment, the public administration system is undergoing rapid renewal. In this process, improving the professional activities of civil servants, forming their professional and social competencies based on modern requirements, is emerging as one of the urgent tasks. It is necessary for a civil servant to possess not only legal and managerial competencies, but also humanitarianism, moral integrity, social awareness and communicative culture.

In particular, the need to act on the basis of a prudent approach (i.e., solving problems by combining reason, heart, and moral sensitivity) in the activities of civil servants is increasing. Prudence is not just knowledge, but the ability to deeply understand each situation, taking into account the moral, emotional, and intellectual level of a person, and to assess the social consequences of his actions in advance. Therefore, a prudent approach should be studied not only as a separate virtue, but also as a methodological approach that develops the professional-ethical, socio-communicative, and psychological stability competencies of civil servants.

In recent years, important steps have been taken in our country to reform the civil service system and widely introduce the principles of openness, honesty and efficiency. Law of the Republic of Uzbekistan No. O'RQ-788 dated 08.08.2022 The Law “ *On State Civil Service* ”[1] aims to improve the professional qualifications, moral qualities, level of responsibility and social activity of employees in this system. However, to achieve these goals, it is strategically important to form competencies based on insight, not only technical knowledge, in civil servants.

It is worth noting that the formation of competencies is a complex, multi-stage process, which is closely related not only to professional training, but also to psychopedagogical factors such as personal development, social experience, emotional intelligence, and reflective analysis. This article aims to systematically study and analyze these factors and to highlight the theoretical and methodological foundations of the formation of professional and social competencies based on a holistic approach in the activities of civil servants in the public administration system.

The modern public administration system, with its multifaceted and complex nature, requires comprehensively competent, socially mature and morally stable employees. In this regard, the issue of developing professional and social competencies of civil servants is emerging as one of the urgent problems. In

particular, the level of socio-economic development of society, the culture of trust and communication between people, the transparency and effectiveness of the public service directly depend on the human factor - the spiritual and intellectual potential and foresight of the employee. Foresight here is not a simple concept, but the ability to consciously understand, make responsible decisions, act in complex situations without losing a humanitarian position. It is not enough for a civil servant to be a specialist who knows the laws and masters the procedures - he works with people, solves their problems, ensures social justice. Such activity requires deep moral intuition, strong social empathy and a culture of advanced communication.

This is where the insightful approach comes into play — it encourages the employee to act not based on strict rules, but on the basis of human values, according to the situation. This means that a civil servant forms his internal compass with socio-moral criteria, acts not only on external requirements, but also on the basis of internal convictions. It is precisely such competence — ethically insightful competence — that can become the most important pillar of public administration.

On the other hand, professional competencies are a system that includes knowledge, skills and practical qualifications, while social competencies are the ability of a person to effectively organize his interaction with society. A prudent approach combines these two and ensures their balance with humanistic criteria. In such an approach, not only professional training, but also emotional intelligence, reflective thinking, communication skills and the need for constant self-development are key. From this perspective, a prudent approach elevates civil servants from the level of “commander” to the level of “social partner”, “value provider” and “decisive leader”. This serves to build a reliable bridge between the state and citizens, and to prove in practice that the state system is based on humanity. A prudent employee is the image of a truly civil service.

Of course, the formation of such competencies does not happen by itself. It is the product of a process of systematic education, targeted training, mentoring, constant reflection and self-improvement during service. The first steps in this direction are being taken in today's civil service of Uzbekistan, but there are large-scale reforms that need to be implemented. In particular, the need to integrate a holistic approach into the systems of training and retraining of state civil servants is becoming increasingly urgent.

Therefore, the formation of professional and social competencies based on a prudent approach is a sustainable, value-based approach that serves to radically improve the quality of public administration. It not only increases the efficiency of the system, but also truly humanizes management, recognizing the human factor as the main criterion.

Literature analysis (review):

The formation of professional and social competencies, especially for civil servants working in the field of public administration, has become a relevant research area today. Research conducted in this area shows that the competency-based approach is the foundation of a modern management system and is considered a key factor in effective human resource management.

In particular, IA Zimnyaya[6; 42] interprets the competency approach as a multi-component system related not only to the knowledge and skills of a person, but also to his motivation, value orientation, communicative and emotional capabilities. He includes insight and social sensitivity among the most important psychological components in the professional portrait of a civil servant.

AA Derkach and VG Zazikin consider the prudent approach as the basis of leadership competencies. In their opinion, the manager's moral sensitivity, social awareness, and decision-making skills based on reflective thinking create an atmosphere of stability and trust in the civil service system[5; 312]. These ideas, of course, justify the importance of the prudent approach in public administration.

Uzbek researcher BK Karimov, in his monograph “ *Psychopedagogical Foundations of the Formation of Professional Competencies of Civil Servants* ” [4; 185], deeply analyzed the factors influencing the formation of competence in the local context. He places special emphasis on the formation of reflexive analysis, emotional stability, and social communication skills in the professional development of civil servants.

International experience also shows that the quality of public service is directly related to the moral and social competencies of employees. For example, the OECD report[3; 94] identifies "soft skills" - especially insight, empathy, compassion and social responsibility - as key factors in the transformation of the modern public service. This approach confirms that Uzbekistan is also approaching international standards in its reform path.

Also, in the work of R. Boyatzis entitled "Emotional Intelligence and Managerial Effectiveness"[2; 255], the direct impact of emotional intelligence on the effectiveness of leadership and social relations is scientifically substantiated. According to Boyatzis, prudent behavior is the result of the activity of a person who is able to harmonize the mind, heart and morality. In general, the analysis of the literature shows that the prudent approach to the formation of professional and social competencies is an integrative, multi-component and person-oriented methodological framework. It serves to form a truly professional image of the civil service by combining human values and management technologies.

Discussion:

The stability and effectiveness of the public administration system have always relied on the human factor - that is, on the skills, intellect and moral qualities of a civil servant. Today, this relationship has become even more complex: the flow of information has accelerated, social expectations have increased, and decisions have become more socially responsible. This raises the question: what kind of employee should we train? The answer is not simple, but it is clear - a shrewd, professionally mature and socially sensitive person.

In today's modern management, prudence is becoming more important than classical knowledge and skills. Because prudence is not about following ready-made rules, but about adapting to changing life situations, making correct and fair decisions, while not losing humanity. This quality is especially important in the role of a civil servant: he not only manages, but also serves, communicates with the

people, smooths out various conflict situations, and in many cases becomes a solution finder. And for this, it is necessary not only to know the law, but also to understand the person, to "feel" the situation - this is the fundamental essence of prudence.

The world experience in the formation of professional competencies also shows that technical knowledge by itself is not enough. In the recommendations of the OECD[3; 94], UN Programs and the World Bank, "soft skills" in the civil service - skills such as communication, emotional intelligence, ethical thinking, teamwork - are given priority. This is also an important conclusion for the Uzbek public administration system: we need to train employees not only on the basis of laws and procedures, but also on the basis of values, culture and human sensitivity.

The development of social competencies is gaining strategic importance for today's civil servant. After all, the culture of trust, honesty, and communication determines not only the external appearance of the state apparatus, but also its internal social energy. A wise employee is a force that can positively change this social environment - he not only gives tasks to others, but also inspires, inspires confidence, in a word, becomes a creator of positive social capital. Another important aspect is worth noting here: a wise approach is a multi-layered system. It is not just an individual characteristic - this approach should become a strategy for educating a civil servant. This requires updating the education system, constant mentoring throughout the service, and creating a reflective environment based on moral and ethical codes.

Thus, the following generalization emerges from the discussion: a prudent approach to the formation of professional and social competencies of a civil servant is not only a psychological necessity, but also a systematic, strategic, conceptual approach. It fundamentally changes the quality of public service, forms a management culture based on human values, and strengthens the bridge of trust between the state and society.

Conclusion and recommendations:

The above analysis and discussion show that the main task facing the current civil service system is to form not just order-followers, but initiative-taking, thinking, understanding and, most importantly, insightful individuals. A civil servant is a bridge between the state and citizens. The strength of this bridge is determined not only by legal foundations or normative knowledge, but also by deep human qualities, moral stability and social responsibility.

A sensible approach is a decision-making process that prioritizes human dignity, justice, and ethical criteria. This is a management culture based on social intuition, internal responsibility, and empathy. The humanization of the civil service can be achieved through the widespread implementation of this approach. Based on the ideas put forward in this article, the following recommendations can be made:

Integrate the concept of a holistic approach into the training system for civil servants - topics such as emotional intelligence, ethical decision-making, social interaction, and humanism should be included in educational programs.

It is necessary to introduce a mentoring system in state bodies - to expand the practice of educating young personnel based on values by experienced, insightful employees.

Establishing practices of reflexive analysis and self-assessment throughout professional activity - through which the employee understands and corrects problems in his work, and develops internal responsibility.

Turning codes of ethics into a practical behavioral platform – employees should not only know the rules, but also have the skills to correctly apply them in life.

Systematic organization of socio-psychological training and seminars - especially training in conflict resolution, empathy, and stress tolerance - will strengthen the intelligence of a civil servant.

Thus, a prudent approach is not a simple guideline in public administration, but a strategic approach based on humanity. Through this approach, we maintain not just a management system, but a moral balance between society and man. For a civil servant, this means not a profession, but a duty; not a task, but a social service; not an instruction, but a human position. With such an approach, true spiritual blessing and social trust will be established in public service.

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NASLIY FERMENTOPATIYALAR

Annotatsiya: Nasliy fermentopatiyalar — bu genetik mutatsiyalar natijasida fermentlarning sintezi, tuzilishi yoki katalitik faolligi buzilishi bilan kechadigan irsiy metabolik kasalliklar majmuasidir. Fermentlar hujayra metabolizmining asosiy biokatalizatorlari hisoblanib, ularning yetishmovchiligi turli metabolitlarning patologik to'planishi yoki muhim substratlarning yetarli darajada parchalanmasligiga olib keladi. Klinik amaliyotda fenilketonuriya, galaktozemiya, glikogenozlar, mukopolisaxaridozlar kabi nospezifik, ammo og'ir oqibatli fermentopatiyalar keng uchraydi. Kasalliklarning klinik manzarasi intellektual rivojlanishning sustlashuvi, jigar va mushak distrofiyasi, suyak tizimidagi displaziya hamda boshqa somatik buzilishlar bilan tavsiflanadi. Zamonaviy tashxis usullari, jumladan, biokimyoviy skrining, molekulyar-genetik tahlillar va prenatal diagnostika nasliy fermentopatiyalarni erta aniqlash imkonini beradi. Patogenetik davolashning asosiy yo'nalishlari dietoterapiya, ferment almashtiruvchi terapiya va genetik maslahatni o'z ichiga oladi. Ushbu kasalliklarni chuqur o'rganish klinik tibbiyot, pediatriya hamda farmatsevtik biotexnologiya sohalarida dolzarb ilmiy-amaliy ahamiyat kasb etadi. Ushbu maqolada fermentlar va ularning organizmdagi ahamiyati, nasliy fermentopatiyalarning kelib chiqish sabablari, davolash va oldini olish choralari haqida ma'lumotlar keltirilgan va o'rganilgan.

Kalit so'zlar: Oqsillar, aminokislota, ferment, gen, mutatsiya, reproduktiv salomatlik, prenatal diagnostika, Tetrahydrobiopterin (BH4), fenilalanin gidroksilaza.

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GENETIC ENZYME DISEASES

Abstract. Hereditary enzymopathies (or fermentopathies) are a complex of hereditary metabolic diseases characterized by impaired synthesis, structure or catalytic activity of enzymes as a result of genetic mutations. Enzymes are the main biocatalysts of cellular metabolism, and their deficiency leads to pathological accumulation of various metabolites or insufficient breakdown of important substrates. Non-specific but severe enzymopathies, such as phenylketonuria, galactosemia, glycogenoses, mucopolysaccharidoses, are common in clinical

practice. The clinical picture of the diseases is characterized by delayed intellectual development, liver and muscular dystrophy, dysplasia of the skeletal system and other somatic disorders. Modern diagnostic methods, including biochemical screening, molecular genetic analysis and prenatal diagnostics, make it possible to identify hereditary enzymopathies at early stages. The main directions of pathogenetic treatment include diet therapy, enzyme replacement therapy and medical genetic counseling. In-depth study of these diseases has relevant scientific and practical significance in the field of clinical medicine, pediatrics and pharmaceutical biotechnology. The article presents and reviews information about enzymes and their importance in the body, causes of hereditary enzymatic diseases, methods of treatment and prevention.

Keywords: *Proteins, amino acid, enzyme, gene, mutation, reproductive health, prenatal diagnosis, Tetrahydrobiopterin (BH4), phenylalanine hydroxylase.*

Kirish

Fermentlar biologik katalizatorlar bo'lib, organizmdagi turli kimyoviy reaksiyalarni tezlashtiradi va metabolik jarayonlarning normal ishlashi uchun muhim ahamiyat kasb etadi. Inson organizmida minglab fermentlar mavjud bo'lib, har biri ma'lum bir substratga ta'sir qiladi va ma'lum bir reaksiyani amalga oshiradi. Tibbiyot nuqtai nazaridan fermentlar muhim diagnostik va terapevtik ahamiyatga ega. Ularning normal faoliyati buzilganda turli kasalliklar, jumladan, metabolik sindromlar, nasliy fermentopatiyalar va oshqozon-ichak kasalliklari yuzaga keladi. Shuningdek, fermentlarning faoliyati laboratoriya diagnostikasida, masalan, jigar, yurak va buyrak kasalliklarini aniqlashda biomarkerlar sifatida qo'llaniladi. Ferment preparatlari esa dorivor maqsadlarda ishlatilib, me'da-ichak traktining fermentativ yetishmovchiligida keng qo'llanadi. Ularning genetik nuqsonlari va patologik o'zgarishlari chuqur o'rganilishi zarur. Ushbu maqolada aynan nasliy fermentopatiyalar, ularning kelib chiqish sabablari, klinik ko'rinishlari va davolash usullari haqida batafsil ma'lumot beriladi.

Adabiyotlar tahlili va metodlar

Nasliy fermentopatiyalar bo'yicha olib borilgan ilmiy tadqiqotlarda kasalliklarning molekulyar-genetik asoslari, klinik xususiyatlari va davolash usullari keng yoritilgan. So'nggi yillarda xorijiy adabiyotlarda ferment yetishmovchiligi natijasida yuzaga keladigan metabolik sindromlar patogenezi aniqlashda genetik markerlar va zamonaviy skrining dasturlarining ahamiyati ta'kidlanadi. Mahalliy va rus tilidagi manbalarda esa dietoterapiya va ferment almashtiruvchi davolash samaradorligi, shuningdek, pediatriyada erta tashxisning klinik foydasi keng muhokama qilinadi. Tahlil shuni ko'rsatadiki, xalqaro tajribada molekulyar diagnostika va gen terapiyasi ustuvor yo'nalish sifatida rivojlanmoqda.

Natijalar

Zamonaviy tibbiyotda nasliy fermentopatiyalar muhim ilmiy va klinik ahamiyat kasb etmoqda. Bu kasalliklar inson organizmidagi metabolik jarayonlarning genetik nuqsonlar natijasida buzilishi bilan bog'liq bo'lib, ularning aksariyati erta tashxis qo'yilmasa, jiddiy asoratlarga olib kelishi mumkin.

Fermentopatiya — bu organizmda fermentlar faoliyatining buzilishi bilan bog'liq kasalliklar guruhi bo'lib, ular fermentlarning yetishmovchiligi, to'liq yo'qligi yoki noto'g'ri ishlashi natijasida yuzaga keladi. Fermentlar organizmdagi metabolik jarayonlarni boshqaruvchi muhim biologik katalizatorlar bo'lgani uchun ularning buzilishi turli xil metabolik kasalliklarga olib keladi. Fermentopatiyani ikki guruhga bo'lib o'rganiladi:

1. nasliy fermentopatiyalar — genetik mutatsiyalar natijasida fermentlarning tuzilishi yoki funksiyasining buzilishi bilan bog'liq kasalliklar. Masalan, fenilketonuriya, galaktozemiya, glikogenozlar.

2. Orttilgan fermentopatiyalar — turli omillar (infeksiyalar, toksinlar, noto'g'ri ovqatlanish, dorilar ta'siri) tufayli fermentlarning ishlab chiqarilishi yoki faoliyatining buzilishi.

Fermentopatiyalar metabolik jarayonlarning izdan chiqishiga sabab bo'lib, ichki a'zolarining faoliyatiga salbiy ta'sir ko'rsatadi va og'ir holatlarda jiddiy kasalliklarga olib kelishi mumkin.

Dunyo miqyosida nasliy fermentopatiyalar ichida fenilketonuriya, galaktozemiya, glikogenozlar, lizosomal saqlanish kasalliklari kabi patologiyalar keng uchraydi. Ushbu kasalliklar ko'pincha chaqaloqlik yoki bolalik davrida namoyon bo'ladi va agar erta aniqlanmasa, ruhiy va jismoniy rivojlanishning orqada qolishi, hayot sifatining pasayishi hamda turli xil asoratlar bilan kechadi. Shu sababli, prenatal diagnostika va yangi tug'ilgan chaqaloqlar skriningi hozirgi kunda muhim ahamiyat kasb etmoqda. Bulardan eng ko'p uchraydigan turlaridan biri bu fenilketonuriya hisoblanadi.

Fenilketonuriya — fenilalanin gidroksilaza fermenti yetishmovchiligi tufayli fenilalanin aminokislotasining organizmda to'planishi bilan bog'liq kasallikdir. Bu markaziy asab tizimiga zarar yetkazib, aqliy rivojlanishning orqada qolishiga sabab bo'ladi.

Klinik belgilariga quyidagilarni kiritish mumkin: aqliy rivojlanishning sustlashishi, tutqanoqlar va mushak tonusining buzilishi, jch rangli teri va sochlar hamda siydikda o'ziga xos hidning bo'lishi.

Tashxis va davolash uchun esa: yangi tug'ilgan chaqaloqlar skriningi orqali erta aniqlanadi, parhez terapiya, fenilalanin miqdori past mahsulotlarni iste'mol qilish shart boladi va tetrahydrobiopterin (bh₄) terapiyasi o'tkaziladi bu ayrim bemorlarda foydali bo'lishi mumkin.

Muhokama

Fenilketonuriyaga erta tashxis qo'yilib, to'g'ri parhezga rioya qilinsa, bemorlar normal hayot kechirishi mumkin. Genetik tadqiqotlarning rivojlanishi natijasida nasliy fermentopatiyalarni erta aniqlash va davolash bo'yicha yangi usullar ishlab chiqilmoqda. Masalan, gen terapiyasi va fermentlarni almashtirish terapiyasi kabi innovatsion usullar ba'zi fermentopatiyalarning og'ir oqibatlarini oldini olishda samarali bo'lib, bemorlarning umr ko'rish davomiyligini oshirishga va hayot sifatini yaxshilashga xizmat qiladi.

Xulosa

Yuqoridagilardan nasliy fermentopatiyalar haqidagi ilmiy izlanishlar, diagnostika usullari va davolash strategiyalarining rivojlanishi nafaqat tibbiyot, balki umumiy sog'liqni saqlash tizimi uchun ham dolzarb masalalardan biri hisoblanadi. Bu yo'nalishdagi tadqiqotlarning kuchaytirilishi kelajakda ushbu kasalliklarning oldini olish va samarali davolash imkoniyatlarini kengaytirishga yordam beradi. Nasliy fermentopatiyalar ba'zi oqsil sinteziga javob beruvchi genlarning mutatsiyaga uchrashi natijasida kelib chiqadi. Shunday ekan nasliy fermentopatiyalarning oldini olish uchun reproduktiv salomatlikka e'tibor qaratishimiz kerak. Reproductiv salomatlikni saqlash uchun turmush qurayotgan yoshlar albatta tibbiy ko'rikdan o'tishi va yaqin qarindoshlar orasidagi nikohga yo'q o'ymasligi kerak. Agar bo'lajak ota-onalar sog'lom turmush tarziga rioya qilsalar ko'pgina gen kasalliklarining ham oldi olingan bo'lar edi.

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THEORETICAL BASIS OF SPECIAL LEG STRENGTH EXERCISES IN DEVELOPING YOUNG VOLLEYBALL PLAYERS' JUMPING SKILLS

Abstract. *This article discusses the theoretical basis for the effective use of special exercises in volleyball through special exercises to improve the jumping skills of young volleyball players, gradually identifying the loads on the leg muscles during running and jumping.*

Key words. *Young volleyball players, jumping, strength, special exercises, technical movements, methodology, loads.*

Introduction

For young volleyball players, jumping is an integral part of volleyball in performing technical and tactical movements performed in space in game and competition conditions. Because almost all technical and tactical movements in volleyball are performed in space (putting the ball into play, attacking blows, blocking), that is, jumping. Therefore, the development of leg strength in young volleyball players at the initial training stage, taking into account the sensitive period, through special exercises without overloads, is a pressing problem of the article. Because during traditional training at the initial training stage, the sensitive period of some young volleyball players is not taken into account, and exercises that develop leg strength are not applied to each volleyball player at the end of the training.

Special exercises are divided into two groups: preparatory exercises; approximation exercises. Preparatory exercises are mainly used to develop special physical qualities. Approximation exercises are used in the process aimed at mastering specific technical movements.

In modern volleyball, the performance skills associated with hitting, blocking, passing, and scoring from various areas are represented by jumping ability and jumping endurance. Jumping ability is the ability to overcome vertical or horizontal distances with a high level of muscular and volitional strength[1].

One of the main physical qualities for volleyball players is jumping ability. Jumping ability belongs to the speed-strength qualities and is characterized by a strong contraction of the leg muscles in a short period of time. It is precisely this quality that is at a high level that allows relatively short players to compete with tall players and effectively perform basic game skills.

In today's volleyball practice, the development of volleyball players' jumping ability and jumping endurance is carried out using jumping exercises with and without a ball, standard exercises with weights, equipment or simulators. The main exercises to improve jumping ability include: single-leg and double-leg hopping,

jumping jacks, high jumps, serial jumps with two gymnastic benches stacked on top of each other, serial jumps while moving through obstacle areas, and jumps when performing an attack strike[2].

When studying the literature related to the article, it became clear that today almost all game skills are performed in the air in most situations, that is, jumping (hitting, blocking, scoring, passing, receiving the ball, catching the ball while falling). The emergence of this situation not only increases the attention paid to the qualities of jumping and jumping endurance in volleyball practice, but also requires the creation of new scientific technologies aimed at the intensive development of these qualities.

Therefore, the effectiveness of training qualified volleyball players in the process of many years of sports training is directly dependent on the priority of comprehensively perfecting the qualities of jumping and jumping endurance. The range of scientific studies and scientific literature covering the problems of developing jumping and jumping endurance in volleyball players is very wide [3].

When developing the leg strength of volleyball players, it is necessary to take into account all the leg muscles involved in jumping. The muscles involved in jumping in volleyball include:

- the anterior 3-headed muscle of the thigh;
- the posterior 2-headed muscle of the thigh;
- the 2-headed muscle of the calf;
- the muscles of the heel and pelvis.

Taking into account these muscle groups, engaging in specific special exercises for leg strength and constantly checking and taking into account the effectiveness of these exercises will develop jumping ability in children to a high level. As a result of the study of the literature, the problem of correctly taking into account the loads on the leg muscle groups when using special exercises to develop leg strength in young volleyball players, and the use of modern sports equipment is not taken into account, which is an unexplored gap in this article.

Using the above problems and unexplored gaps, this article can be aimed at the theoretical importance of developing young volleyball players in the process of developing leg strength through the use of effective types of special exercises, effective training methods and tools.

Based on the goal, the following tasks can be set:

- use a newly developed special exercise complex to develop the jumping ability of young volleyball players;

- provide additional exercises to develop explosive leg strength at the end of the main part of the training.

The following research methods can be used to solve the applied tasks: analysis and generalization of literature, pedagogical observations, pedagogical experiments and mathematical statistics methods. The experimental basis for the study was the training sessions held in the primary preparatory groups of the first year of study at the youth sports school for volleyball. This study is conducted in two stages. The first stage is the methodological substantiation and theoretical analysis of the available data on the research topic of

interest. The first stage includes a training period for the experimental methodology. The main goal of this period is to study the possibility of using the methodology in the training process in the youth sports school for volleyball and to develop a new content for improving jumping ability based on this methodology. The second stage is the development and testing of the experimental methodology during training sessions in the primary preparatory groups of youth for volleyball. The main pedagogical experiment is carried out in the process of lessons and training of teenagers in volleyball. The experimental group and the control group are formed on the basis of children aged 11-13. The experimental group consists of young athletes who are engaged in the volleyball section based on the developed methodology. The control group conducts training according to the generally accepted methodology. Each group will consist of 10 participants. None of the participants in the experimental and control groups should have been involved in volleyball.

Volleyball players in the experimental group are initially given theoretical information developed on the basis of the experiment. In the second stage, a specially developed methodology is used to solve the research problem during one average training cycle and at the initial preparatory stage. It is carried out as follows. To solve the initial task of using a newly developed special exercise complex to develop the jumping ability of young volleyball players, the following set of exercises is given at the beginning of the main part of the training of volleyball players in the experimental group:

1. Jumping and hitting a ball hanging from the waist on a jumping expander and along the floor with a shock absorber

Jumping over obstacles at different heights.

Jumping on boxes at different heights.

TABLE 1

	Test exercise set	Group	Before the study $X \pm \sigma$	After the research $X \pm \sigma$	Difference
	Jumping and hitting a previously inflated ball on a jumping trampoline (10 times).	$\frac{N}{T}$	$\frac{4 \pm 2}{4 \pm 1}$	$\frac{6 \pm 2}{8 \pm 1}$	$\frac{2}{4}$
	Jumping over obstacles of different heights (cm).	$\frac{N}{T}$		$\frac{44 \pm 3}{40 \pm 5}$	$\frac{4}{9}$
	Box-jump[4] (sm)	$\frac{N}{T}$	$\frac{30 \pm 5}{30 \pm 4}$	$\frac{43 \pm 4}{50 \pm 5}$	$\frac{13}{20}$

Note. The changes in the high jump exercises given to children in the T-experimental and N-control groups.

At the end of the main part of the training, the following exercises are proposed to be given to solve the task of developing explosive leg strength:

1. Sitting on one leg, quickly jump to a height and hit the ball.
2. Touching the knees to the chest 10 times, then touching the toes with a jump to the tips of the toes 10 times.

The results of this study confirm and supplement already known observations, and also help to obtain completely new data on the studied issue. However, it may be that if the coach conducts training using outdated methods, such as physical exercises based on simple repetition of movements related to general and individual abilities, the level of growth of athletes will be low. This method is ineffective, because "these skills can be considered not as muscle training, but as knowledge that needs to be acquired and implemented" (Beeri, 2000)[5].

The results of the study show that the above-mentioned special exercises in a single average cycle of training can develop the quality of jumping ability of young volleyball players related to their technical and tactical movements:

- exercises in jumping on an unknown ball with a shock absorber on the waist and floor in advance improve the quality of jumping and accuracy, develop leg strength, and help in the short-term use of attack or counterattack methods with great force;
- jumping over obstacles at different heights improves jumping endurance, leg strength, and harmoniously develops other physical qualities;
- jumping on boxes at different heights increases and improves agility, explosive power, and is associated with movement skills performed on a speed-strength basis develops endurance.

At the end of the main part of the training, by solving the task of developing explosive leg strength, the following conclusions were reached:

- sitting on one leg, quickly jumping to a height and hitting the ball is a successful factor in performing an attack shot over the net;
- touching the knees to the chest 10 times, then touching the toes 10 times while jumping on the toes develops general endurance at an average intensity, which was found to be a fundamental task for developing special endurance, especially for young volleyball players at the initial training stage [6].

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APPLICATION OF 3D BIOPRINTING TECHNOLOGY IN THE RECONSTRUCTIVE SURGERY OF POST-BURN EYELID DEFECTS

Abstract. *This paper explores the clinical challenges associated with post-burn eyelid deformities and evaluates the potential of 3D bioprinting technology as an innovative reconstructive solution. Conventional surgical techniques often face limitations such as donor site morbidity, insufficient tissue compatibility, and poor aesthetic outcomes. 3D bioprinting offers individualized, biocompatible, and functionally integrated tissue substitutes. The article reviews recent experimental and preclinical research, highlighting bio-ink components, cell types, and scaffold designs relevant to periorbital reconstruction.*

Keywords. *3D bioprinting, eyelid burns, reconstructive surgery, regenerative medicine, bio-ink, tissue engineering, mesenchymal stem cells*

Introduction

Eyelid burns pose a serious clinical and reconstructive challenge due to the delicate anatomy and functional significance of the periocular region. The eyelid plays a critical role in corneal protection, tear film distribution, and facial aesthetics. Thermal injuries to this area often lead to cicatricial ectropion, lagophthalmos, corneal exposure, and secondary infections, potentially resulting in irreversible vision loss or blindness [1]. Conventional reconstructive approaches rely on skin grafts, flaps, or composite tissue transplantation, but often result in suboptimal cosmetic and functional outcomes. In this context, 3D bioprinting has emerged as a promising regenerative solution, allowing for the layer-by-layer fabrication of living tissue constructs tailored to the patient's anatomy and cellular profile.

1. Clinical Consequences of Eyelid Burns

Post-burn eyelid defects commonly present the following complications:

- Anterior and posterior lamellar contractures
- Lagophthalmos with corneal exposure
- Recurrent keratitis and microbial infections
- Unsatisfactory aesthetic appearance and scarring
- Long-term psychosocial distress and facial disfigurement

Repeated surgical interventions are often necessary due to the limited elasticity and availability of periorbital tissue [2]. These challenges call for

biologically engineered constructs that can integrate into host tissue and restore both form and function.

2. Fundamentals of 3D Bioprinting Technology

3D bioprinting refers to the additive manufacturing of living tissues using bio-inks composed of cells, growth factors, and supportive biomaterials. The process involves precise digital modeling, usually derived from high-resolution imaging such as CT or MRI, to create custom anatomical scaffolds [3].

Key components include:

- Bio-inks: Collagen, gelatin, hyaluronic acid, fibrin, and poly(lactic-co-glycolic acid) (PLGA)
- Cells: Fibroblasts, keratinocytes, mesenchymal stem cells (MSCs)
- Bioreactors: Controlled environments for cell proliferation and differentiation
- Printing methods: Extrusion-based, inkjet, or laser-assisted bioprinting techniques

3. Reconstructive Potential in Eyelid Surgery

3.1. Patient-specific anatomical modeling

3D scanning technologies allow for the creation of personalized eyelid implants that conform to the patient's precise anatomical structure, reducing graft mismatch and improving cosmetic results [4].

3.2. Enhanced biological integration

Unlike synthetic implants, bioprinted constructs allow for host cell infiltration, vascularization, and tissue remodeling, minimizing the risks of rejection, fibrosis, and infection [5].

3.3. Functional composite tissue engineering

Recent advances in 3D bioprinting have enabled the integration of muscle, vascular, and epithelial layers within a single scaffold, allowing for dynamic eyelid function post-implantation [6].

4. Preclinical Studies and Experimental Evidence

- Murphy and Atala (2014) demonstrated the feasibility of fabricating layered, vascularized tissues using stem cell-laden bio-inks for complex organ reconstruction [7].
- Atala et al. (2020) successfully printed a collagen-based eyelid construct, which showed favorable integration in animal models, with preserved tarsal plate-like rigidity [8].
- Zhao et al. (2022) developed a 3D printed periorbital scaffold embedded with mesenchymal stem cells that supported epithelialization and reduced scarring in rodent models.
- Japanese researchers at RIKEN Institute have announced Phase I clinical trials for 3D printed human ocular tissues (2023), indicating imminent clinical translation.

5. Challenges and Future Perspectives

5.1. Technical limitations

- Maintaining cell viability and differentiation in thick tissue layers
- Achieving sufficient vascularization within printed constructs
- High cost and regulatory hurdles for clinical-grade biofabrication

5.2. Future directions

- Bioactive scaffolds with integrated growth factors and signaling molecules[9].
- Hybrid constructs combining 3D bioprinting with nanotechnology
- Development of universal, off-the-shelf bio-inks for clinical scalability

Conclusion. 3D bioprinting holds transformative potential in the field of reconstructive oculoplastic surgery, particularly for patients with post-burn eyelid deformities. Its ability to create personalized, biologically functional, and integrative tissue constructs may significantly improve both clinical outcomes and quality of life. Further clinical trials and long-term studies are necessary to validate its safety, efficacy, and cost-effectiveness for routine surgical application.

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YAKKAKURASH SPORT TURLARIDA ANAEROB CHIDAMKORLIKNI RIVOJLANTIRISH, UNI GIPOKSIK OMIL BILAN BOG'LIQLIGI VA BAHOLASH MASALALARI

Annotation: *Ushbu maqolada, Yakkakurash sport turlarida, shu jumladan kurash amaliyotida ham maxsus yoki anaerob chidamkorlik hal qiluvchi ahamiyatga ega bo'lsa-da, lekin ushbu sifat o'zga jismoniy sifatlar (kuch, tezkorlik, chaqqonlik, egiluvchanlik) bilan bog'liqligi, aerob va anaerob chidamkorlikni rivojlantirishda kuch, tezkorlik, maxsus yoki "koordinatsion", sensor (iroda, diqqat, xotira va h.k.) va psixologik chidamkorlikni ham alohida e'tiborga olish o'ta muhim ahamiyatga ega ekanligini takidlangan.*

Kalit so'zlar: *anaerob, gipoksik, koordinatsion sensor iroda, diqqat, xotira, yurak-tomir, integral reaksiyasi tezligiga, gipoksiya – O₂ qarzdorligi, sut kislotasining ortishi harorat, namlik, atmosfera.*

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DEVELOPMENT OF ANAEROBIC ENDURANCE IN MARTIAL ARTS, ITS RELATIONSHIP WITH THE HYPOXIC FACTOR AND ASSESSMENT ISSUES

Annotation: *This article emphasizes that although special or anaerobic endurance is of crucial importance in martial arts, including wrestling practice, this quality is related to other physical qualities (strength, speed, agility, flexibility), and that in the development of aerobic and anaerobic endurance, it is extremely important to pay special attention to strength, speed, special or "coordination", sensor (will, attention, memory, etc.) and psychological endurance.*

Keywords: *anaerobic, hypoxic, coordination sensor will, attention, memory, cardiovascular, integral reaction rate, hypoxia – O₂, increase in lactic acid, temperature, humidity, atmosphere.*

Aksariyat manbalarda ta'kidlanishicha, chidamkorlikning tarkibiy tuzilishi har bir sport turida o'ziga xos xususiyatlar bilan farqlanib, uning rivojlanish jarayoni bir qator omillarga bog'liq bo'lar ekan:

- organizmda mavjud bo'lgan energetik resurslar hajmiga;
- turli funksional organlar imkoniyati darajasiga (yurak-tomir, MNS, nafas olish, nerv-mushak;

- ushbu organlar faoliyatining muvofiqlashgan integral reaksiyasi tezligiga;
- fiziologik va psixologik funksiyalarning organizmda kechadigan salbiy o'zgarishlar ta'siriga bardosh berishiga (gipoksiya – O_2 qarzдорligi, sut kislotasining ortishi va h.k.);
- energetik resurslarni tejamli sarflash qobiliyatiga;
- ijrochi organlarning (qo'l, oyoq va h.k.) harakat tayyorgarligiga;
- texnik-taktik mahoratni shakllanganlik darajasiga;
- meteorologik ko'rsatkichlarga – harorat, namlik, atmosfera bosimi va h.k.

L.P. Matveev, sport turlarida chidamkorlik sifatini mashg'ulot va musobaqa talablariga mos chidamkorlik turlariga ajratishni tavsiya etadi. Ularning birinchisi – mashg'ulot, mikro-, mezo- va makrosikllar davomida bajariladigan yuklamalar hajmi va shiddatini o'zlashtirish bilan bog'liq bo'lsa, ikkinchisi – musobaqa sharoitida qayd etiladigan jismoniy va psixosotsial yuklamalarga bardosh berish qobiliyati bilan izohlanadi.

V.N. Platonovning fikriga qaraganda, chidamkorlikni turli yo'nalishli mushaklar faoliyatida shakllanish omillari ko'p bo'lganligi sababli, aksariyat mutaxassislar mazkur sifatni o'ziga xos nomlar asosida tasniflashtirishga erishganlar. Masalan, umumiy va maxsus chidamkorlik mashg'uloti va musobaqa chidamkorligi lokal, regional, global chidamkorlik, aerob va anaerob chidamkorlik, vegetativ, sensor, emotsional, statik, dinamik, tezkorlik va kuch chidamkorligi.

Chidamkorlikning qayd etilgan aksariyat yo'nalishlari kurash turlarida ham o'z ifodasini topgan. Jumladan, V.F. Boyko, G.V. Dankoning ta'kidlashicha, kurashchilarda umumiy chidamkorlik darajasini aniqlash uchun uning nafas olishi va yurak faoliyatini nazorat qilish lozim ekan.

Mualliflarning fikriga qaraganda, turli vazn toifasidagi kurashchilarning funksional imkoniyatlari turlicha bo'lgani sababli, ushbu omil mashg'ulotlarda ham, musobaqalarda ham chidamkorlik darajasiga ta'sir etmasdan qolmas ekan.

Ma'lumki, kurash turlarida musobaqa bellashuvlari nisbatan qisqa vaqt davom etsa-da, mazkur jarayonda qayd etiladigan mushaklar faoliyati o'ta shiddatli kechadi. Bunday bellashuvlarning ko'p martalab takrorlanishi hisobga olinsa, demak kurashchi uchun global chidamkorlik turlari o'z "xizmatini" ko'rsatishi lozim ekan [125; 85-b]. Mazkur olimning e'tirofi etishicha, mashg'ulot va musobaqalar davomida bajariladigan o'ta shiddatli va katta hajmli mexanik ishning integral ko'rsatkichi chidamkorlikning yalpi mezon sifatida ko'llanilishi mumkin ekan.

Ye.M. Gumanov bu borada o'ta muhim ma'lumotni qayd etib shuni ta'kidlaydiki, barcha yo'nalishda namoyish etiladigan chidamkorlikni samarali rivojlantirish uchun kurashchida o'pkaning turli sig'imi katta, nafas olish chuqur va ravon, nafas olish, O_2 ni tejamli sarf qilish va gipoksik sharoitda (O_2 qarzдорligi) yuksak faoliyat ko'rsatish qobiliyatiga ega bo'lishi kerak ekan. Lekin, aksariyat kurashchilarda nafas olish noritmik bo'lishi, nafasni saqlash muddati qisqa, O_2 iste'mol qilish 3.5-4 l/min. ga teng bo'lishi kuzatilar ekan. Shunday holatni bartaraf etish uchun u nafas olish funksiyasini samarali shakllantirish maqsadida quyidagi metodlardan foydalanishni tavsiya etadi:

- mashqlar shiddatini o'zgartirmasdan ularning davom etish vaqtini oshirish metodi;

- bir xil vaqt davomida mashqlar hajmini saqlagan holda ularning shiddatini kuchaytirish metodi;

- oraliq (interval) metod;

- o'zgaruvchan metod;

- yuklamalar hajmini va shiddatini oshirish metodi. Aynan shu metodlar yordamida aerob imkoniyatni, ayniqsa anaerob chidamkorlikni samarali rivojlantirish mumkin ekan.

M.A Godik tomonidan keltirilgan ma'lumotlarga qaraganda, futbolda anaerob chidamkorlikni samarali rivojlantirish uchun maksimal tezlikda bajariladigan mashqlardan foydalanish maqsadga muvofiq ekan. Shundagina o'zgaruvchan yo'nalishli va shiddatli yuklamalarni yengish imkoniyati tug'ilar ekan, bunday mashqlar gipoksik sharoitda ishini samarali davom ettirish chorasini yaratib, toliqish alomatlariga bardosh berish qobiliyatini kuchaytirishi mumkin ekan. Lekin buning uchun futbolchilarda barcha harakatlarida ishtirok etuvchi asosiy mushaklar kuchini maksimal darajada rivojlantirish, ayniqsa portlovchi kuch va kuch chidamkorligini sayqal toptirish lozim ekan. Uning ta'kidlashicha, barcha jismoniy sifatlarni tanlagan sport turi xususiyatlari doirasida proporsional yo'nalishi bo'ylab rivojlantirish oxir-oqibat organizmni toliqishiga bardosh berish imkoniyatlarini yaratishi muqarrar ekan. Ushbu muallif R.Moxan, M.Glisson, P.Grinxaff ma'lumotlarga asoslangan holda shuni ta'kidlaydiki, mushaklarning qisqarish jarayoni va harakat mexanikasi faqat yagona energiya ajratuvchi ATF (adenozintrifosfat)ning parchalanishi evaziga amalga oshiriladi. ATFning parchalanishi va resintezlanishi 4 ta mexanizm yordamida amalga oshirilgan ekan:

1. ATF va ADF (adenazindifosfat)gacha parchalanishi mushaklarning energiya ta'minlovchi;

2. KF (kreotinfosfat)ni kreatin va fosfatgacha parchalanishi natijasida ularni ATFni resintezlanishi uchun ADFga qo'shilishi;

- glikogen yoki qondagi glyukozani anaerob sharoitda parchalanishi natijasida energiya ajratishi;

- uglevod, lipid va oqsillar aerob metabolizmi (almashinuvi), ularni ozuqa sifatida mitaxondriyalarda (yunoncha mitos – tola, un + chondros urug') oksidlanadi.

Aerob yo'nalishli chidamkorlikni rivojlantirishda N.I. Volkov tomonidan belgilangan asosan 3 ta vazifani hal qilishga e'tibor qaratishi lozim ekan:

1. Qon tarkibida O_2 ni faoliyat ko'rsatadigan organlarga yetkazish funksiyasini bajaruvchi yurak-tomir tizimi imkoniyatini kuchaytirish.

2. Mushaklarda O_2 ni sarflash sur'atini va uzoq muddatli ish davomida yog'larni oksidlanishi (parchalanishi) samaradorligini oshirish.

3. Mashg'ulotlar va musobaqalardan keyin ish qobiliyatini tiklanish muddatini jadallashtirish.

- 1.1.-jadvalda aerob yo'nalishli mashg'ulot turlarining mezoniy ko'rsatkichlari aks ettirilgan.

Aerob yoʻnalishli mashgʻulot turlarining mezoniy koʻrsatkichlari

T/r	Mashgʻulot turi	Max YuQSDan – YuQS (%)		YuQS – zarba/daqqa	
		oʻrtacha	min-max diapazon	oʻrtacha	min-max diapazon
1.	Ish qobiliyatini tiklashga qaratil-gan mashgʻulot	65	40-80	130	80-160
2.	Sekin muddatli aerob mashgʻulot	80	65-90	160	130-180
3.	Tezkor shiddatli aerob mashgʻulot	90	80-100	180	160-200

Jadvalda qayd etilgan tasnifiy koʻrsatkichlar, M.A. Godikning taʼkidlashicha, real sharoitlarga mos kelmaydi. Keltirilgan mashgʻulotlar turi mavjuddir, lekin ularni toʻliq oʻtkazish imkoniyati boʻlmas ekan.

Muallifning tavsiyasiga koʻra, anaerob yoʻnalishli mashgʻulotlar tezkorlikka boʻlgan chidamkorlikni tarbiyalash uchun samarali boʻlib, bunda 3 ta vazifani hal etishga urgʻu berish lozim ekan:

1. Musobaqaning aktiv fazalarida sportchining harakat shiddatini oshirishi uning maksimal tezlikda yurishi, faolligini kuchaytirish.

2. Musobaqa davomida aktiv fazalarni davom etishi muddatidan qatʼi nazar, anaerob mexanizm orqali energiya ishlab chiqarish shiddati va samaradorligini oshirish.

3. Mashgʻulot va musobaqadan keyin mushaklar ichidagi energetik resurslarni tiklanishi va imkoniyatini oshirish.

Anaerob mashgʻulot turlarining muddati, shiddati va takrorlanish sonini ifodalovchi koʻrsatkichlar va ularning mezonlari 1.2-jadvalda keltirilgan.

Anaerob mashg'ulotlar turlari va ko'rsatkichlari

tt/r	Mashg'ulot turi	Davom etish vaqti, sek.		Shiddati (%) o'rtacha min-max diapozon	Takrorla-nish soni (marta)
		mashqlar	tanaffus		
1.	Tezkorlik chidamkorligini oshiruvchi mexanizmlar shiddatini o'stiruvchi mashg'ulot	20-40 sek.	Mashqlar muddatiga nisbatan 5 marta ortiq (100-400 sek.)	130 80-160	2-10
2.	Tezkorlik chidamkorligini oshiruvchi mashg'ulot: anaerob mexanizmlar sig'imi va samaradorligini o'stiruvchi mashg'ulot	30-90 sek.	30-90 sek.	Maksimalga yaqin	2-10

Izoh: bunday rejimli mashg'ulotlarda ko'proq nospesifik mashg'ulotlardan foydalanish mumkin.

Kurash turlari bo'yicha ilmiy tadqiqotlar o'tkazib kelinayotgan va bir qator ilmiy-metodik manbalarni yaratgan aksariyat mutaxassis-olimlarning fikriga qaraganda, kurash amaliyotida olib borilayotgan mashg'ulotlar, ko'p martalab takrorlanuvchi shiddatli bellashuvlar va musobaqa olishuvlarining pirovard yoki integral samaradorligi aynan maxsus chidamkorlik bilan belgilanar ekan.

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FORMING ECOLOGICAL NETWORKS BASED ON INTERNATIONAL EXPERIENCE: ADVANCED APPROACHES IN SUSTAINABLE LANDSCAPE MANAGEMENT

***Annotation.** This article analyzes the content of the concept of an ecological framework (ecological network) and advanced approaches to its formation in foreign countries. In particular, in the European Union, the USA, Canada and other developed countries, aspects such as the integration of ecological networks into territorial planning, legislative support, the use of GIS technologies and ensuring the participation of civil society are highlighted. The article provides a basis for studying international experience and forming a national model for ensuring ecological sustainability.*

***Keywords:** ecological framework, ecological network, sustainable development, territorial planning, landscape management, international experience.*

Introduction. Preservation and restoration of ecological connections between natural ecosystems has become an important direction of global environmental policy. The concept of an ecological framework (or ecological network) plays an important role in this. International experience shows that through proper planning of an ecological network, it is possible to preserve biodiversity, increase resilience to natural disasters, and reduce anthropogenic pressure. This article analyzes effective approaches to organizing an ecological framework using the example of developed countries.

The concept of ecological framework and its international appearance is very multifaceted. Ecological framework (English: ecological network, green infrastructure) is a territorial structure that connects natural areas, corridors, buffer zones and other ecosystem elements, maintaining ecological continuity. Its main purpose is: protecting biodiversity, ensuring ecological sustainability, restoring balance at the landscape level.

This concept first emerged in Europe in the 1990s and later became widely used in the United States, Canada, Australia, and other countries.

The European Union experience: The Pan-European Ecological Network is the first established system. The European Union is one of the most advanced regions in the formation of ecological networks. In 1995, the concept of the Pan-European Ecological Network (PEEN) was developed.

The main approaches are as follows.

✓ Transboundary integration: Ecological areas are seen as a single network that crosses the borders of several countries.

✓ NATURA 2000 system: A large ecological protection system that includes core areas and ecological corridors of the European Union.

✓ GIS technologies: Widely used in landscape analysis and identification of ecological corridors.

✓ Legislative framework: Each member state integrates the ecological network into its national legislation.

The Green Infrastructure approach in the US is broadly defined. In the US, the term "green infrastructure" is widely used instead of the terms ecological network or ecological framework. Its main elements are:

Urban ecology integration: The ecological situation in cities is improved by integrating green parks, reservoirs, and green zones into a single system.

Coordination at the federal and local levels: Strategies for forming an ecological network are coordinated at the state and regional levels.

Civic participation and the private sector:

Many projects are implemented in collaboration with representatives of society and business.

Example: The state of Maryland has designated green infrastructure as a mandatory element of regional planning.

Canada has a largely Landscape-Based Planning system in place. Ecological networks in Canada are designed through a landscape-based approach. These include:

- Analysis of natural geographical zones,
- Taking into account animal migration routes,
- Taking into account the interests of local communities

Diqqatga sazovor tajribadan yorqin misol: Yellowstone to Yukon (Y2Y) ekologik yo‘lagi – Shimoliy Amerikadagi eng yirik ekologik tarmoqlardan biri bo‘lib, Kanada va AQSh chegaralarini kesib o‘tadi.

Turning to advanced technologies and scientific approaches, the following tools are actively used in creating ecological networks in foreign countries: Remote Sensing (masofadan zondlash): Landshaft o‘zgarishlarini monitoring qilish.

GIS (Geographic Information Systems): Mapping ecological corridors and areas. Modeling tools (masalan, Marxan, Zonation): Ekologik muhofaza ostidagi eng muhim hududlarni aniqlash va hokazo.

Identification of the most important areas under ecological protection, etc.

Universities and research institutes are also actively involved in these processes.

There are a number of proposals for Uzbekistan based on international experience. By analyzing foreign approaches, the following recommendations can be put forward for Uzbekistan:

- Inclusion of ecological networks in national territorial planning
- Creation of ecological corridors along the Syrdarya, Amudarya, and Zarafshan rivers

- Connecting the habitats of species listed in the Red Book through ecological corridors

- Widespread introduction of GIS and remote monitoring technologies

- Ensuring the participation of civil society, local communities, and farmers

Conclusion. International experience shows that for the successful organization of ecological frameworks, not only natural resources are needed, but also political will, institutional stability and technological readiness. The experience of Europe, the USA and Canada sees ecological networks as an integral part of territorial and strategic planning. Uzbekistan, due to its unique natural and geographical features and important ecosystems, should use foreign approaches to the formation of ecological networks and create its own national model. This will be an important factor not only in preserving biodiversity, but also in ensuring sustainable economic development and environmental security.

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LINGUISTIC PECULIARITIES OF CONDITIONAL CONSTRUCTIONS IN ENGLISH AND UZBEK LANGUAGES

Abstract: *This article investigates the linguistic peculiarities of conditional conjunctions in English and Uzbek languages. The study focuses on the etymology, grammatical functions, and semantic variations of conjunctions that introduce conditional clauses. English conditional conjunctions (if, unless, provided that, in case, as long as) are compared with their Uzbek counterparts (agar, mabodo, toki, bo‘lmasa). The research reveals both universal typological features and language-specific strategies, emphasizing the role of conditionals in syntactic structures, modality, and discourse. The findings contribute to contrastive linguistics and practical applications in translation studies and bilingual education.*

Keywords: *conditional conjunctions, English, Uzbek, modality, comparative linguistics, syntax*

Introduction.

Conditionality is one of the universal categories of human language, as it reflects logical relations between actions, events, and states. The linguistic realization of conditionality involves specific markers, among which conjunctions play a central role. In both English and Uzbek, conjunctions function as linking devices that establish semantic and syntactic dependency between clauses. However, the means of expressing conditionality vary across languages depending on typological and cultural factors.

The purpose of this research is to explore the linguistic peculiarities of conditional conjunctions in English and Uzbek languages, identify their similarities and differences, and analyze their grammatical and semantic properties within comparative-typological linguistics.

Methods and Research.

Conjunctions have been widely studied in syntax and semantics as relational markers. Halliday (1994) defines conjunctions as cohesive devices that signal logical relations between clauses. In Uzbek linguistics, conjunctions (bog‘lovchilar) are studied as independent word classes that perform the function of syntactic linking (Ibragimov, 2002). Within conditional clauses, conjunctions indicate the dependency of the subordinate clause upon the main clause.

Conditionals are generally classified into real, unreal, and hypothetical. The conjunctions used in these structures serve as explicit signals of conditional

meaning. The typological comparison of English and Uzbek shows both overlap and divergence in the inventory and usage of conditional conjunctions.

Results and Discussion.

Conditional conjunctions in English

English employs a wide variety of conjunctions to mark conditions:

Basic conditional marker:

if – the most frequent marker, e.g., If you study hard, you will succeed.

Negative condition:

unless – expresses exception, e.g., Unless you try, you cannot achieve anything.

Restrictive/limited condition:

as long as, provided that, on condition that – introduce necessary circumstances, e.g., You can borrow the book as long as you return it tomorrow.

Preventive/precautionary condition:

in case – indicates potential preventive measures, e.g., Take an umbrella in case it rains.

English conditionals rely on these conjunctions alongside tense and modality to create nuanced meanings.

Conditional conjunctions in Uzbek

Uzbek uses a more limited but morphologically diverse set of conditional markers:

Basic marker:

agar – the most universal marker, e.g., Agar o‘qisang, muvaffaqiyat qozonasan.

Hypothetical marker:

mabodo – expresses uncertainty or remote possibility, e.g., Mabodo kelmasa, uchrashuv bekor bo‘ladi.

Temporal-conditional marker:

toki – meaning “until,” sometimes with conditional sense, e.g., Toki u qaytmaguncha, kutamiz.

Alternative/negative condition:

bo‘lmasa – used to indicate the opposite consequence, e.g., Shoshil, bo‘lmasa avtobusni qo‘ldan boy berasan. Unlike English, Uzbek heavily relies on affix -sa in addition to conjunctions, showing agglutinative typology.

Comparative analysis

The comparison shows:

Inventory: English has a richer inventory of lexicalized conditional conjunctions, while Uzbek relies on fewer but multifunctional forms supported by morphology.

Semantics: English conjunctions express fine distinctions (exception, restriction, precaution), whereas Uzbek markers are broader but rely on context.

Syntax: In English, the position of the conditional clause is flexible (initial or final). In Uzbek, agar clauses usually precede the main clause.

Discourse: English often uses conditionals for politeness strategies, while Uzbek employs them in proverbs, moral sayings, and oral traditions.

Pragmatic functions

Conditional conjunctions serve important pragmatic roles:

Politeness and mitigation:

English: If you could send me the file, I would appreciate it.

Uzbek: Agar iloji bo'lsa, yordam qilsangiz.

Proverbs and folklore:

English: If winter comes, can spring be far behind?

Uzbek: Agar mehnat qilsang, rohat topasan.

This demonstrates cultural embedding of conditionality in discourse.

Typological implications

The findings support the view that:

English is more analytical, relying on auxiliary verbs and lexical conjunctions.

Uzbek is more agglutinative, relying on suffixes and particles, with conjunctions playing a secondary role.

Both languages demonstrate universality in expressing cause-effect and hypothetical relations, but diverge in the means of realization.

Conclusion.

The linguistic peculiarities of conditional conjunctions in English and Uzbek highlight the interplay of universal and language-specific features. English employs a wide range of lexical conjunctions, each carrying nuanced meanings, whereas Uzbek uses fewer conjunctions supported by morphological markers. Pragmatic functions reveal cultural influences on the usage of conditionals.

Furthermore, the comparison demonstrates that conditional conjunctions are not only grammatical connectors but also powerful tools for shaping discourse and expressing modality. They reflect cultural norms of politeness, reasoning, and argumentation in both languages. In English, the variety of conditional conjunctions provides speakers with fine distinctions of meaning, while in Uzbek, the multifunctionality of a limited set of markers shows the flexibility of agglutinative morphology.

From a pedagogical perspective, understanding these similarities and differences is crucial for effective bilingual education, translation, and intercultural communication. This research proves that conditional conjunctions serve as a bridge between grammar, semantics, and pragmatics, and their study contributes to the broader field of comparative-typological linguistics. The results can be applied in teaching English and Uzbek languages and in translation processes. Future research may focus on corpus-based analysis of conditionals in spoken discourse, literary texts, and digital communication, which would further enrich our understanding of their linguistic and cultural significance.

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BASKETBOLCHILARNING JISMONIY TAYYORGARLIK RIVOJINING HARAKAT FAOLIYATI REJIMIGA BOG‘LIQLIGI

Annotatsiya: Hozirgi kunga yurtimizda ayniqsa sport o‘yinlariga va uning istiqbolli rejalariga alohida urg‘u berilyapti. Buning natijasida sport o‘yinlari basketbol sporti ham aholi orasida keng rivojlanmoqda. Ushbu maqolada basketbol mashg‘ulotlari orqali jismoniy rivojlanishi va jismoniy tayyorgarligi darajasini yaxshilashga haqida ma’lumotlar keltirilgan.

Kalit so‘zlar: Tezkorlik, sport, basketbol, interaktiv, chaqqonlik, tezkor harakat aniqligi.

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Annotation: Currently, in our country, special emphasis is being placed on sports and its future plans. As a result, sports games, especially basketball, are developing widely. This article provides information on how to improve physical development and physical fitness through basketball training.

Keywords: Speed, sports, basketball, interactive, agility, quickness, accuracy of movement.

Jismoniy tayyorgarliklar ularning namoyon bo‘lishinigina emas, ularni bajarishning muayyan rejimini ham talab qiladigan faoliyat jarayonida rivojlanadi. Rejim deganda, bir mashg‘ulot yoki mashg‘ulotlar tizimi doirasida qandaydir jismoniy mashqlarning bajarilishi va ular orasidagi dam olish tushuniladi. Kerakli tartibni o‘rnatishda, eng avvalo, insonning ish qobiliyatidagi bosqichlar tebranishi muhim ahamiyatga ega. Jismoniy mashqlarni bajarish jarayonida organizmning quvvat va funksional zahiralar sarfi bilan bog‘liq holda ishchanlik qobiliyati darajasi pasayadi. Dam olish chog‘ida (mashq tugatilgach) ishchanlik qobiliyatining tiklanishi yuz beradi. Inson organizmi bu vaqtda bir necha holatlarni: ishchanlik qobiliyati susaygan bosqichni; ishchanlik qobiliyati to‘la tiklangan bosqichni va nihoyat, o‘ta tiklangan, ya’ni ishchanlik qobiliyati kuchaygan bosqichni bosib o‘tadi. Sanab o‘tilgan bosqichlarning har biri boshqa sharoitlardan tashqari, bajarilgan ishning xususiyatlari, shiddati va davomiyligiga bog‘liq bo‘lgan muayyan uzunlikka ega bo‘ladi. Har bir keyingi mashq dam olishning qaysi

bosqichida takrorlanishiga qarab, harakat faolligining uch asosiy rejimini ajratib ko'rsatish mumkinki, ular jismoniy sifatlarning rivojlanishiga har xil ta'sir ko'rsatadi:

1-rejim: bunda darsdagi har bir keyingi mashq qisqa muddatli dam olish oraliqlari bilan, ya'ni ishchanlik qobiliyati to'la tiklanmagan bosqichda takrorlanadi. Ishchanlik qobiliyatining barcha ko'rsatkichlari muntazam qancha funksional ko'rsatkichlarini faoliyat ko'rsatishdan avvalgi darajaga pasayib boradi. Ish va dam olishning bunday navbatlashish rejimi chidamlilikning rivojlanishiga mosdir.

2-rejim: har bir keyingi mashq organizmning bir qaytaradigan dam olish oraliqlari bilan, ya'ni ishchanlik qobiliyati to'la tiklangan bosqichda takrorlanadi. Bunday rejim tezkorlik, kuch va muvofiqlash imkoniyatlarini rivojlantirishga yo'naltirilgan darslarga xos bo'ladi.

3-rejim: bunda har bir keyingi mashq ishchanlik qobiliyati ortig'i bilan tiklangan bosqichga mos keluvchi ancha uzoq muddatli dam olish oraliqlari bilan takrorlanadi. Bunday rejimda mashq takrorlangani sayin insonning harakat imkoniyatlarida xar tomonlama o'zgarishlar kuzatiladi – mushak kuchi va tezkorlik oshib, chidamlilik pasayadi.

V.I. Morosanovning "Jismoniy sifatlarni tartibga solish uslubi" so'rovnomasi

	Jamoa	№	O'rtacha qiymat	Standart og'ish	t	Sig. (2-tailed) Ishonch darajasi
Rejalashtirish	Toshkent AGMKA	15	6,9333	1,09978	,552	,585
	Jizzax Ziyokor	22	6,6818	1,67293		
Modellashtirish	Toshkent AGMKA	15	6,3333	1,39728	1,321	,195
	Jizzax Ziyokor	22	5,7273	1,35161		
Dasturlash	Toshkent AGMKA	15	6,7333	1,66762	1,303	,201
	Jizzax Ziyokor	22	6,1364	1,12527		
Natijalarni baholash	Toshkent AGMKA	15	6,0000	1,06904	1,567	,126
	Jizzax Ziyokor	22	5,2727	1,75070		
Moslashuvchanlik	Toshkent AGMKA	15	7,5333	1,40746	2,113	,043*
	Jizzax Ziyokor	22	6,5000	1,53530		
Mustaqillik	Toshkent AGMKA	15	6,2667	2,28244	,845	,404
	Jizzax Ziyokor	22	5,6818	1,91203		

Jismoniy tayyorgarliklar rivojlanishining bosqichliligi. Jismoniy tayyorgarlikni rivojlantirish dinamikasida – bir xil yuklamalarni uzoq muddat davomida, ko'p marotaba bajarishda – uchta nisbatan mustaqil bosqichni shartli ravishda ayirib ko'rsatish mumkin:

Birinchi – jismoniy tayyorgarlikning rivojlanish darajasini oshirish;

Ikkinchi – jismoniy tayyorgarliklarni rivojlantirishda maksimal ko'rsatkichlarga erishish;

Uchinchi – jismoniy tayyorgarliklar rivojlantirish ko'rsatkichlarining pasayishi.

Birinchi bosqichda yuklama qo'llash natijasida organizmda har tomonlama moslashtiruvchi o'zgarishlar yuz beradi, ular harakat faoliyati xususiyatlari bilan

bog'liq jismoniy tayyorgarliklarning o'sishiga va funksional imkoniyatlarning asta-sekin kengayishiga sabab bo'ladi.

Ikkinchi bosqichda moslashtiruvchi o'zgarishlar o'sib borgan sayin standart yuklama organizmda tobora kamroq funksional siljishlarga sabab bo'ladi. Bu moslashtiruvchi jarayonlarning turg'un adaptatsiya bosqichiga o'tganligidan darak beruvchi bir belgidir. Tegishli qobiliyatlarning namoyon bo'lishi asosida yotuvchi tana a'zolari va tizimlarining imkoniyatlari jiddiy tarzda kengayib boradi. Ularning faoliyatida tejamlilik va o'zaro muvofiqlashuv kuchayadi. Bo'larning barchasi qobiliyatlarning maksimal darajada namoyon bo'lishi uchun sharoit yaratadi.

Uchinchi bosqichda mazkur yuklama organizmdagi funksional imkoniyatlarning kengayishi tufayli moslashtiruvchi siljishlarni yuzaga keltirmay qo'yadi, ya'ni uning rivojlantiruvchi ta'siri yo pasayadi, yoki umuman yo'qoladi. Jismoniy rivojlanish yana davom etishi uchun qo'llaniladigan yuklamalarning xususiyatlari va mazmunini o'zgartirish (boshqa mashqlar tanlash, ish shiddatini oshirish, uning davomiyligi yoki mashqlarni bajarish sharoitlarini o'zgartirish), shu tariqa jismoniy qobiliyatlar uchun yangi, yuqoriroq talablar qo'yish zarur. Boshqacha aytganda, qobiliyatlar rivojini go'yoki birinchi bosqichga o'tkazish kerak.

Insonning jismoniy sifatlari jismoniy tayyorgarliklari bilan uzviy bog'liq bo'lib, turli harakatlar chog'ida ularning namoyon bo'lish xususiyatlari bilan belgilanadi, jismoniy qobiliyatlarning rivojlanish va namoyon bo'lish darajasiga bir tomondan atrof-muhit omillari, ikkinchi tomondan esa organizmning turli tas'irlarga o'ziga xos reaksiyasi bilan bog'liq bo'lgan irsiy omillar ta'sir o'tkazadi, jismoniy qobiliyat nishonalari sifatida inson organizmdagi anatomik, fiziologik va ruhiy xususiyatlari yuzaga chiqadi. Mazkur ilmiy tezisda hozirda sport o'yinlari basketbol turiga qanchalik e'tibor berilayotganini va uning mashg'ulot jarayonlari, sportchilarning psixofeziologik tayyorgarliklari xususida yoritib berilgan.

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TA’LIMDA AXBOROT TEXNOLOGIYALARI: YANGI TENDENSIYALAR

Annotatsiya: Axborot jamiyatini yaratish mamlakatimiz taraqqiyotining eng muhim ustuvor yo‘nalishlaridan biridir. Hozirgi vaqtda informatizatsiya jarayonlarining huquqiy asosi shakllantirilgan bo‘lib, yangi telekommunikatsiya va axborot xizmatlarini taqdim etishga qaratilgan milliy axborot-kommunikatsiya infratuzilmasi rivojlantirilmoqda.

Kalit so‘zlar: AKT, ta’lim, innovatsiya, interaktiv ta’lim texnologiyalari.

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INFORMATION TECHNOLOGIES IN EDUCATION NEW TRENDS

Abstract: Creating an information society is one of the most important priorities of our country's development. At present, the legal basis for informatization processes has been formed, and the national information and communication infrastructure is being developed to provide new telecommunications and information services.

Keywords: ICT, education, innovation, interactive education technologies.

Mamlakatimiz innovatsion rivojlanish yo‘nalishida jadal taraqqiy etayotgan bir davrda, kelajagimiz davomchilari bo‘lgan yoshlarning ijodiy g‘oyalari va ijodkorligini har tomonlama qo‘llab-quvvatlash, ularning bilim, ko‘nikma va malakalarini shakllantirish, shuningdek, ilg‘or xorijiy tajriba va xalqaro mezonlar asosida baholash tizimini takomillashtirish hamda ilmiy-tadqiqot muassasalari bilan yaqin hamkorlik qilish zarur.

AKTdan foydalanishning hozirgi bosqichi deyarli barcha ta’lim darajalarida axborot resurslari va internet xizmatlarining keng tarqalishi va mavjudligi, talabalar va o‘qituvchilarning shaxsiy kompyuterlari va kirish qurilmalaridan foydalanishi, ta’lim jarayoniga multimedia hamda interaktiv o‘quv vositalarining faol jalb etilishi, pedagogik faoliyatni tashkil etish uchun yangi elektron vositalar va texnologiyalarning yaratilishi bilan tavsiflanadi.

Jamiyatning barcha sohalariga AKTning keng kirib kelishi ta’lim tizimida ularni qo‘llash uchun zarur rag‘batlarni yuzaga keltirmoqda. Boshqa tomondan,

axborot texnologiyalaridan foydalanishga yuqori darajada tayyorgarlik va infratuzilmaning rivojlanganligi, bilimlarning o'sish sur'atlari va katta hajmi, talabalar hamda jamiyat tomonidan muvaffaqiyatli o'zini-o'zi ro'yobga chiqarish uchun zarur bo'lgan gumanitar va kasbiy kompetensiyalarga qo'yilayotgan talablarning ortishi "elektron" ta'lim mazmunini yuqori sifatli ishlab chiqish, zamonaviy texnologiyalardan samarali foydalanish va ularni malakali kadrlar bilan ta'minlash, shuningdek, axborot xavfsizligini ta'minlash muammolarini yanada keskinlashtirmoqda. Jamiyat tomonidan "umrbod ta'lim"ga bo'lgan yuqori qiziqish va keng talab, shuningdek, sifatli va zamonaviy ta'limning mavjudligi bo'yicha qo'yilgan talablarga javoban, informatizatsiya tizim rivojlanishining muhim omillaridan biri hisoblanadi.

Bizning zamonaviy jamiyatimiz kundalik hayotimizning barcha sohalariga singib ketgan yangi kompyuter texnologiyalari ta'siri ostida. Biz axborotni almashamiz, uni tarqatamiz va qabul qilamiz, natijada global axborot makonini shakllantiramiz. Ammo bu bilimlar tor ko'lamda, chunki o'qish jarayoni asosan ma'lum bir sohadagi qiziqishlar hisobiga kechadi va natijada bolalar ko'pincha kompyuter o'yinlari, ijtimoiy tarmoqlar va boshqa ko'ngilochar resurslar bilan tanish bo'lib qolishadi, biroq o'qishga qiziqmaydilar, hatto ba'zan yetarli darajada ta'lim olmaydilar. Bunga sabab — ta'lim tizimi jamiyat va umuman dunyo taraqqiyotidagi keskin tendensiyalarga moslashib ulgurmaganidir. Shu bois, hayotning faqat birinchi yarmida ta'lim olishga asoslangan an'anaviy tizim ma'naviy jihatdan eskirgani va uni uzluksiz ta'lim hamda umrbod o'qish tizimi bilan almashtirish zarurligi haqidagi tushuncha tobora kuchayib bormoqda [1].

Ta'limning yangi shakllari o'quv jarayonida interaktivlik va hamkorlik bilan tavsiflanadi. Yangi ta'lim nazariyalari, talaba markazli ta'lim, vaqt va makon chegaralarisiz o'qish imkoniyatlarini yaratish zarur. Ta'lim sifatini oshirish uchun yangi ta'lim texnologiyalaridan keng foydalanish rejalashtirilmoqda, ularning standartlashtirishga doir yondashuvlari esa batafsil muhokama qilinmoqda.

Hozirgi paytda ko'plab davlatlarda, jumladan O'zbekistonda ham, ta'limga axborot texnologiyalarini joriy etish tendensiyasi endigina kuchayib bormoqda. Ko'pincha bu jarayonni zamonaviy texnologiyalar haqida aniq tushunchaga ega bo'lmagan, eski o'qitish usullariga tayanadigan insonlar amalga oshirmoqda. Shuningdek, joriy etilishning sustligi bir necha yil avval boshlang'ich sinf o'qituvchilarining kompyuter texnologiyalarini yetarli darajada bilmaganligi bilan izohlanadi. Natijada ular ma'lum texnologiyalardan ma'lum bir fanlarni o'qitishda qanday foydalanishni tasavvur qila olmaganlar. Ko'p hollarda kompyuter darslarini informatika o'qituvchilari olib borgan, ular esa axborot texnologiyalarini ta'lim jarayonida qo'llash bo'yicha yetarlicha tajribaga ega emas edilar. Shuningdek, maktablarda kompyuterlar mavjud bo'lsa-da, yuqorida tilga olingan sabablar tufayli ularning barcha imkoniyatlari to'liq joriy etilmagan. Biroq ta'lim innovatsion bosqichlardan o'tib, asta-sekinlik bilan axborot texnologiyalaridan foydalanishga doir yetarli bilim va tayyorgarlikka ega yangi mutaxassislar bilan boyib bormoqda.

Ta'limni kompyuterlashtirish keng qamrovli innovatsion rejaning faqat boshlang'ich qadami bo'lib, kompyuter texnologiyalarini ta'limga joriy etishda

asosiy e'tibor texnologiyaning o'ziga emas, balki uning ta'lim jarayoni bilan o'zaro aloqasi va umumiy ta'lim tizimidagi o'rniga qaratilishi kerak. Axborot texnologiyalari ta'lim jarayonining o'z modelini o'zgartirish imkonini va zaruratini keltirib chiqarmoqda: reproduktiv o'qitishdan – bilimlarni bir boshdan ikkinchisiga, o'qituvchidan talabaga "ko'chirish"dan – ijodiy modelga o'tish. Bu jarayonda yangi texnologik va texnik vositalar yordamida darslarda hayotiy vaziyat yoki jarayon modellashtiriladi va o'qituvchi rahbarligida talabalar o'z bilimlarini qo'llab, modellashtirilgan vaziyatni tahlil qilish va qo'yilgan vazifalarga yechim ishlab chiqishda ijodiy qobiliyatlarini namoyon etishlari kerak bo'ladi.

Yangi texnologiyalar va butun bir kutubxona bilimini o'zida jamlay oladigan o'quv tizimlari qo'llanilmoqda, masalan, elektron kitoblar yoki planshetlar asta-sekin oddiy kitoblarning o'rnini bosadi. Maktab ta'limi ham asta-sekin qurilmalarga asoslangan o'quv shaklini kasb etmoqda, bunda har bir o'quvchi mustaqil ravishda masalaning yechimini planshetda kuzatishi, kerak bo'lsa, dasturga mukammal ega bo'lishi uchun uni qayta-qayta ko'rishi mumkin bo'ladi. Bu esa materialni o'zlashtirish samaradorligini bir necha barobarga oshiradi, o'qituvchilar esa o'quvchilarning o'zlashtirish jarayonini osonlik bilan kuzatib, keyinchalik ularning har biri uchun materialni individual tarzda o'zgartira oladilar [4–6]. Albatta, bu amaliyot hali keng tarqalmagan, chunki butun ta'lim tizimini tubdan o'zgartirish talab etiladi. Ammo allaqachon ko'plab mamlakatlarda "sinov" ta'lim muassasalari tashkil etila boshlagan bo'lib, ular ma'lumotni o'zlashtirishda sezilarli o'sishni namoyish qilmoqda va o'quvchilarning ijodiy hamda ijtimoiy rivojlanishiga hissa qo'shmoqda. Biz hozir yangi o'quv davri bo'sag'asida turibmiz. Yaqin kelajakda axborot texnologiyalarining joriy etilishi natijasida talabalar istalgan joyda va istalgan vaqtda erkin bilim olish imkoniyatiga ega bo'lishi ta'lim konsepsiyasini butunlay o'zgartiradi. Har kim o'ziga zarur bo'lgan bilimlarni olishi mumkin bo'ladi, ta'lim muassasalarida joy yetishmovchiligi muammo bo'lmaydi, chunki odatiy shakldagi maktab va universitetlar asta-sekin yo'qola boshlaydi, masalan, bir necha yuz ming talabani bimalol qamrab oladigan ta'lim muassasasi shakllanishi mumkin.

Virtual haqiqatning rivojlanishi atrof-muhitni yozib olish imkonini beradi, bunda ma'ruzalarda "jismonan" ishtirok etish yoki qat'iy belgilangan dars jadvaliga rioya qilish zarurati bo'lmaydi. Istalgan joydan bir zumda bilimga kirish imkoniyati keng ko'lamda uyda o'qishni ta'minlaydi. Ta'lim muassasasining asosiy vazifasi "ta'lim berish"dan "o'zlashtirilgan bilimni tekshirish va diplom berish"ga o'zgaradi.

Shu sababli, o'qituvchi dars jarayonini yaxshi tashkil etishi uchun nafaqat bilimli bo'lishi, balki yaxshi pedagogik mahorat va uslublarga ham ega bo'lishi zarur. U qachon va qanday qilib talabalarga ta'sir ko'rsatishni bilishi, shu bilan birga mehnat qilib, ko'proq natijaga erishish yo'llarini izlashga intilishi kerak.

Savol berish ham bir san'atdir, o'qituvchi uni chuqur anglab yetishi va talabaga singdirib bera olishi lozim. Savolning mohiyatidagi noaniqlik talabaning izlanishga intilishini rag'batlantiradi.

O‘zaro ta’sir pedagogikasi o‘qituvchi va talaba o‘rtasida birdamlik, ishonch, o‘zaro yordam va ijodiy hamkorlik muhitini yaratadi. Bu esa, o‘z navbatida, yoshlar tomonidan chin insoniy qadriyatlarni anglash va tan olishni kafolatlaydi.

Talabalarni o‘qitish va tarbiyalashning murakkab vazifalarini hal etishda o‘qituvchining dunyoqarashi, kasbiy mahorati, san’ati, iste’dodi, ijodiy faolligi va madaniyati hal qiluvchi omil hisoblanadi.

Bu ishlarni amalga oshirish jarayonida har bir o‘qituvchi, eng avvalo, tashkil qilinayotgan darsning mazmunini chuqur o‘rganishi, uning natijalariga jiddiy e’tibor qaratishi va shu orqali talaba shaxsiga ijobiy ta’sir ko‘rsatishga intilishi kerak. Shu bilan birga, vatanparvarlik, milliy g‘urur va Vatan ravnaqi uchun xizmat qilish kabi fazilatlarni rivojlantirish yo‘llarini izlash muhimdir.

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QASHQADARYO VILOYATI TOG‘LI HUDUDLARIDA FOYDALI QAZILMA KONLARINING HUDUDIY DIFFERENSIALLASHUVI VA RESURS SALOHİYATINING ILMIY BAHOSI

***Annotatsiya.** Ushbu maqolada Qashqadaryo viloyatining tog‘li hududlarida joylashgan foydali qazilma konlarining hududiy tabaqalanishi geografik, geologik va iqtisodiy mezonlar asosida o‘rganiladi. Tadqiqotda tog‘li hududlarning relyef xususiyatlari, geostrukturasi hamda konlarning shakllanishiga ta’sir etuvchi omillar tahlil qilinadi. Maqolada mavjud foydali qazilma turlari - jumladan, neft, gaz, ko‘mir, marmar, ohaktosh, rangli va nodir metallar konlarining joylashuvi xaritalashtirilgan hamda ularning sanoat salohiyatiga ta’siri ko‘rib chiqilgan. Shuningdek, konlarning iqtisodiy-geografik jihatdan mintaqaviy rivojlanishga qo‘shayotgan hissasi ham yoritilgan. Tadqiqot natijalari hududiy rejalashtirish, tabiiy resurslardan oqilona foydalanish va ekologik muvozanatni saqlash bo‘yicha tavsiyalarni ham o‘z ichiga oladi.*

***Kalit so‘zlar:** tog‘, hudud, relyef, kon, mineral, resurs, ma’dan, foydali qazilma, magmatik, metamorfik, cho‘kindi, jins, organik, kompleks, litologik, stratigrafik, paleontologik, paleobotanik, strukturaviy, tektonik, geokimyoviy.*

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SCIENTIFIC ASSESSMENT OF TERRITORIAL DIFFERENTIATION AND RESOURCE POTENTIAL OF MINERAL DEPOSITS IN THE MOUNTAINOUS REGIONS OF KASHKADARYA REGION

***Abstract.** In this article, the territorial stratification of mineral deposits located in the mountainous regions of the Kashkadarya region is studied based on geographical, geological, and economic criteria. The study analyzes the features of the relief of mountainous areas, geostructure, and factors influencing the formation*

of deposits. The article maps the location of existing mineral deposits - including oil, gas, coal, marble, limestone, non-ferrous and rare metals - and examines their impact on industrial potential. The contribution of deposits to regional development from an economic and geographical point of view is also highlighted. The research results also include recommendations on territorial planning, rational use of natural resources, and maintaining ecological balance.

Key words: *mountain, territory, relief, deposit, mineral, resource, ore, mineral, magmatic, metamorphic, sedimentary, rock, organic, complex, lithological, stratigraphic, paleontological, paleobotanical, structural, tectonic, geochemical.*

Kirish.

Ma'lumki, mintaqalarda mavjud tabiiy resurslarning o'zlashtirilishi sanoatning rivojlanishi, aholi manzilgohlarining shakllanishiga, transport yo'llarining barpo etilishiga hamda aholi yashash tarzining yaxshilanishiga sabab bo'ladi.

Qashqadaryo viloyati respublikamizning mineral, suv, biologik hamda rekreatsion resurslar kabi ko'plab turdagi tabiiy resurs turlariga boy hududlardan biri bo'lib hisoblanadi. Bu yerda mineral resurslarning yoqilgi-energetik, polimetall, tabiiy tuzlar va qurilish materiallari xom ashyolari zahiralari mavjud.

Hududni ma'dan konlari asosan XX asrning ikkinchi yarmidan boshlab keng miqyosda o'zlashtirila boshlangan bo'lib, bu davrlarda neft, toshko'mir, qurilish materiallari xom ashyolari qazib olinib boshlangan. Sanoat-texnologiya landshaftlari orasida tog'-kon sanoatining tabiiy muhit bilan o'zaro ta'siri natijasida shakllangan kon sanoati landshaftlari alohida o'rin egallaydi. Kon-sanoati landshaftlari uchun uchta o'ziga xos xususiyat xarakterlidir:

- 1) antropogen komplekslar toifasiga tegishliligi bo'lgan;
- 2) tabiiy-texnik muhit o'rtasidagi genetik bog'liqlik bo'lgan;
- 3) landshaft hosil qiluvchi komponentlarning yuqori faol dinamik faolligi.

Kon landshaftlari, shuningdek tabiatda litogen asosga ega bo'lgan barcha tarkibiy qismlar insonning ishlab chiqarish faoliyati tomonidan juda kuchli darajada o'zgarishi bilan ajralib turadi. Foydali qazilmalar qazib olinadigan joylarda o'ziga xos neolandshaftlar paydo bo'ladi. Bularga karyerlar, chiqindixonalar, terrikonlar, tog' jinsi qoldiqlari, karyer ko'llari va boshqalar. V.I.Fedotovning fikricha tog'-kon landshaftlari agrolandshtftlarga nisbatan, hudud jihatidan turli taksonomik darajasiga mos keladi. Insonning ishlab chiqarish faoliyati natijasida tog'-kon sanoat landshaftlarida antropogen relyef shakllarining ikki toifasi paydo bo'ladi. Birinchi toifaga toshlarni ko'chirish va olib tashlash natijasida paydo bo'lgan karerlar, xandaklar, terassalar va qulamalar kiradi.

Antropogen relyef shakllarining ikkinchi toifasiga antropogen faoliyat natijasida hosil bo'lgan terrikonlar, chiqindi uyumlari, to'g'onlar, tosh siniqlaridan iborat bo'lgan va xom-ashyoni saqlash joylari kiradi. Bularning barchasi tog'li landshaftlarning murakkab tizimi va tuzilishini yaratadi. Foydali qazilmalarni qazib olish jarayonida yer yuzining ustki qatlamlari teskari tomonga ag'darilib, o'simlik

qoplami yo‘qoladi va tog‘ jinslari yer betiga chiqib qoladi hamda inson aralashuvizisiz o‘nlab yoki undan ko‘proq vaqt davomida atrof-muhit bilan bog‘lanib keta olmaydi.

Shu munosabat bilan tog‘-kon sanoati va landshaft komplekslarining meliorativ holati tobora keskinlashib bormoqda. Insonning ishlab chiqarish faoliyati natijasida buzilgan yerlarni rekultivatsiya qilish tog‘-kon, biologik va qurilish ishlarini tiklash yo‘li bilan amalga oshiriladi. Hududiy va mintaqaviy sharoitga qarab sanoat landshaftlarini tiklash o‘rmon xo‘jaligining meliorativ holatini yaxshilash, yaylovlar, bog‘lar, suv havzalari, issiqxonalar, dam olish maskanlari, muhandislik inshootlari, qishloq xo‘jaligi va ishlab chiqarish orqali amalga oshiriladi. Tog‘-kon landshaftlarining tuzilishi juda murakkab va xilma-xildir. Bu yerda eng e‘tiborli tipologik komplekslardan quyidagilarni ajratib ko‘rsatish mumkin: 1) qayta tiklanadigan karyerlar va 2) turli chiqindixonalar tipidagi landshaftlar.

Adabiyotlar tahlili va metodologiya.

Ma‘lumotlarni tahlil qiladigan bo‘lsak O‘zbekistonda rangli metallurgiya mahalliy mineral xom ashyo resurslari negizida XX asrning 30-yillaridan rivojlandi respublikada rangli, nodir va qimmatbaho metallar (oltin, mis, qo‘rg‘oshin, rux, volfram, molibden, simob va boshqalar) konlari, Qoramozor mis-qo‘rg‘oshin-rux koni, Obirahmat, Burchmulla, Oqtuz, Takob, Ingichka, Qo‘ytosh, Langar rangli metallar, Chodak, Zarmitan, Marjonbuloq, Kauldi, Kukratos, Qizilolmalisoy oltin, Qo‘rg‘oshinkon, Oltintopgan qo‘rg‘oshin-rux, Qalmoqqir mis konlari va boshqalar topilib sanoat miqyosida o‘zlashtirilishi bilan respublikada rangli metallurgiya shakllandi. Jumladan viloyat hududidagi foydali qazilmalarni o‘zlashtirish ham jadal ravishda boshlandi.

Natijalar.

Mustaqillik yillarida mavjud mineral resurslardan samarali foydalanish va geologik-geofizik tekshirishlar natijasida aniqlangan yangi konlarni ishga tushirish orqali viloyat iqtisodiyotini rivojlantirish imkoniyatlari kengaydi. Ayniqsa, Hisor tog‘larining markaziy qismida (Shahrisabz, Kitob va Yakkabog‘ tumanlari hududida) 1990-yillarning oxirlarida tarkibida qo‘rg‘oshin, rux va boshqa qimmatbaxo elementlarga boy bo‘lgan metalli va nometall konlarni o‘zlashtirilishi, 2000-yillarga kelib neft va gaz sohasidagi hamkorlik bo‘yicha “O‘zbekneftgaz” MXK va “Petronas. Charigali Oversiz” (Malayziya) kompaniyalari orasida imzolangan memorandumga ko‘ra Dehqonobod tumani hududidan o‘zlashtirilgan gaz va gazokondensat konlarini tekshirish va baxolash ishlarining olib borilganligi bu sohada erishilgan ijobiy natijalar deb e‘tirof etishimiz mumkin.

Viloyatning yana bir asosiy mineral resurslaridan biri bu kimyoviy o‘g‘itlardir. Qashqadaryoda fosforit, kaliy va osh tuzlarining katta zahirasi mavjudligi barchaga ayon. Ushbu qazilma resurslar asosida kimyo sanoatini rivojlantirish uchun imkoniyatlar katta bo‘lsada, faqatgina Hisor tog‘i yonbag‘irlarida joylashgan Dehqonobod kaliyli o‘g‘itlar zavodi mahsulotlaridan xo‘jalik ehtiyojlarida foydalanilmoqda hamda qisman eksport qilinmoqda.

Afsuski, viloyat hududini tog‘li hududlarida katta miqdorda boshqa foydali qazilmalar hozirgacha ham o‘zlashtirilishini kutib turibdi. Hududda hozir asosan qishloq xo‘jaligiga ixtisoslashgan mahalliy xom ashyo asosida soha uchun zarur bo‘lgan kimyoviy o‘g‘itlar ishlab chiqarish tarmoqlari keygaytirilmayapti.

Shu o‘rinda ta’kidlash lozimki, Qashqadaryo viloyati o‘zining noyob tabiiy-geografik joylashuvi bilan ajralib turadi. Uning hududi Hisor tog‘ tizmasining janubiy tarmoqlari, shimoli-g‘arbdagi Qamashi platosi, va markaziy hamda janubiy qismidagi Qashqadaryo vodiysi bilan chegaralangan. Ushbu hududda relyefning baland tog‘li zonalaridan vodiy va platosimon pasttekisliklarga uzluksiz o‘tishi kuzatiladi. Bu o‘zgaruvchan relyef tabiiy zonalarining xilma-xilligini shakllantiradi: subalp va alp zonolari, o‘rta tog‘ mintaqalari, quruq dasht va yarim cho‘l hududlari bir hudud ichida mavjud.

Iqlim kontinental bo‘lib, yoz oylarida issiq va quruq, qish esa salqin va ba‘zan sovuq bo‘ladi. Yillik yog‘ingarchilik miqdori tog‘li hududlarda 400–600 mm gacha, vodiya esa 200–300 mm atrofida bo‘ladi. Iqlim va relyef sharoitlari mintaqaning suv manbalarini, vegetatsiya davrini va eroziya jarayonlarini belgilaydi.

Qashqadaryo viloyatining tabiiy-geografik va geologik xususiyatlari ushbu hududning rivojlanish yo‘nalishlariga bevosita ta’sir ko‘rsatadi. Viloyat hududidagi murakkab geologik tuzilma, tektonik faollik va relyef shakllarining xilma-xilligi mintaqaning geologik barqarorligi, tabiiy resurslari va ekologik holatini aniqlashda asosiy omil hisoblanadi.

Shuningdek, viloyat hududida marmar, granit, dolomit, kvarts qumi, ohaktosh, keramzit kabi qurilish materiallari xom ashyolari kelajakda qurilish materiallari sanoatining rivojlanishiga asos bo‘ladi. Bu borada hozirda ushbu soha bo‘yicha amalga oshirilayotgan loyihalar mavjud resurslarni to‘liq o‘zlashtirishni o‘zida qamrab olmaganligini ham aytish joiz. Kitob tumanida granit, gabbro, ohaktosh, sementni qayta ishlash, Yakkabog‘, Chiroqchi, Shahrisabz kabi tumanlarda g‘isht ishlab chiqarish yo‘lga qo‘yilmoqda. Viloyatda marmarga ishlov berish, oyna ishlab chiqarish va boshqa soha tarmoqlarining rivojlantirish imkoniyatlari bor.

Muhokama.

Qashqadaryo viloyati tog‘li hududlarida rangli metal (ma‘danlar) lar toifasiga mansub bo‘lgan marganetslarning zahirasi Qoratepa tog‘larining janubi – g‘arbiy yonbag‘irlaridagi Davtosh va Qizilbayroq konlarida (Chiroqchi tumani) topilgan. Ammo marganets ma‘danlarining uncha katta bo‘lmagan bu konlari sanoat ahamiyatiga ega emas. Davtosh konining zahirasi 0,8 million tonnani tashkil etadi, ma‘dandagi marganetsning miqdori 16,8 % ga teng. Konda marganets ma‘danini ochiq usulda qazib olish mumkin.

Noma‘dan (rudasiz) foydali qazilmalar ham viloyat hududida mavjud, jumladan osh va kaliy tuzlarining zahirasi ancha katta. Hisor hududidagi Dehqonobod tuzli havzasi (Hisor tizmasining janubi – g‘arbiy tarmoqlari) Boybichakon, Hamkon va boshqa tuzli strukturalarni o‘z ichiga oladi. Bu yerda Boybichakon va Tepaqo‘ton osh tuzining juda yirik konlari aniqlangan. Butun havza doirasida tuz qatlamlarining qalinligi 200 – 600 metrni tashkil etadi.

Boybichakon osh tuzi konida (Qamashi tumani) tuzli qatlamlar yer yuzasidan 600 – 1000 metr chuqurlikda joylashgan. Mahsuldor qatlamning qalinligi 240 m, NaCl ning miqdori 94,56 %. Osh tuzi shuningdek Tepaqo‘ton kaliy tuzli konida ham mavjudligi aniqlangan. Bu yerda osh tuzining zahirasi 6,1 million tonnani tashkil etadi.

Qashqadaryo viloyati ulushiga kaliy tuzlarining O‘zbekistonda bashoratlashtirilgan zahiralarining 70% ga yaqini va balansdagi zahiralarining qariyb 100% i to‘g‘ri keladi. (Экономический потенциал..., 1982).

Tuzlarni kompleks qayta ishlash bromli temir, magnezit, gips va boshqa materiallarni yo‘l – yo‘lakay olish imkonini ham beradi.

Hisor tizmasining janubi–g‘arbiy tarmoqlari doirasida Dehqonobod tumanida fosforit konlarining mavjudligi ham aniqlangan. Fosforit konlari ochiq usulda ekspluatatsiya qilinmoqda. Bu kondagi ma‘danda R_2O_5 ning miqdori 6%.

Qashqadaryo viloyati hududi turli qurilish materiallariga ham (dolomit, ohaktosh, keramzit) juda boy. Bu yerda Bodomzor, Iskana, Sevaz, Tomchiota, Makrid, Xazornava, Birkunlik va boshqa marmar konlari bor. Bu konlardan xilma – xil tovlanuvchi marmar qazib olinadi. Marmar konlarining xom ashyosi Kitob va Makrid toshga ishlov berish kombinatlarida marmar bloklari va maydalangan uvoqlarini ishlab chiqarishda foydalanilmoqda.

Qashqadaryo viloyatida qurilish uchun zarur bo‘lgan qum – shag‘al va pishiq g‘isht tayyorlashga zarur bo‘lgan tuproq – grunt zahirolari (shag‘al, qum va soztuproqlar) juda katta. Hozirgi paytda viloyatda va mamlakatimizning boshqa hududlarining ehtiyoji uchun foydalanilayotgan eng yirik Tanxoz qum – shag‘al koni ba‘zasida Tanhoz shag‘al saralash zavodi mahsulot bermoqda.

Tabiiy, shu jumladan mineral resurslardan resurslardan foydalanishning geoekologik oqibatlari ham ijobiy, ham salbiy bo‘lishi mumkin. Ijobiy oqibatlarga tayyor va yarim tayyor mahsulot, elektr va issiqlik energiyasi va boshqa mahsulotlar yaratish kiradi. Salbiy oqibatlarga esa: 1) atrof muhitning ifloslanishi; 2) tabiiy resurslarning tugab qolishi; 3) tabiiy landshaftlartuzilmasining buzilishi; 4) biologik xilma-xillikning kamayishi; 5) o‘simlik qoplamining buzilishi va cho‘llanish kiradi.

Xulosa.

Qashqadaryo vloyatining mineral resurslaridan foydalanish tabiiy landshaftlarbir butunligining buzilishi va texnogen landshaftlar maydonini kengayishiga olib kelmoqda. Bu yerdaatrof muhitga antropogen ta’sir biosenozlar va landsaftlarning barcha komponentlariga ta’sir ko‘rsatadi. Shu sababli viloytda atrof muhitni muhofaza qilish dolzrb muammolardan biri.

Qashqadaryo vloyatining mineral resurslaridan foydalanish tabiiy landshaftlarbir butunligining buzilishi va texnogen landshaftlar maydonini kengayishiga olib kelmoqda. Bu yerdaatrof muhitga antropogen ta’sir biosenozlar va landsaftlarning barcha komponentlariga ta’sir ko‘rsatadi. Shu sababli viloyatda mineral resurslardan foydalanish bilan bog‘liq holda texnogen landshaftlarni optimallashtirish va atrof muhitni muhofaza qilish bugungi kunning dolzarb muammolardan biridir.

Hozirgi kunda viloyatni tog‘li hududlaridagi foydali qazilmalarni o‘zlashtirish respublikaning asosiy sanoat hududlaridan tarmoqlari rivojlanishida lokomativ bo‘lib xizmat qilishi mumkin. Bunda uzoq masofada joylashgan foydali qazilmalarni tashish hisobiga tannarxi ancha yuqori bo‘lishini hisobga olgan holda tabiiy resurs salohiyatidan oqilona foydalanish, mavjud resurslar asosida to‘liq majmualiy moddiy ishlab chiqarish tarmoqlarini rivojlantirish orqali viloyat va respublika ehtiyoji uchun zaruriy mahsulotlar ishlab chiqarish talab etiladi. Viloyat tumanlarida mavjud resurs va imkoniyatlar yordamida ishlab chiqarish tarmoqlarini rivojlantirish va mintaqaviy mehnat taksimotini yo‘lga qo‘yish zarur bo‘ladi.

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REMOTE SENSING-BASED ASSESSMENT OF CLIMATIC DRIVERS AFFECTING AGRICULTURAL CROP DEVELOPMENT IN THE BUKHARA REGION

Abstract. *This study investigates the influence of key climatic factors on cotton fields development using remote sensing data. The research was conducted in the Bukhara region, focusing on the correlation between vegetation indices (NDVI, EVI, MNDWI, SAVI) and climatic variables, including land surface temperature, air temperature, precipitation, solar radiation, and ET0. Pearson correlation analysis revealed that crop growth showed significant negative correlations with air temperature and evapotranspiration, while precipitation and solar radiation demonstrated positive associations with vegetation indices. These findings highlight the potential of integrating remote sensing and climatic datasets for crop monitoring and yield forecasting in arid environments.*

Keywords: *remote sensing, vegetation indices, cotton, climatic factors, NDVI, ET0, Bukhara region, correlation analysis.*

Introduction

Agricultural production is highly sensitive to climatic variability, particularly in arid and semi-arid regions where water availability and heat stress are critical determinants of crop growth [1-5]. Understanding the interactions between vegetation dynamics and climatic drivers is essential for sustainable agricultural management and yield forecasting [4]. Recent advances in remote sensing have provided powerful tools to monitor vegetation conditions, assess land surface parameters, and analyze the impacts of climate variability on crop development at regional and local scales [5-7, 10].

Vegetation indices such as the Normalized Difference Vegetation Index (NDVI), Enhanced Vegetation Index (EVI), Modified Normalized Difference Water Index (MNDWI), and Soil Adjusted Vegetation Index (SAVI) are widely used to characterize crop vigor, canopy cover, and soil moisture status [10-13]. When combined with climatic variables including air temperature, land surface temperature, precipitation, solar radiation, and reference evapotranspiration (ET0), these indices allow for a comprehensive evaluation of the factors influencing crop growth [1, 6-9].

The Bukhara region of Uzbekistan represents a typical arid environment where agriculture is strongly constrained by climatic conditions. High summer temperatures, limited precipitation, and strong evapotranspiration rates create challenges for crop productivity and water management. Therefore, assessing the correlations between vegetation indices and climatic factors in this region provides valuable insights into crop–climate interactions and helps to identify the most influential drivers of crop development.

This study applies Pearson correlation analysis to quantify the relationships between vegetation indices and climatic parameters based on remote sensing and meteorological datasets. The findings contribute to a better understanding of climate–vegetation interactions in arid agricultural systems and highlight the role of remote sensing in supporting sustainable crop monitoring and management strategies.

Materials and Methods

Study Area

The study was conducted in the Bukhara region of Uzbekistan, which is characterized by an arid climate with hot summers and limited precipitation. Agriculture in this region is highly dependent on irrigation, making the evaluation of climatic drivers critical for sustainable crop production, especially for cotton.

Data Sources

Remote sensing data were obtained from the Sentinel-2 MSI (MultiSpectral Instrument) satellite, which provides high-resolution multispectral imagery with a spatial resolution of 10–20 m and a revisit time of 5 days. Climatic variables, including land surface temperature (LST), air temperature at 2 m height, precipitation, solar radiation, and reference evapotranspiration (ET₀), were acquired from MODIS Terra/Aqua, ERA5 satellites.

Vegetation indices were calculated from Sentinel-2 spectral bands, specifically the red (B4: 665 nm), near-infrared (B8: 842 nm), and shortwave infrared (B11: 1610 nm; B12: 2190 nm) bands. The following indices were derived:

Normalized Difference Vegetation Index (NDVI):

$$\text{NDVI} = (\text{NIR} - \text{Red}) / (\text{NIR} + \text{Red})$$

Enhanced Vegetation Index (EVI):

$$\text{EVI} = G * ((\text{NIR} - \text{Red}) / (\text{NIR} + C1 * \text{Red} - C2 * \text{Blue} + L))$$

where $G=2.5$, $C1=6$, $C2=7.5$, and $L=1$

Soil Adjusted Vegetation Index (SAVI):

$$\text{SAVI} = (\text{NIR} - \text{Red}) * (1 + L) / (\text{NIR} + \text{Red} + L)$$

where $L=0.5$ $L=0.5$ $L=0.5$ is the soil brightness correction factor.

Modified Normalized Difference Water Index (MNDWI):

$$\text{MNDWI} = (\text{Green} - \text{SWIR}) / (\text{Green} + \text{SWIR})$$

where the green band is B3 (560 nm) and SWIR is B11 or B12.

Climatic Variables

Land Surface Temperature (LST) was retrieved from thermal remote sensing products. Air Temperature (2 m), precipitation, and solar radiation were obtained

from the ERA5 reanalysis dataset. Reference evapotranspiration (ET₀) was calculated using the FAO Penman–Monteith equation:

$$ET_0 = \frac{0.408\Delta(R_n - G) + \frac{900}{T - 273} u_2 (e_s - e_a)}{\Delta + \gamma(1 + 0.43u_2)}$$

ET₀ - Evapotranspiratsiya ko'rsatkichi (mm/s), R_n-tashqi radiatsiya (MJ/m²), G- Tuproqdan chiqadigan energiya (MJ/m²), T - Havoning harorati (°C), u₂ - Shamol tezligi (m/s), e_s - Havodagi to'yingan bug' gazining bosimi (kPa), e_a - avodagi bug' gazining bosimi (kPa), Δ - Havodagi to'yingan bug' gazining bosimining haroratga bog'liq o'zgarishi (kPa/°C), γ - Psixrometrik doimiy (kPa/°C).

Statistical Analysis

Pearson correlation analysis was used to evaluate the relationships between vegetation indices and climatic factors. The Pearson correlation coefficient (r) was calculated as:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

where x_i and y_i represent paired values of vegetation indices and climatic variables, and $\bar{x}$, $\bar{y}$ are their respective means. The correlation coefficient ranges from −1 (strong negative correlation) to +1 (strong positive correlation). Correlation matrices were generated to visualize the strength and direction of associations. This approach allowed for the identification of the most influential climatic drivers affecting crop development in the Bukhara region.

Results

The correlation analysis revealed distinct relationships between vegetation indices and climatic variables in the Bukhara region (Figure 1). The results demonstrated that vegetation indices were strongly associated with each other, while

their correlations with climatic parameters varied in magnitude and direction.

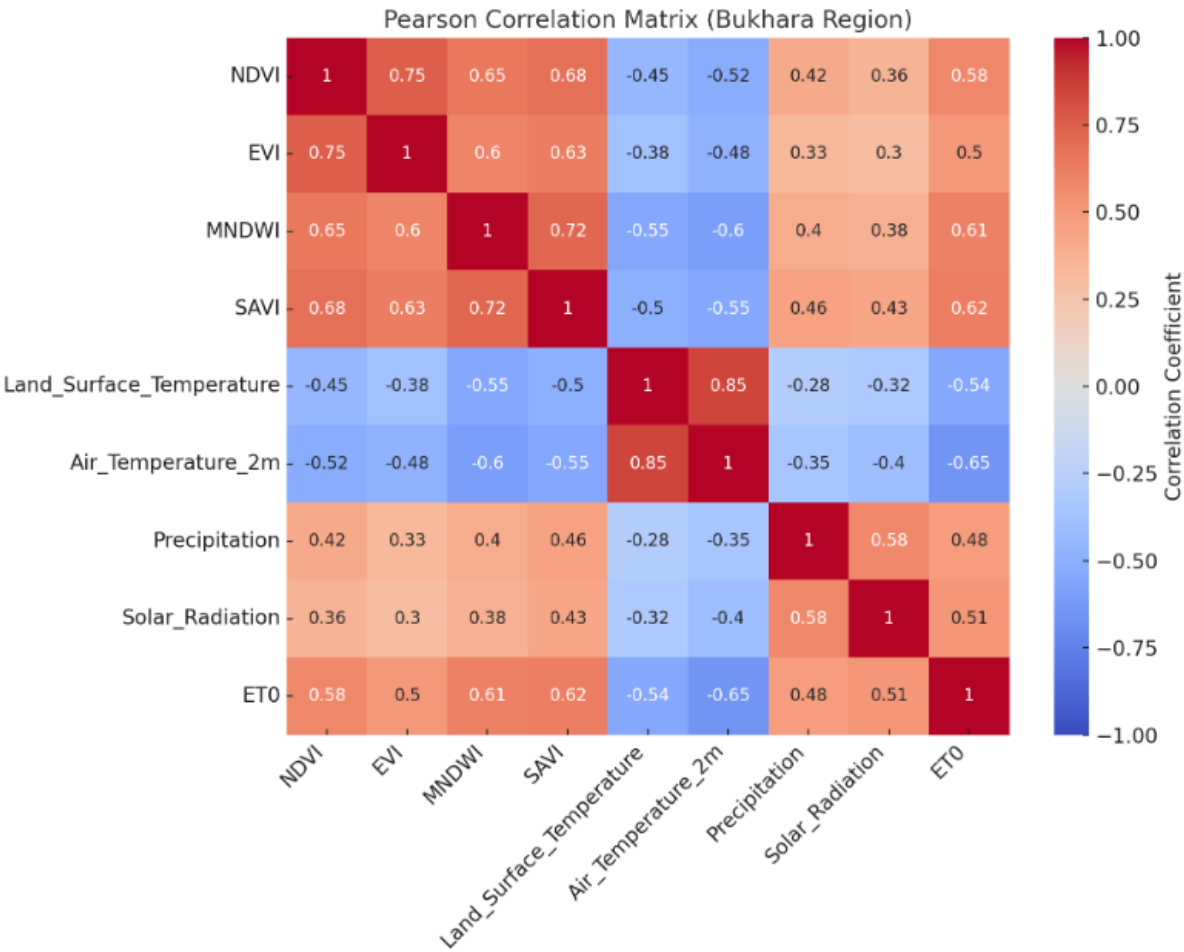


Figure 1. Pearson correlation matrix between vegetation indices (NDVI, EVI, SAVI, MNDWI) and climatic variables (air temperature, land surface temperature, precipitation, solar radiation, and ET0) in the Bukhara region. Positive correlations are indicated by warmer colors, while negative correlations are shown by cooler tones. The figure highlights the negative impact of temperature on vegetation growth and the positive role of precipitation and solar radiation.

Vegetation Indices Correlations: NDVI, EVI, SAVI, and MNDWI showed high positive correlations among themselves (NDVI–EVI: $r = 0.75$; NDVI–SAVI: $r = 0.68$; SAVI–MNDWI: $r = 0.72$), indicating consistency in detecting crop vigor and canopy dynamics. These indices reflect similar vegetation conditions, although MNDWI also accounts for surface moisture effects.

Temperature Effects: A strong negative correlation was observed between vegetation indices and both land surface temperature (LST) and air temperature at 2 m. For instance, NDVI was negatively correlated with air temperature ($r = -0.52$) and LST ($r = -0.45$). The highest negative correlation was between MNDWI and air temperature ($r = -0.60$), suggesting that higher thermal stress reduces vegetation activity and surface water availability.

Moisture and Radiation Effects: Positive correlations were found between vegetation indices and precipitation (NDVI–precipitation: $r = 0.42$; SAVI–precipitation: $r = 0.46$) as well as solar radiation (NDVI–solar radiation: $r = 0.36$;

SAVI–solar radiation: $r = 0.43$). These results indicate that crop growth is favored under adequate rainfall and solar energy supply, both of which contribute to photosynthetic activity and vegetation greenness.

Evapotranspiration (ET0): Reference evapotranspiration (ET0) exhibited positive correlations with vegetation indices (NDVI–ET0: $r = 0.58$; SAVI–ET0: $r = 0.62$; MNDWI–ET0: $r = 0.61$). This suggests that periods of active crop growth are associated with higher evapotranspiration demand, reflecting increased vegetation water use. However, excessive ET0 values combined with high air temperature may also indicate water stress conditions in the absence of sufficient irrigation.

Overall, the results emphasize that crop development in the Bukhara region is highly sensitive to climatic variability. Temperature extremes exert a negative influence on vegetation dynamics, while precipitation and solar radiation contribute positively to crop performance. The correlation with ET0 highlights the dual role of evapotranspiration as both a driver of plant productivity and a potential stress factor under water-limited conditions.

Conclusions

This study demonstrated the usefulness of remote sensing techniques in assessing the influence of climatic drivers on agricultural crop development in the Bukhara region of Uzbekistan. By integrating Sentinel-2 vegetation indices (NDVI, EVI, SAVI, MNDWI) with climatic variables (air temperature, land surface temperature, precipitation, solar radiation, and ET0), Pearson correlation analysis revealed several important findings.

First, vegetation indices were highly correlated with each other, confirming their reliability in capturing crop canopy dynamics under arid conditions. Second, strong negative correlations between vegetation indices and temperature variables highlight the detrimental impact of heat stress on vegetation activity. In contrast, positive correlations with precipitation and solar radiation emphasize their beneficial role in supporting crop growth. Finally, the significant associations between vegetation indices and ET0 underline the importance of water demand as both a productivity indicator and a potential stress factor when irrigation is insufficient.

Overall, the findings indicate that crop development in arid regions such as Bukhara is highly sensitive to climatic variability. The integration of remote sensing data with climatic parameters provides a valuable framework for monitoring crop performance, forecasting yield, and developing sustainable agricultural management strategies. Future work should focus on expanding the temporal scale of analysis, incorporating additional biophysical variables, and validating remote sensing–based results with in-situ field observations.

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O'SIMLIKLARNI HIMOYA QILISHDA MONITORING VA BASHORAT TIZIMINING SAMARADORLIGI

***Annotatsiya.** Maqolada o'simliklarni himoya qilishda monitoring va bashorat tizimining ahamiyati yoritilgan. Zararkunandalar va kasalliklarning populyatsiya dinamikasini kuzatish, ularning tarqalish hududini aniqlash hamda rivojlanish bosqichlarini ilmiy asosda prognoz qilish orqali samarali kurash choralari ishlab chiqish imkoniyati yaratiladi. Monitoring natijalari asosida olingan ma'lumotlar bashorat modellari bilan uyg'unlashtirilib, o'z vaqtida va iqtisodiy jihatdan samarali himoya tadbirlarini rejalashtirish mumkin. Shu tariqa monitoring va bashorat tizimi o'simliklarni himoya qilishda qaror qabul qilishning muhim asosi hisoblanib, hosildorlikni barqaror saqlash va pestitsidlardan oqilona foydalanishni ta'minlaydi.*

***Kalit so'zlar:** monitoring, bashorat, zararkunanda, o'simliklarni himoya qilish, prognozlash, bashorat, populyatsiya dinamikasi.*

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EFFECTIVENESS OF THE PLANT PROTECTION MONITORING AND FORECASTING SYSTEM

***Abstract.** The article highlights the importance of the monitoring and forecasting system in plant protection. Abstract. The article highlights the importance of the monitoring and forecasting system in plant protection. The data obtained based on monitoring results can be integrated with forecast models for timely and cost-effective planning of protective measures. Thus, the monitoring and forecasting system is an important basis for making plant protection decisions, ensuring the stable preservation of yields and the rational use of pesticides.*

***Keywords:** monitoring, forecasting, pest, plant protection, forecasting, forecasting, population dynamics.*

Kirish. Qishloq xo'jaligi ekinlarida hosildorlikka ta'sir etuvchi asosiy omillardan biri zararkunandalar va o'simlik kasalliklaridir. Jahon miqyosida olib borilgan ilmiy tadqiqotlar shuni ko'rsatadiki, ekinlarning umumiy hosil yo'qotishlari 25–40% gacha zararkunanda va kasalliklar bilan bog'liq. Bunday vaziyatda o'simliklarni himoya qilishda an'anaviy kurash choralari bilan bir qatorda monitoring va bashorat tizimlarini joriy etish zaruriyati tobora kuchayib

bormoqda. Monitoringning asosiy vazifasi zararkunandalar populyatsiyasini real sharoitda kuzatish, ularning soni va rivojlanish bosqichlarini aniqlashdan iborat. Bashorat tizimi esa olingan ma'lumotlarga asoslanib, kelgusidagi tarqalish va zararlilik darajasini prognoz qilish imkonini beradi. Ilmiy tadqiqotlarda ta'kidlanishicha, monitoring natijalari asosida tuzilgan prognozlar o'z vaqtida va maqsadli himoya tadbirlarini qo'llashga yordam beradi. Hozirgi kunda O'zbekiston va boshqa mamlakatlarda monitoring va bashorat tizimlaridan foydalanish o'simliklarni himoya qilish samaradorligini oshirish, pestitsidlardan oqilona foydalanish va ekologik xavfsizlikni ta'minlashda muhim o'rin tutmoqda. Ayniqsa, sabzavot, bog'dorchilik va issiqxona xo'jaliklarida zararkunandalarning tez ko'payishi ularni muntazam kuzatib borish va populyatsiya rivojlanishini oldindan aniqlash zaruratini yanada oshirmoqda. Shu sababli mazkur tadqiqotda o'simliklarni himoya qilishda monitoring va bashorat tizimining ilmiy-amaliy ahamiyatini yoritish, ularning samaradorligini asoslab berish hamda qishloq xo'jaligi amaliyotida keng tatbiq etish imkoniyatlari tahlil qilinadi.

Adabiyotlar sharhi. Monitoring va bashorat tizimlari zamonaviy o'simliklarni himoya qilish tizimining eng muhim tarkibiy qismlaridan biridir. Ular zararkunandalar va o'simlik kasalliklarining populyatsiya dinamikasini kuzatish, rivojlanish bosqichlarini aniqlash va ularning kelajakdagi tarqalish xavfini oldindan baholash imkonini beradi. Jahon tajribasi shuni ko'rsatadiki, monitoring asosida tuzilgan prognozlar o'z vaqtida va iqtisodiy jihatdan samarali himoya choralarini qo'llashda muhim ahamiyat kasb etadi (Southwood, 1966; Birch, 1948).

Van de Vrie va hammualliflar (1972) zararkunanda kenalarning biologiyasi va ekologiyasi bo'yicha olib borgan tadqiqotlarida monitoring va prognozlash tizimlari qishloq xo'jaligi amaliyotida hosildorlikni saqlash uchun zarur bo'lgan eng asosiy vositalardan biri ekanini ta'kidlagan. Shih va boshq. (1976) zararkunandalarning qisqa rivojlanish davri tufayli populyatsiya tez ko'payishini ko'rsatib, ularga qarshi samarali kurash faqat muntazam kuzatuv asosida amalga oshirilishi mumkinligini isbotlagan.

Kasallik qo'zg'atuvchilarga qarshi monitoring ham shunday ahamiyatga ega. Oerke (2006) dunyo qishloq xo'jaligida hosil yo'qotishlari 25–40% gacha kasallik va zararkunandalardan kelib chiqishini aniqlab, prognozlash tizimlari yordamida bu yo'qotishlarni kamaytirish mumkinligini ta'kidlagan. Osborne va boshq. (1999) issiqxona sharoitida monitoring asosida biologik kurash choralarini joriy etish samaradorligini ilmiy jihatdan isbotlab bergan.

Markaziy Osiyo va O'zbekistonda ham monitoring va prognozlash tizimlari zarurligi haqida bir qator tadqiqotlar o'tkazilgan. Düzgüneş va Çobanoğlu (1983) zararkunandalar populyatsiyasining turli ekologik sharoitlarda o'sishini kuzatib, prognozlash qishloq xo'jaligi hosildorligini barqarorlashtirishda muhim ekanini ko'rsatgan. Anorboyev va boshq. (2016) esa O'zbekistonda karantin zararkunandalarini aniqlash va ularning tarqalishini oldindan bashorat qilish orqali mamlakat hududiga yangi xavfli organizmlarning kirib kelishini oldini olishda monitoring muhim o'rin tutishini ta'kidlagan.

Xullosa, mavjud ilmiy adabiyotlar shuni ko'rsatadiki, monitoring va bashorat tizimlari nafaqat bitta zararkunandaga, balki barcha asosiy zararli organizmlarga qarshi samarali himoya choralarini ishlab chiqishda muhimdir. Ular o'z vaqtida va ilmiy asoslangan qarorlar qabul qilish imkonini beradi, pestitsidlar qo'llash chastotasini kamaytiradi va ekologik xavfsizlikni ta'minlashga xizmat qiladi.

Materiallar va usullar. Tadqiqot ishlari Farg'ona viloyatining Rishton tumanidagi gilos bog'ida o'tkazildi. Rivojlanish usuli poykiloterm organizmlarning rivojlanish tezligi va atmosfera termodinamik protsesslarning korrelyatsiyasiga bog'liq. Zararkunandalarning rivojlanishi asosan harorat va havo namligiga bog'liq. Zararkunandalarning rivojlanishini haroratga bog'liqligini hisoblash yo'llaridan foydali harorat yig'indisini hisoblashdir. Shu narsa aniqlanganki zararkunandalarning rivojlanishi ma'lum bir haroratlar oralig'ida o'tadi. Rivojlanish uchun zarur bo'lgan eng pastki harorat, pastki bo'sag'a va yuqori harorat yuqori bo'sag'a. Shu ikkala bo'sag'a orasidagi harorat foydali harorat yig'indisi deyiladi. Foydali harorat yig'indisi quyidagi formula bilan aniqlandi:

$$\Sigma_{eff} = (T_{sut.} - t_{bo'sag'a}) \cdot N$$

bu yerda Σ_{eff} . - foydali harorat yig'indisi;

$T_{sut.}$ - sutka mobaynidagi o'rtacha harorat °C.

$t_{bo'sag'a}$ - pastki rivojlanish bo'sag'asidagi harorat °C.

N – $T_{sut.}$ Aniqlangan kunlar soni.

Tajriba: O'rgimchakkananing tuxumidan 5 kunda lichinka chiqishi kuzatiladi. 10 kunda o'rtacha havo harorati 30.9 °C bo'ldi. Bo'sag'a 7.3 °C

$$\Sigma_{eff.} = (30.9 - 7.3) \cdot 10 = 236$$

$$\Sigma_{eff.} = 236 \text{ °C}$$

Foydali harorat yig'indisi va pastki rivojlanish bo'sag'asini, hamda o'rtacha sutkalik havo haroratini bilgan xolda o'rgimchakkananing har bir rivojlanish bosqichi yoki butun inersiya o'tish muddatini ham aniqlandi. Bu quyidagi formula bilan topiladi:

$$n = \frac{\Sigma_{eff}}{T_{sut} - t_{bo'sag'a}}$$

Tajriba: O'rgimchakkananing rivojlanishi uchun foydali harorat yig'indisi 236 °C kerak bo'lsa shu davrda $T_{sut.}$ o'rtachasi 30.9 bo'lgan:

$$n = \frac{236}{30.9 - 7.3} = 10$$

ya'ni yuqorida kuzatilgan sharoitda o'rgimchakkananing bir avlodini o'tishi 10 kunga to'g'ri keldi.

Natijalar va muhokama. Tajriba natijalariga ko'ra, Farg'ona viloyati sharoitida o'rgimchakkananing tuxumidan lichinka chiqishi uchun o'rtacha 5 kun talab qilindi. O'n kunlik davrda o'rtacha harorat 30.9 °C bo'lib, pastki rivojlanish bo'sag'asi 7.3 °C deb olinganda foydali harorat yig'indisi 236 °C·kunni tashkil etdi. Ushbu sharoitda o'rgimchakkananing bir avlod rivojlanishi 10 kunda tugallandi.

Olingan natijalar shuni ko'rsatadiki, Farg'ona vodiysi iqlimida yozgi davrlarda o'rtacha yuqori haroratlar sharoitida o'rgimchakkananing avlodlari qisqa muddatda rivojlanib, populyatsiya zichligi tez sur'atlarda ortadi. Demak, zararkunandaga qarshi kurash choralari to'g'ri vaqtida va samarali o'tkazilishi uchun harorat ko'rsatkichlari yig'indisini hisoblash muhim ahamiyat kasb etadi.

Monitoring va bashorat tizimidan foydalanish orqali o'rgimchakkananing rivojlanish bosqichlarini aniqlash, har bir avlod paydo bo'lish muddatini prognoz qilish va zararkunandaga qarshi ishlovlarni optimal davrlarda o'tkazish imkoniyati yaratiladi. Bu usul pestitsidlarni ortiqcha qo'llashning oldini olib, iqtisodiy va ekologik samaradorlikni ta'minlaydi.

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SIRDARYO VLOYATI IQLIM SHAROITINI O'RGANISH VA TAHLIL QILISHDA KOPPEN-GEIGER IQLIM TASNIFIDAN FOYDALANISH

Annotatsiya: Ushbu maqolada Sirdaryo viloyati iqlim sharoitini o'rganish, tahlil qilishda Koppen-geiger iqlim tasnifidan foydalanilgan. Bunda Yillik va oylik o'rtacha haroratlar, eng issiq va eng sovuq oylardagi haroratlar. Yillik yog'ingarchilik miqdori va uning mavsumiy taqsimoti (masalan, qishda yoki yozda ko'proq yog'adimi). **Iqlim sharoitining mavsumiyligi** – ya'ni yog'ingarchilik va haroratning yil davomida o'zgarishi bo'yicha ma'lumotlar berilgan.

Kalit so'zlar: Koppen-geiger iqlim tasnifi, tropik, qurg'oqchil, mo'tadil, kontnental, qutbiy, tropik o'rmon, yomg'irli mavsum, savanna, quruq qish, cho'l, dasht, tundra.

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USING THE KOPPEN-GEIGER CLIMATE CLASSIFICATION IN STUDYING AND ANALYZING CLIMATE CONDITIONS IN SIRDARYO REGION

Abstract: This article uses the Koppen-Geiger climate classification to study and analyze the climatic conditions of the Syrdarya region. It provides information on annual and monthly average temperatures, temperatures in the hottest and coldest months. Annual precipitation and its seasonal distribution (for example, does it rain more in winter or summer). Seasonality of climatic conditions - that is, changes in precipitation and temperature throughout the year.

Keywords: Koppen-Geiger climate classification, tropical, arid, temperate, continental, polar, tropical forest, rainy season, savanna, dry winter, desert, steppe, tundra.

Kirish. Sirdaryo viloyati O'zbekistonning markaziy qismida joylashgan bo'lib, uning iqlimiy sharoitlari hududning geografik joylashuvi, relyefi va gidrologik xususiyatlariga bog'liq ravishda xilma-xildir. Tahlil natijalarga ko'ra, viloyatda Koppen-Geiger iqlim tasnifi bo'yicha ikki turdagi iqlim hukmronlik qiladi: issiq yozli O'rta yer dengizi iqlimi (Csa) va sovuq yarim quruq iqlim (BSk). Ushbu maqola Sirdaryo viloyatini iqlimiy rayonlashtirishni amalga oshiradi va

ushbu iqlim turlari bo'yicha batafsil ilmiy tahlilni taqdim etadi. Tahlilda iqlimiy xususiyatlar, ularning hududiy jihatlari ko'rib chiqiladi.

Koppen-Geiger iqlim tasnifi dunyodagi eng keng qo'llaniladigan iqlim tasniflash tizimlaridan biri bo'lib, iqlim sharoitlarini harorat, yog'ingarchilik va mavsumiylik kabi asosiy iqlimning asosiy xususiyatlari asosida tasniflaydi. Bu tizim nemis botanigi va iqlimshunosi **Vladimir K ppen** tomonidan 1884-yilda ishlab chiqilgan va keyinchalik uning shogirdi **Rudolf Geyger** tomonidan takomillashtirilgan. Tizim o'zining soddaligi, aniqligi va universal qo'llanilishi tufayli iqlimshunoslik, geografiya, ekologiya va qishloq xo'jaligi kabi boshqa sohalarida ham keng qo'llanilib kelinmoqda.

Quyida Koppen-Geiger iqlim tasnifining asosiy jihatlari, turlari, har bir iqlim guruhining xususiyatlari haqida batafsil ma'lumot beib o'tamiz.

Asosiy qism. Koppen-Geiger iqlim tasnifining asosiy jihatlari shundaki, tasnifda iqlimni beshta asosiy guruhlariga bo'ladi, ular harorat va yog'ingarchilikning mavsumiy taqsimotiga qarab aniqlanadi. Har bir guruh keyingi ikki yoki uchta darajali kichik guruhlariga bo'linadi, bu esa iqlimning yanada aniq xususiyatlarini ko'rsatadi. Koppen-Geiger iqlim tasnifining asosiy mezonlari quyidagilardan iborat:

1. Yillik va oylik o'rtacha haroratlar, eng issiq va eng sovuq oylardagi haroratlar.

2. Yillik yog'ingarchilik miqdori va uning mavsumiy taqsimoti (masalan, qishda yoki yozda ko'proq yog'adimi).

3. **Iqlim sharoitining mavsumiyligi** – ya'ni yog'ingarchilik va haroratning yil davomida o'zgarishi.

Ushbu tasnif mezoni ingliz alfaviti harflari bilan belgilanib, birinchi mezonga ko'ra iqlim guruhi, ikkinchi va uchinchi mezonlarga ko'ra ilim sharoiti turlari ajratiladi.

Tasnifda har bir iqlim guruhi ingliz alfaviti bosh harflari bilan belgilanadi va ular Yer shari iqlim sharoitidan kelib chiqib jami beshta harf (A, B, C, D, E) bilan ifoda etilgan (1-jadval).

KOPPEN-GEIGER IQLIM TASNIFI VA QISQACHA TAVSIFI

Asosiy iqlim guruhi	Iqlim turi	
1-harf - Yillik va oylik o'rtacha haroratlar, eng issiq va eng sovuq oylardagi haroratlar	2-harf - Yillik yog'ingarchilik miqdori va uning mavsumiy taqsimotini ifodalaydi	3-harf - yog'ingarchilik va haroratning yil davomida o'zgarishi (mavsumiyligi)ni ifodalaydi
A (Tropik)	f (tropik o'rmon)	
	m (yomg'irli mavsum)	
	w (Savanna, Quruq qish)	
	s (Savanna, Quruq yoz)	
B (Qurg'oqchil)	W (Cho'l)	
	S (Dasht)	
		h (issiq)
		k (sovuq)
C (Mo'tadil)	w (quruq qish)	
	f (qurg'oqchil mavsumsiz)	
	s (Quruq yoz)	
		a (Jazirama yoz)
		b (Issiq yoz)
		c (Sovuq yoz)
D (Kontinental)	w (quruq qish)	
	f (qurg'oqchil mavsumsiz)	
	s (Quruq yoz)	
		a (Jazirama yoz)
		b (Issiq yoz)
		c (Sovuq yoz)
		d (Juda sovuq qish)
E (Qutbiy)	T (Tundra)	
	F (Muz qoplamali abadiy ayoz)	

Jadval https://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification sayti ma'lumotlari asosida muallif tomonidan shakllantirildi

Ikkinchi harf: Yog'ingarchilikning mavsumiy xususiyatlarini ifodalaydi va iqlim sharoitini ajratishda ikkinchi mezonagidek yog'ingarchilik asosiy tasnif omili bo'lib ular ham ingliz alfaviti katta va kichik harflari bilan belgilanadi (1-jadval, 2-ustun).

Uchinchi harf: Iqlim sharoitining mavsumiyligini ifoda etuvchi yog‘ingarchilik va haroratning yil davomida o‘zgarishi, haroratning qo‘shimcha xususiyatlarini ifoda etadi. ushbu mezon ham ingliz alfavitining faqat kichik harflari bilan belgilanadi (1-jadval, 3-ustun).

Koppen-Geiger iqlim tasnifida qo‘llanilgan belgi va ishoralar (harflar) o‘ziga xos iqlim xususiyatlari asosida shakllantirilgan (2 - jadval).

2 - jadval

Koppen-Geiger bo'yicha asosiy iqlim tasnifi me'zonlari

Koppen-Geiger bo'yicha asosiy iqlim guruhi ishoralari

Iqlim xususiyatlari

A	Tropik iqlim (eng sovuq oy $> 18^{\circ}\text{C}$)
B	Quruq iqlim (yog‘ingarchilik $<$ potentsial bug‘lanish)
C	Mo‘tadil iqlim (eng sovuq oy -3°C dan 18°C gacha)
D	Sovuq kontinental iqlim (eng sovuq oy $< -3^{\circ}\text{C}$)
E	Qutbiy iqlim (eng issiq oy $< 10^{\circ}\text{C}$)

Iqlim sharoiti turlari va ishoralari

Iqlim xususiyatlari

f	Doimiy nam (yil davomida yog‘ingarchilik kuztiladi)
s	Quruq yoz (yozda yog‘ingarchilik minimal darajada kuzatiladi)
w	Quruq qish (qishda yog‘ingarchilik minimal darajada kuzatiladi)
m	Musson (quruq mavsum qisqa, lekin yuqori yog‘ingarchilik mavsumiga ega)
h	Issiq (yillik o‘rtacha harorat $> 18^{\circ}\text{C}$ yoki eng issiq oy $> 22^{\circ}\text{C}$)
k	Sovuq (yillik o‘rtacha harorat $< 18^{\circ}\text{C}$ yoki eng issiq oy $< 22^{\circ}\text{C}$)
a	Issiq yoz (eng issiq oy $> 22^{\circ}\text{C}$)
b	Iliq yoz (eng issiq oy $< 22^{\circ}\text{C}$)
c	Sovuq yoz (eng issiq oy $< 10^{\circ}\text{C}$)

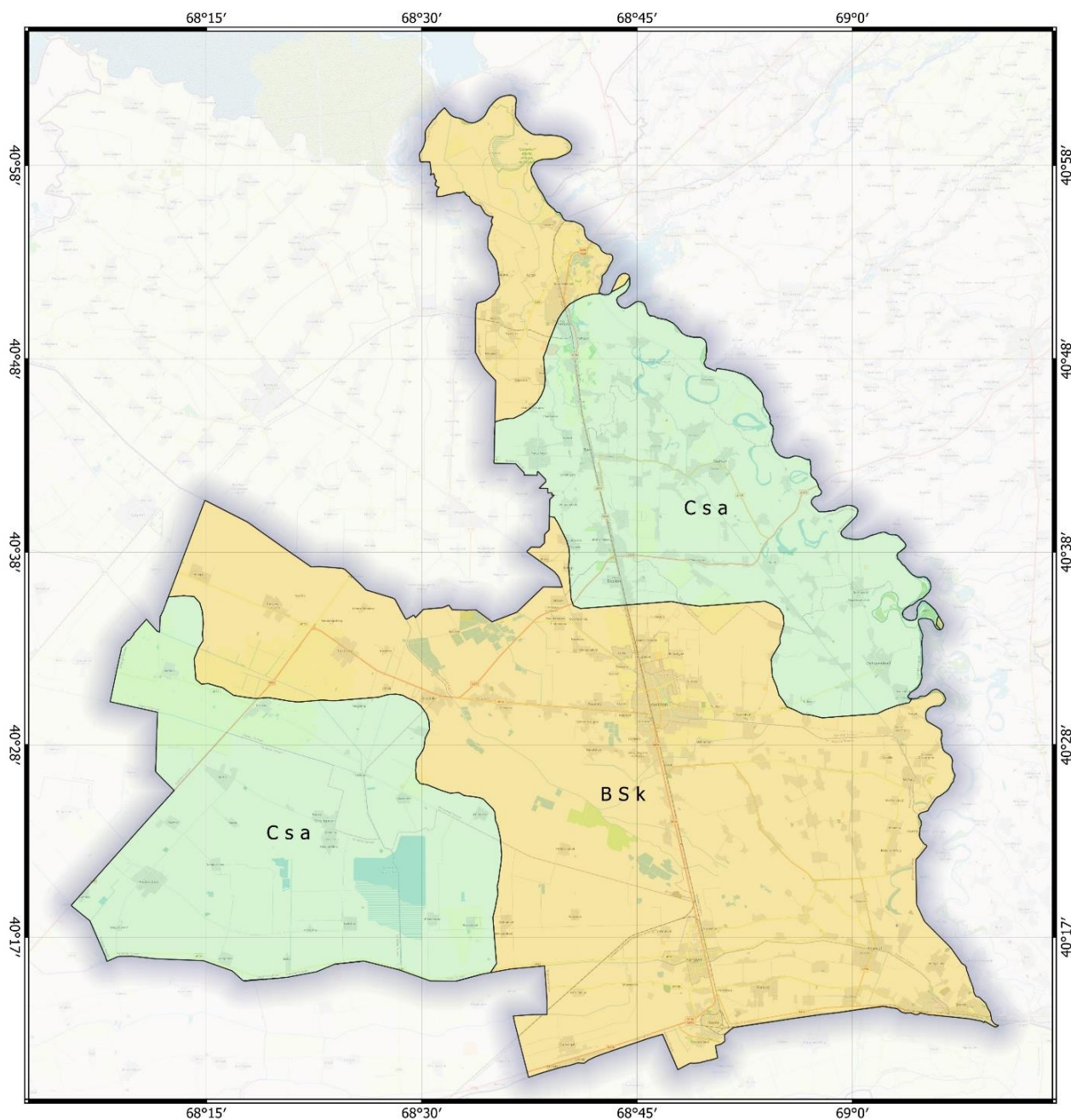
Jadval https://en.wikipedia.org/wiki/K%C3%B6ppen_climate_classification sayti
ma'lumotlari asosida muallif tomonidan shakllantirildi

Sirdaryo viloyati hududida 2010 yilgi holatga ko'ra iqlim sharoitiga ko'ra Koppen-Geiger tasnifi bo'yicha ikki iqlim turi shakllangan:

1. Issiq (eng issiq oyda harorat $30-40^{\circ}\text{C}$) va quruq yoz, yumshoq va nam qish ($0-5^{\circ}\text{C}$). Yog‘ingarchilik asosan bahor va kuzda (400 mm/yil dan ko‘p) yog‘adi. Bu iqlimiy sharoit Koppen-Geiger iqlim tasnifi bo'yicha **Csa** ishora bilan belgilanadi va tasnifga ko'ra Issiq yozli O'rta yer dengizi iqlimi turi deb tavsiflanadi. Bunday iqlim sharoitiga Sirdaryo viloyatining shimoli-sharqiy va janubiy – g'arbiy qismlari xos. Ma'muriy hududiy jihatdan bunday iqlim sharoiti shakllangan hududlarga asosan Sardoba, Sayhunobod tumanlari, qisman Mirzaobod, Oqoltin, Xovos, Guliston va Sirdaryo tumanlarining hududlari kiradi (1-rasm).

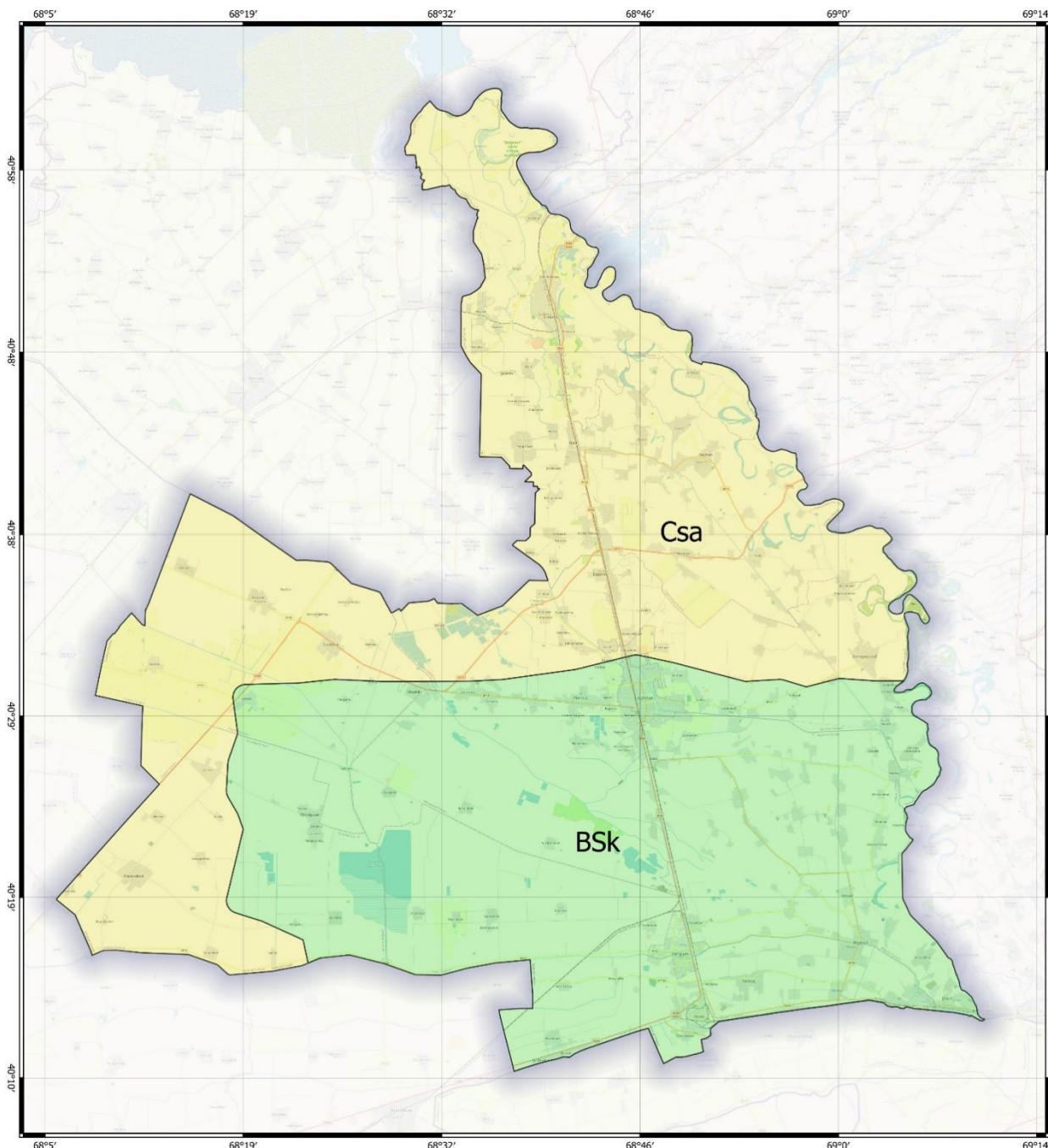
2. Quruq iqlimli hududlar bo'lib yog‘ingarchilik miqdori potentsial bug‘lanishdan past bo'lgan cho'l va yarim quruq hududlarni o'z ichiga oladi, qishi nisbatan quruq va sovuq. Bu iqlimiy sharoit Koppen-Geiger iqlim tasnifi bo'yicha **BSk** ishora bilan belgilanadi. Ushbu hududlarda yillik yog'in miqdori $250-400\text{ mm}$, qish fasli sovuq (-5°C dan -10°C gacha), yoz issiq ($30-35^{\circ}\text{C}$). Tuproq eroziyasi, sho'rlanish va cho'llanish xavfi yuqori. Hududiy jihatdan bunday iqlim sharoit

viloyatning markaziy qismlari va eng shimoliy mintaqalarini qamrab olgan. Ma'muriy hududiy jihatdan bunday iqlim sharoiti shakllangan hududlarga asosan Boyovut, Guliston, Mirzaobod, Xovos tumanlari, qisman Oqoltin, Sardoba, Sayxunobod va Sirdaryo tumanlarining hududlari kiradi (1-rasm).



1-rasm. Sirdaryo viloyatining Koppen-Geiger bo'yicha iqlim xaritasi
 Xarita <https://koeppen-geiger.vu-wien.ac.at/present.htm> sayti ma'lumotlari asosida
 2010-yilgi holati bo'yicha muallif tomonidan tuzildi

Sirdaryo viloyati hududida shakllangan yuqoridagi iqlim turlari hududiy jihatdan 2020 – yilga kelib keskin o'zgargan. Bu holatni global iqlim o'zgarishlarining mahalliy ko'lamdagi ko'rinishi deb hisoblash mumkin (2-rasm).



2-rasm. Sirdaryo viloyatining Koppen-Geiger bo'yicha iqlim xaritasi
 Xarita <https://www.gloh2o.org/koppen/> sayti ma'lumotlari asosida 2020-yilgi holati
 bo'yicha muallif tomonidan tuzildi

Xaritaga asosan Csa iqlim turi zonasiviloyatning shimoliy va g'arbiy qismlariga to'g'ri kelganligini, BSk zonasining esa janubiy va janubi-sharqiy chekka hududlarda joylashganligini ko'rish mumkin. Bu holat bizningcha viloyatning relyef sharoiti, gidrografik to'r va suv resurslari hamda mahalliy havo massalarining mavsumiyligi va tezligi, shuningdek aholining qishloq xo'jaligi faoliyatiga bog'liq.

Viloyat hududiga nisbatan iqlim turlarining egallagan maydoni hududiy jihatdan teng qamrovlidir (3-jadval).

3-jadval

Koppen-Geiger iqlim turlarining hududiy qamrovi

Iqlim turi	Egallagan maydoni	Viloyat maydoniga nisbatan ulushi (%)
Csa	2074,29	49,06
BSk	2153,46	50,94
	4227,75	100%

Jadval <https://www.gloh2o.org/koppen/> sayti ma'lumotlari asosida 2020-yilgi holati bo'yicha muallif tomonidan tuzildi

Viloyatda shakllangan iqlim turlari keskin bo'lmagan o'ziga xos iqlimiy tafovutlarga ham ega. Bu tafovutlar iqlimning asosiy elementlarida namoyon bo'ladi (4-jadval).

4-jadval

Sirdaryo viloyati mahalliy iqlim sharoitlari bo'yicha tafovutlar

Iqlim xususiyatlari	Csa (Issiq yozli O'rta yer dengizi iqlim turi)	BSk (Sovuq, nisbatan qurg'oqchil iqlim turi)
Yozgi harorat (°C)	35-40	30-35
Qishki harorat (°C)	0-5	-5 dan -10
Yillik yog'ingarchilik (barcha yog'in turlari bilan, mm)	400-600	250-400
Shamol tezligi (m/s)	1-3	2-4
Atmosfera bosimi (gPa)	970-1000	980-990
Tavsiya etiladigan qishloq xo'jaligi tarmoqlari	Paxta, uzum, meva, sabzavot	Arpa, bug'doy, chorvachilik
Ekologik muammolar	Nisbatan qurg'oqchilik xavfi, yozgi issiq shamollar (garimse) tuproq sho'rlanishi va cho'llanish	Tuproq eroziyasi, sho'rlanish, cho'llanish

Jadval <https://www.gloh2o.org/koppen/> sayti ma'lumotlari asosida 2020-yilgi holati bo'yicha muallif tomonidan tuzildi

Ushbu tafovutlar bevosita insonlarning yashash sharoiti, xo'jalik faoliyati hamda ekologik muhitga o'z ta'sirini ko'rsatadi. Iqlim o'zgarishlari ta'sirida bu holat yana o'zgarishi va keskinlashishi mumkin. Shu sababdan viloyat iqlim sharoitini eng avvalo mahalliy ko'lamlarda tadqiq etish va ularga global iqlim o'zgarishlarining ta'sir darajasini kuzatish talab etiladi.

Xulosa. Koppen-Geiger iqlim tasnifi iqlim sharoitlarini harorat, yog'ingarchilik va mavsumiylik asosida aniq va tushunarli tasniflash imkonini beradi. Beshta asosiy guruh (A, B, C, D, E) va ularning kichik turlari dunyoning turli hududlaridagi iqlim xususiyatlarini aks ettiradi. Sirdaryo viloyati misolida, Csa (issiq yozli O'rta yer dengizi) va BSk (sovuq yarim quruq) iqlimlari viloyatning iqtisodiy va ekologik rivojlanishida muhim rol o'ynaydi. Tasnifning nisbatan tabiiy

va iqlim sharoitlariga mos kelishi va soddaligi, amaliy ahamiyati tasnifni iqlimshunoslik, ekologik va boshqa sohalarida muhim omil sifatida qaralishiga sabab bo'lmoqda, lekin iqlim o'zgarishi sharoitida uni doimiy ravishda yangilab borish zarur.

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UZBEKISTAN: PROVIDING A LEGAL FRAMEWORK FOR INFORMATION SECURITY

***Abstract:** This article discusses the creation and improvement of a legal framework in the field of information security in Uzbekistan. As a product of rapid development of the global mass media, the World Wide Web and activities of other television and radio resources, information and information technologies are becoming powerful ideological and political phenomenon of the 21st century. Nowadays, humanity progress have reached such a high level where not military force, but intellectual ability, perception, innovative ideas and new technologies are of higher importance. Realization of activities on formation of global information community by the world community countries is one of the peculiarities of current period. Because, the modern concept of human rights and freedom reject the all kind of hurts and harms which can be done by society or others to people.*

***Keywords:** Information Threat, Information Security, Information Security Objects, Information Security Resources, Threat to Information Security*

INTRODUCTION

One of the main tendencies of human development in 21st century is considered to be the usage of ICT in all aspects of society and as its base, development of informatization process is a significant task nowadays. The opportunities of modern information communication technology are infinite, ICT has been developing rapidly and its application matters have become one of the superior directions of country's strategic tasks, while terms like information, information circulation, informatization, information resources, information security are becoming more common in our every day lives. The 21st century is known as the age of globalization and ICT in the world of civilization. Integration of national politics and economics is gradually rising to a global level. Along with this, development of ICT is conquering all aspects of sociopolitical, political and cultural life of integrating countries.

Main part Emergence of information security issues is directly related to one of the properties of world's scientific and technological progresses, global information revolution. As a result of global information revolution new information technology and global communication tools are being spread rapidly almost everywhere, global information platform of an international community or the global information environment is being formed. However, achievements of information revolution can be used not only for positive purposes, but also they may be used by some countries to try to dominate over other countries in an international level and to impede in other country's internal affairs. As a consequence of this, issues of information security are gaining in significance.

However, the results of information revolution can be used in negative aspects also where one country is dominating over another country in global arena, trying to intervene into internal affairs of countries. This negative part created the global contradiction sphere where the information revolution can affect the country in the regional and also in the global arena. That's why the issue of information security became the global concern of today's world.

Expansion of internet networks is considered to be a product of computerization, informatization and globalization processes. In these circumstances, it is required to create a unique in the world intercontinental information exchange infrastructure that will serve as an international legal and cultural-informational base. While the world security system is emerging speedily, we can witness the world community gradually transferring their military methods from force application to a new fundamental model, from traditional military to ICT methods. As a product of rapid development of the global mass media, the World Wide Web and activities of other television and radio resources, information and information technologies are becoming powerful ideological and political phenomenon of the 21st century. New criteria and components of security related to information factors are constantly changing the international activity methods. Nowadays, humanity progress have reached such a high level where not military force, but intellectual ability, perception, innovative ideas and new technologies are of higher importance. Realization of activities on formation of global information community by the world community countries is one of the peculiarities of current period.

MATERIAL METHOD

Information threat can be defined as following: It is a state of society where threat formed in information system by order or spontaneously adversely affects a country, community and an individual.

Information security is protection of vital benefits of an individual, community and a country from information wars, interventions and disinformation threats. The point of information securities is to protect countries' information resources and the legal rights of people and communities dealing with information systems.

Information security resources are country's resources of computer software, information in the form of documents (library, archive, fond), knowledge and information and other types of organizations.

Threat to information security is a collection of factors directly allowing the harm to activity, preservation and development of societal information atmosphere, as well as collection of factors hindering the activities of individual's, society's and country's national interests in the sphere of information technology.

Demolition of information and information standing order is illegal gathering and using of information; deliberately spreading the information in a wrong way; downloading information illegally; stealing information.

Components of information security: 1) Security state of information environment, in this state it is being formed and develops for good of society and

citizens; 2) In the state of information infrastructure security information is used precisely for the right purpose and while being used it does not affect the system negatively; 3) State of information being secure itself, in this state it is very difficult or impossible for its properties such as secretiveness, integrity, convenience to be destroyed [1].

The number of ICT crimes has been growing progressively in the last decade compared to other types of crimes. Firstly, ICT crime brings maximum profit with a minimum cost to ICT thieves. Secondly, organized crime groups are showing more interest to secret information of government and business systems to provide safety for themselves. Thirdly, ICT crimes are related to many socio-legal factors in a global level. In light of globalization, IT sphere is not only becoming a place for international partnership, but also it is becoming a place for counter-strike and movements.

The issue of information security can be seen in political, conference agendas more often, and drawing more and more attention of international organizations. The General Assembly of United Nations accepted the resolution A/KE8/54/49 on December 23, 1999. This resolution oversees the fact that modern information technologies can be used not only for development and security purposes, but also for negative purposes.

The following Laws of Republic of Uzbekistan were accepted: «About protection of country's secrets» (07.05.1993); «About the legal protection of computers and database software» (06.05.1994); «About the telecommunications» (20.08.1999); «About the principals and guarantees of information security» (12.12.2002); «About the digital signature» (11.12.2003); «About the informatization» (11.12.2003); «About exchange of electronic documents» (29.04.2004); «About electronic commerce» (29.04.2004); «About electronic payment» (16.12.2005), «About protection of information in automatic banking system» (04.04.2006). The purpose of the law of Republic of Uzbekistan about telecommunication (20.08.1999) [2] is to control the social relationship in the sphere of telecommunication creation, usage and development. The main tasks of the law about the principals and guarantees of information freedom are to abide the rules of principals and guarantees of information freedom, to provide the right of free use, spreading, saving and searching of information. The 14th article of the law states the following methods of ensuring the information security of society: to develop the principles of democratic civil society, to assure freedom of mass media; not to allow to destruct and morally effect the social mind by using mass; to preserve and enhance the moral, cultural and historical heritage of society, to protect scientific and high technological potential of the country; to establish a running system against information expansion which leads to isolating the national identity, minimization of cultural and historical heritage, instability of social political situation, destruction of peace between religions. Fit to new reality, the law about informatization serves as a legal base for development of communication technology and created a base for inflow of foreign investment. Moreover, it laid a

foundation for development of distant learning, telemedicine, electronic commerce and electronic payment.

Law «About electronic numbered signature» [3] with following to the conditions has guaranteed the equality and the acceptance of electronic numbered signature in the electronic document and the personal signature in the paper. In this law the protection of information of the owners of electronic numbered signature 's key has also been reflected. Acceptance of Law «About the circulation of electronic documents» has created the legal framework in the area of implication of the electronic document circulation and has given opportunity to exchange instantly and has increased the effectiveness of electronic documents. The law also has helped to minimize the percentage of blank paper participation in the exchange. This law has clearly showed the legal status of electronic document and its requisites and also the participants of electronic document circulation, document receiver, sender, saving and protection.

In order to relate the legal foundation of development of e-trade in Uzbekistan, law «About etrade» and law «About electronic payment» have been signed. These laws have stated the norms of the protection of electronic system participations and their privacy and the information related to the electronic payment systems. Law «About information protection in automatized banking system» [4] has also stated the norms of information protection in the banking systems, and also the legal framework of information protection. The law has also stressed out about requirements of information protection in automatized banking system. The current law ensures the legal protection of information owner; the methods of limitation in permitting of personal information usage in automatized banking systems and also it allows identifying the roles and requirements of the delegated government body which will be in charge of data and information protection in the automatized banking system. Additionally, law «About mail communication» [5] and law «About Radio frequencies» which has significant role in making society more informational-centred, and also forming legal framework which has controlled the communication and information infrastructure and radio frequency spectre.

CONCLUSION

It can be stated that today strong legal foundation of information freedom has been established in Uzbekistan. Verily, today country's economic, political, social and other spheres' dependency on the information and communication systems is dramatically increasing. Government bodies are requiring the quick exchange of information and communication. Therefore, the information security should be considered as the entire social existence of human being, and the information security concept should be attached to the human rights concept. Because, the modern concept of human rights and freedom reject the all kind of hurts and harms which can be done by society or others to people.

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KIMYO FANINI O'QITISHDA ZAMONAVIY AXBOROT TEXNOLOGIYALARIDAN FOYDALANISH

Annotatsiya : Ushbu maqolada kimyo fanini o'qitishda zamonaviy axborot texnologiyalaridan foydalanish masalalari yoritilgan. O'quv jarayonida raqamli platformalar, virtual laboratoriyalar, multimediya vositalari va interaktiv dasturlardan foydalanishning samaradorligi tahlil etilgan. Shuningdek, talabalarda mustaqil fikrlash, ilmiy izlanish va amaliy ko'nikmalarni rivojlantirishdagi axborot texnologiyalarining ahamiyati ko'rsatib o'tilgan.

Kalit so'zlar : Kimyo ta'limi, axborot texnologiyalari, virtual laboratoriya, raqamli platforma, interaktiv metod.

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USING MODERN INFORMATION TECHNOLOGIES IN TEACHING CHEMISTRY

Abstract : This article discusses the use of modern information technologies in teaching chemistry. It analyzes the effectiveness of digital platforms, virtual laboratories, multimedia tools, and interactive programs in the educational process. The importance of information technologies in developing students' independent thinking, research skills, and practical abilities is also highlighted.

Keywords : Chemistry education, information technologies, virtual laboratory, digital platform, interactive method.

Bugungi kunda ta'lim tizimi globallashuv jarayonida tubdan yangilanmoqda. Xususan, kimyo fanini o'qitishda zamonaviy axborot texnologiyalaridan foydalanish o'quv jarayonining samaradorligini oshirishda muhim vosita bo'lib xizmat qilmoqda. Raqamli resurslar, internet asosidagi ta'lim platformalari, multimedia darsliklari va virtual laboratoriyalar yordamida nafaqat nazariy bilimlarni, balki amaliy ko'nikmalarni ham shakllantirish mumkin. Bu esa o'z navbatida zamonaviy jamiyat talablariga javob beradigan raqobatbardosh mutaxassislarini tayyorlash imkonini beradi.

Zamonaviy ta'lim tizimining barpo etilishi, o'quv jarayoniga axborot texnologiyalari yutuqlarini joriy qilish bilan chambarchas bog'liq. Bu ayniqsa axborot

va telekommunikatsiya texnologiyalariga asoslangan o'qitishning yangi shakl va

vositalariga taalluqlidir. Bular qatoriga elektron ta'lim beruvchi vositalarni faol

qo'llashni taqozo etadigan elektron o'qitishni kiritish mumkin. Shu bois bugun bo'lajak

o'qituvchilarga faqatgina tayyor elektron qo'llanmalardan foydalanishni o'rgatish bilan

cheklanmay, balki ularning yangi ko'rinishlarini yaratish usullari, yo'llari va vositalarini o'rgatish ham muhim tadbirlardan hisoblanadi.

Mamlakatimizda va xorijda uzuluksiz ta'limning yanada takomillashtirish ishlari

olib borilmoqda. Bunda axborot va kommunikatsiya texnologiyalaridan foydalanish,

o'qitishni tashkil qilishda innovatsion yondashishni rivojlantiruvchi va barcha ta'lim

jarayonlarini modernizatsiya qilish kuchi sifatida qaralmoqda. Hozirgi kungacha

elektron qo'llanmalardan foydalanish metodikalari bo'yicha o'zbek tilida bajarilgan

1. Zamonaviy axborot texnologiyalarining ta'limdagi o'rni

Axborot texnologiyalari ta'lim jarayoniga kirib kelishi bilan o'quvchilarda mustaqil o'rganish ko'nikmalari shakllanmoqda. Masalan, elektron darsliklar, onlayn testlar va interaktiv platformalar yordamida talaba o'z bilim darajasini nazorat qilishi mumkin. Shuningdek, multimedia materiallari — videodarslar, animatsiyalar va virtual tajribalar kimyo kabi murakkab fanlarni yanada qiziqarli va tushunarli qilib taqdim etishga yordam beradi.

2. Kimyo ta'limida virtual laboratoriyalardan foydalanish

Ko'plab ta'lim muassasalarida moddiy-texnik bazaning yetarli emasligi tajriba o'tkazishda muammolar tug'diradi. Shu sababli virtual laboratoriyalar o'quv jarayonida katta ahamiyat kasb etmoqda. Masalan, "PhET Interactive Simulations" kabi dasturlar yordamida talaba murakkab kimyoviy reaksiyalarni xavfsiz va samarali tarzda o'rganishi mumkin. Virtual laboratoriyalar vaqtni tejaydi, xavfsizlikni ta'minlaydi va bir xil tajribani qayta-qayta bajarish imkonini beradi.

3. Interaktiv usullarning samaradorligi

Interaktiv ta'lim metodlari talabalarning darsdagi ishtirokini faollashtiradi. Masalan, "gamification" (o'yinlashtirish), "problem-based learning" (muammoli ta'lim) va "flipped classroom" (teskari sinf) texnologiyalari kimyo darslarida yuqori natija beradi. Bunday yondashuvlar orqali talabalar faqat tinglovchi emas, balki faol ishtirokchi sifatida bilim olish jarayoniga jalb etiladi.

4. Axborot texnologiyalarining afzalliklari va kamchiliklari

Afzalliklari:

O'quv jarayonining samaradorligi oshadi.

Murakkab jarayonlar vizual va interaktiv ko'rinishda taqdim etiladi.

Talabalarda mustaqil izlanish va tadqiqotchilik ko'nikmalari rivojlanadi.

O'quvchilar o'z bilim darajasini mustaqil baholash imkoniyatiga ega bo'ladi.

Kamchiliklari:

Axborot texnologiyalaridan foydalanish uchun yaxshi texnik baza zarur.

Internet tezligi va jihozlar yetishmovchiligi jarayonga to'sqinlik qilishi mumkin.

Ba'zi hollarda talaba passiv tinglovchiga aylanib qolishi mumkin, agar interaktivlik yetarli darajada bo'lmasa.

5. Bo'lajak kimyogar va muhandislar uchun ahamiyati

Kimyo fanida zamonaviy axborot texnologiyalaridan foydalanish nafaqat maktab o'quvchilari, balki oliy ta'limda tahsil olayotgan bo'lajak kimyo muhandislari uchun ham dolzarbdir. Ular ilmiy tadqiqotlarda, ishlab chiqarishda va ta'lim jarayonida yangi texnologiyalardan samarali foydalana olishlari zarur.

Ta'lim mazmunini o'zlashtirishda o'quvchilarning bilim saviyasi, o'zlashtirish qobiliyati, ta'lim manbai, didaktik vazifalariga qarab, munosib ravishda og'zaki, ko'rgazmali va amaliy kabi uch guruhga bo'linadigan metodlarning

quyidagi variantlari qo'llaniladi:

- o'qitishning ma'ruza (suhbat) metodi;
- o'qitishning amaliy ishlar metodi;
- laboratoriya ishlari metodi;
- mustaqil ishlar metodi;
- muammoli-evristik modellashirish metodi;
- ilmiy-tadqiqot metodlari;
- o'qitishning muammoli-izlanish va reproduktiv metodi;
- o'qitishning induktiv va deduktiv metodi;
- o'qitishning nazorat va o'z-o'zini nazorat qilish metodi.

Xulosa qilib aytganda, kimyo fanini o'qitishda zamonaviy axborot texnologiyalaridan foydalanish o'quv jarayonini samarali, qiziqarli va interaktiv shaklga keltiradi. Virtual laboratoriyalar, multimedia vositalari va raqamli platformalar yordamida talabalarning nazariy bilimlari mustahkamlanadi va amaliy ko'nikmalari shakllanadi. Shu bois ta'lim tizimida axborot texnologiyalarini keng joriy etish kelajakdagi raqobatbardosh mutaxassislarni tayyorlashning asosiy omillaridan biri hisoblanadi.

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OZIQ-OVQAT SANOATIDA QO'LLANILADIGAN KIMYOVIY TEKNOLOGIYALAR

Annotatsiya :Ushbu maqolada oziq-ovqat sanoatida kimyoviy texnologiyalardan foydalanish masalalari yoritilgan. Mahsulot sifatini yaxshilash, saqlash muddatini uzaytirish, yangi turdagi oziq-ovqatlarni ishlab chiqish va ularning xavfsizligini ta'minlashda kimyoviy jarayonlarning ahamiyati tahlil etilgan.

Kalit so'zlar: oziq-ovqat sanoati, kimyoviy texnologiya, konservalash, qo'shimchalar, sifat nazorati.

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CHEMICAL TECHNOLOGIES USED IN THE FOOD INDUSTRY

Abstract :This article discusses the use of chemical technologies in the food industry. It analyzes the importance of chemical processes in improving product quality, extending shelf life, developing new types of food products, and ensuring their safety.

Keywords:Food industry, chemical technology, preservation, additives, quality control.

Bugungi kunda oziq-ovqat sanoati dunyo miqyosida eng muhim va tez rivojlanayotgan tarmoqlardan biri hisoblanadi. Aholi sonining ortishi, iste'mol talabining kengayishi va bozor iqtisodiyotining rivojlanishi mahsulot sifati hamda xavfsizligiga bo'lgan talablarni kuchaytirmoqda. Bu esa zamonaviy kimyoviy texnologiyalarni qo'llashni taqozo etadi.

Oziq-ovqat sanoatida kimyoviy texnologiyalar mahsulotni qayta ishlash, sifatini oshirish, uzoq muddat saqlash va inson organizmi uchun zarur bo'lgan oziq moddalarning biologik qiymatini saqlashda muhim ahamiyatga ega.

1. Oziq-ovqat sanoatida kimyoviy texnologiyalarning ahamiyati

Kimyoviy texnologiyalar yordamida:mahsulotni mikroorganizmlardan himoya qilish mahsulot tarkibidagi foydali moddalarni saqlab qolish,yangi ta'm va shakllar yaratish,ishlab chiqarish samaradorligini oshirish mumkin.

Masalan, konservalash jarayonida ishlatiladigan tuzlash, quritish, pasterizatsiya va sterilizatsiya kabi usullar mahsulotni uzoq vaqtgacha saqlash imkonini beradi.

2. Konservalash va qo'shimchalardan foydalanish Konservalash jarayonida kimyoviy konservantlar (sorbik kislota, natriy benzoat va boshqalar) ishlatiladi. Ular mahsulotning buzilishini sekinlashtiradi. Bundan tashqari, oziq-ovqat

sanoatida ta'm, rang va tuzilmani yaxshilash uchun turli qo'shimchalar qo'llaniladi. Masalan:

Antioksidantlar – mahsulotning oksidlanishini sekinlashtiradi.

Emulgatorlar – mahsulotning bir hil bo'lishini ta'minlaydi (masalan, margarin, mayonez).

Stabilizatorlar va qalinlashtiruvchilar – mahsulotning konsistensiyasini mustahkamlaydi.

3. Sut va go'sht sanoatida kimyoviy texnologiyalar

Sut mahsulotlarini qayta ishlashda fermentlar va maxsus bakteriyalar qo'llanilib, yogurt, kefir, pishloq kabi mahsulotlar olinadi. Go'shtni qayta ishlashda esa tuzlash, dudlash va vakuumda qadoqlash texnologiyalari keng qo'llaniladi.

4. Sifat nazorati va xavfsizlik

Oziq-ovqat mahsulotlari iste'molga chiqarilishidan oldin ularning sifat ko'rsatkichlari kimyoviy tahlil orqali tekshiriladi. Bu jarayonda mahsulot tarkibidagi oqsil, yog', uglevod miqdori, qo'shimchalar va zararli moddalar nazorat qilinadi.

Ishlov berish va saqlash

Xom ashyoni, qayta ishlash jarayonida ingredientlarni va tayyor mahsulotlarni manipulyatsiya qilish har xil va xilma-xildir. Hozirgi tendentsiya "uzluksiz ishlov berish" va avtomatlashtirish orqali mexanizatsiyalash orqali qo'lda ishlov berishni minimallashtirishdir. Mexanik ishlov berish quyidagilarni o'z ichiga olishi mumkin: palletizatsiya yoki super yoki quyma qoplar (ko'pincha bir necha ming funt quruq kukunli materialni o'z ichiga olgan) bilan yoki holda o'ziyurar zavod ichida tashish; konveyer lentalar (masalan, lavlagi, don va mevalar bilan); chelakli elevatorlar (masalan, don va baliq bilan); spiral konveyerlar (masalan, qandolat va un bilan); havo oqimi (masalan, don, shakar yoki yong'oqlarni tushirish va unlarni tashish uchun).

Mavsumiy sanoatda (masalan, shakarni qayta ishlash, pivo tayyorlash, donni qayta ishlash va konservalash) xom ashyoni saqlash eng muhim hisoblanadi. Odatda siloslarda, tanklarda, qabrlarga, axlat qutilarida yoki sovuq do'konlarda amalga oshiriladi. Tayyor mahsulotlarning saqlanishi tabiatiga (suyuq yoki qattiq), saqlanish usuliga va qadoqlash usuliga (bo'sh, qop yoki super qopda, o'ram, quti yoki shishalarda) ko'ra farqlanadi; va tegishli binolar ishlov berish va saqlash sharoitlariga mos ravishda rejalashtirilgan bo'lishi kerak (transport yo'laklari, kirish qulayligi, mahsulotga mos keladigan harorat va namlik, sovuq kameralar). Tovarlar saqlash paytida yoki jo'natishdan oldin kislorod tanqis bo'lgan muhitda yoki fumigatsiya ostida saqlanishi mumkin.

Ekstraksiya

Meva, don yoki suyuqliklardan ma'lum bir oziq-ovqat mahsulotini ajratib olish uchun quyidagi usullarning har qandayidan foydalanish mumkin: maydalash, maydalash yoki maydalash, issiqlik bilan (to'g'ridan-to'g'ri yoki bilvosita), erituvchilar bilan ekstraksiya qilish, quritish va filtrlash.

Maydalash, maydalash va maydalash odatda tayyorgarlik ishlaridir - masalan, kakao loviyalarini maydalash va qand lavlagini kesish. Boshqa hollarda, unni maydalashda bo'lgani kabi, haqiqiy ekstraksiya jarayoni bo'lishi mumkin.

Issiqlik, qovurish (masalan, kakao, qahva va hindibo) kabi, ekstraksiya yo'li bilan tayyorlash vositasi sifatida bevosita foydalanish mumkin; ishlab chiqarishda odatda bug' shaklida to'g'ridan-to'g'ri yoki bilvosita ishlatiladi (masalan, qand sanoatida lavlagining yupqa bo'laklaridan oziq-ovqat moylarini olish yoki shirin sharbat olish).

Ezilgan mevalarni keyinchalik filtrlash va qayta isitish orqali yo'q qilinadigan erituvchilar bilan birlashtirish va aralashtirish orqali yog'lar teng darajada yaxshi olinishi mumkin. Suyuq mahsulotlarni ajratish santrifujlash (shakarni qayta ishlash zavodidagi turbinalar) yoki pivo zavodlarida va yog'-moy ishlab chiqarishda filtr presslari orqali filtrlash orqali amalga oshiriladi.

Oziq-ovqat sanoati insoniyat hayotida strategik ahamiyatga ega bo'lgan tarmoqlardan biridir. Hozirgi globallashuv jarayonida oziq-ovqat xavfsizligini ta'minlashda kimyo va texnologiyaning o'zaro integratsiyasi muhim o'rin tutmoqda. Kimyoviy texnologiyalar yordamida mahsulot sifatini oshirish, uni uzoq muddat saqlash, oziq-ovqatning gigiyenik va estetik xususiyatlarini yaxshilash mumkin

1. Konservatsiya texnologiyalari

Konservatsiya oziq-ovqat sanoatida eng qadimiy, shu bilan birga eng samarali jarayonlardan biridir.

- Kimyoviy konservantlar: natriy benzoat, kaliy sorbat, kalsiy propionat kabi moddalar mikroorganizmlarning rivojlanishini to'xtatadi.
- Antioksidantlar: askorbin kislota (C vitamini), tokoferollar (E vitamini) yog'larning oksidlanishini sekinlashtiradi.

2. Fermentatsiya jarayonlari

Fermentlar yordamida mahsulot tarkibini yaxshilash va biologik qiymatini oshirish mumkin.

- Amilaza kraxmalni oddiy shakarlarga parchalab, nonning yumshoqligini oshiradi.
- Laktaza sutdagi laktozani parchalaydi, bu esa laktoza intolerantligi mavjud insonlar uchun muhimdir.

3. Rang va ta'mni yaxshilash texnologiyalari

- Tabiiy pigmentlar (beta-karotin, antosiyaninlar) mahsulotga jozibador ko'rinish beradi.
- Sun'iy bo'yoqlar (tartrazin, indigotin) ko'p hollarda arzon va qulay bo'lsa-da, ularning gigiyenik me'yorlarga muvofiqligi qat'iy nazorat qilinadi.
- Ta'm kuchaytiruvchilar (mononatriy glutamat) taomning mazali bo'lishini ta'minlaydi.

4. Suvni va xom ashyoni qayta ishlash texnologiyalari

- Ion almashinuv va membranali filtratsiya usullari yordamida suvdagi nojo'ya aralashmalar chiqarib tashlanadi.
- Kimyoviy reagentlar yordamida xom ashyo dezinfeksiya qilinib, mahsulotning gigiyenik darajasi oshiriladi.

5. Innovatsion texnologiyalar

- Bioplastik qadoqlash: ekologik xavfsiz materiallardan tayyorlangan bioplastiklar oziq-ovqat mahsulotlarini uzoq muddat saqlash imkonini beradi.
- Nanotexnologiyalar: vitamin va minerallarni organizmga tezroq va samaraliroq singdiruvchi biologik qo'shimchalar ishlab chiqarishda qo'llaniladi.

Xulosa qilib aytganda, kimyoviy texnologiyalar oziq-ovqat sanoatining barcha yo'nalishlarida keng qo'llanilmoqda. Ularning yordamida mahsulot sifatini oshirish, uzoq muddat saqlash va xavfsizlikni ta'minlash imkoniyati yaratilmoqda. Kelajakda innovatsion texnologiyalar yordamida inson salomatligiga foydali, ekologik toza va xavfsiz oziq-ovqat mahsulotlarini ishlab chiqarish yanada rivojlanadi.

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BO‘LAJAK KIMYO MUHANDISLARINING KASBIY KOMPETENTLIGINI SHAKLLANTIRISH

Annotatsiya : Ushbu maqolada bo‘lajak kimyo muhandislarining kasbiy kompetentligini shakllantirish masalalari ko‘rib chiqiladi. Hozirgi zamon talablari asosida muhandislik kadrlarini tayyorlashda nazariy bilimlarni amaliyot bilan uyg‘unlashtirish, zamonaviy pedagogik texnologiyalar, laboratoriya mashg‘ulotlari hamda innovatsion metodlardan foydalanishning ahamiyati tahlil etilgan.

Kalit so‘zlar : Kimyo muhandisi, kasbiy kompetentlik, innovatsion yondashuv, amaliyot, pedagogik texnologiya.

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FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE CHEMICAL ENGINEER

Abstract : This article examines the issues of developing the professional competence of future chemical engineers. It analyzes the importance of integrating theoretical knowledge with practice in the training of engineering specialists, as well as the role of modern pedagogical technologies, laboratory practices, and innovative methods.

Keywords : Chemical engineer, professional competence, innovative approach, practice, pedagogical technology.

Globalashuv davrida ta’lim tizimining asosiy vazifalaridan biri – bo‘lajak mutaxassislarining kasbiy kompetentligini shakllantirishdir. Ayniqsa, kimyo sanoati va kimyo muhandisligi sohasi zamonaviy iqtisodiyotning strategik tarmoqlaridan hisoblanadi. Shuning uchun kimyo muhandislarining kasbiy kompetentligini shakllantirish masalasi bugungi kunda dolzarb ahamiyat kasb etmoqda.

Kimyo muhandisi nafaqat nazariy bilimlarga, balki amaliy ko‘nikmalarga, muammoli vaziyatlarda mustaqil qaror qabul qilish, ishlab chiqarishda yangi texnologiyalarni qo‘llay olish, ekologik xavfsizlikni ta’minlash kabi kompetensiyalarga ega bo‘lishi zarur.

1. Kasbiy kompetentlik tushunchasi

Kasbiy kompetentlik – bu mutaxassisning o‘z kasbiga oid nazariy bilimlar, amaliy ko‘nikmalar, ijtimoiy va shaxsiy fazilatlarining bir butun holda shakllangan majmuasidir. Kimyo muhandisi uchun bu tushuncha kimyoviy jarayonlarni chuqur bilish, texnologik jarayonlarni loyihalash, ishlab chiqarish jarayonlarini boshqarish va xavfsizlik me’yorlariga amal qilishni o‘z ichiga oladi.

2. Bo'lajak kimyo muhandislarini tayyorlashda zamonaviy yondashuvlar

Bugungi kunda ta'lim jarayonida an'anaviy yondashuv bilan bir qatorda interfaol metodlar, axborot-kommunikatsiya texnologiyalari va amaliy mashg'ulotlarga keng e'tibor qaratilmoqda. Masalan:

Laboratoriya mashg'ulotlari orqali talabalar nazariy bilimlarini tajriba asosida mustahkamlaydi.

Innovatsion texnologiyalar – 3D-modellashtirish, kompyuter simulyatsiyalari, virtual laboratoriyalar yordamida kimyoviy jarayonlarni chuqur tahlil qilish imkoniyati mavjud.

Kasbiy amaliyot – ishlab chiqarish korxonalarida stajirovka o'tab, talabalarda real tajriba shakllanadi.

3. Kasbiy kompetentlikni shakllantirishning asosiy omillari

Bo'lajak kimyo muhandislarida kasbiy kompetentlik quyidagi omillar orqali samarali rivojlanadi:

Nazariy bilimlarning mustahkamligi – kimyo fanining asosiy qonuniyatlarini mukammal bilish.

Amaliy ko'nikmalar – laboratoriya ishlari va ishlab chiqarish jarayonlarini bajarish.

Innovatsion tafakkur – yangi texnologiyalarni qabul qilish va ularni amaliyotga joriy eta olish.

Ijodkorlik va mas'uliyat – ishlab chiqarishda xavfsizlik va ekologik muammolarga jiddiy qarash.

4. Pedagogik texnologiyalar roli

Bo'lajak muhandislarning kompetentligini shakllantirishda zamonaviy pedagogik texnologiyalar muhim ahamiyatga ega. Masalan, loyiha usuli, muammoli ta'lim, interfaol metodlardan foydalanish talabalarning mustaqil fikrlashini, ijodiy yondashuvini va amaliy ko'nikmalarini kuchaytiradi.

Jamiyatda ta'lim tizimini rivojlantirishning strategik yo'nalishi - bu insonning turli sohalarida maqsadli mustaqil faoliyati asosida uning intellekt va ahloqiy rivojlanishidir. Jahonning rivojlangan davlatlari qatori mamlakatimizda ham ta'limdagi islohotlar jarayonida mustaqil ta'limni rag'batlantirish muhim yo'nalish sifatida kelmoqda. Pedagogning kasbiy layoqatlilikini tarbiyalash fenomenini tadqiq qilishga bir qator olimlarning ishlarida o'z ifodasini topgan. Bu mualliflar kasbiy layoqatlilik - ishonchlilik sifatleri bilan birgalikda o'qituvchining kasbiy - individual hodisa sifatida pedagogik madaniyatini tavsiflaydi degan fikrni olg'a surganlar . O'z navbatida, kasbiy layoqatlilik tushunchasi, V.A.Slastenin ta'kidlaganidek, pedagogning pedagogik faoliyatini amalga oshirishga nazariy hamda amaliy tayyorligining birligini ifodalaydi va uning kasbiy shakllanganligini tavsiflaydi. Oliy ta'limda kompetentlik: ma'naviy, motivatsion, intellektual va amaliy jihatdan o'z-o'zini rivojlantirish, irodaviy va hissiy jihatdan o'z-o'zini boshqara olishga qaratilgan. Talaba shaxsiy manfaatlari va imkoniyatlariga ko'ra faoliyat usullarini egallaydi, bu unga o'zida zamonaviy mutaxassisga xos bo'lgan shaxsiy sifatlarini rivojlantirish, tafakkurini, madaniyati va xulqini shakllantirishga yordam beradi

Kasbiy kompetentlik mutaxassis tomonidan alohida bilim, malakalarning egallanishini emas, balki har bir mustaqil yo‘nalish bo‘yicha integrativ bilimlar va

harakatlarning o‘zlashtirilishini nazarda tutadi. Shuningdek, kompetensiya mutaxassislik bilimlarini doimo boyitib borishni, yangi axborotlarni

o‘rganishni, muhim ijtimoiy talablarni anglay olishni, yangi ma‘lumotlarni izlab

topish, ularni qayta ishlash va o‘z faoliyatida qo‘llay bilishni taqozo etadi.

Kasbiy kompetentlik quyidagi holatlarda yaqqol namoyon bo‘ladi:

✓ murakkab jarayonlarda;

✓ noaniq vazifalarni bajarishda;

✓ bir-biriga zid ma‘lumotlardan foydalanishda;

✓ kutilmagan vaziyatda harakat rejasiga ega bo‘la olishda.

Kasbiy kompetensiyaga ega mutaxassis:

✓ o‘z bilimlarini izchil boyitib boradi;

✓ yangi axborotlarni o‘zlashtiradi;

✓ davr talablarini chuqur anglaydi;

✓ yangi bilimlarni izlab topadi;

ularni qayta ishlaydi va o‘z amaliy faoliyatida samarali qo‘llaydi.

Quyida kasbiy kompetentlik negizida aks etuvchi sifatlarning mohiyati qisqacha

yoritiladi.

1. Ijtimoiy kompetentlik - ijtimoiy munosabatlarda faollik ko‘rsatish ko‘nikma,

malakalariga egalik, kasbiy faoliyatda sub’ektlar bilan muloqotga kirisha olish.

2. Maxsus kompetentlik - kasbiy-pedagogik faoliyatni tashkil etishga tayyorlanish, kasbiy-pedagogik vazifalarni oqilona hal qilish, faoliyati natijalarini

real baholash, BKMni izchil rivojlantirib borish bo‘lib, ushbu kompetentlik negizidapsixologik, metodik, informatsion, kreativ, innovatsion va kommunikativ

kompetentlik ko‘zga tashlanadi. Ular o‘zida quyidagi mazmunni ifodalaydi

Xulosa qilib aytganda, bo‘lajak kimyo muhandislarining kasbiy kompetentligini shakllantirish ta‘lim tizimining dolzarb vazifalaridan biridir. Bunda nazariya va amaliyotni uyg‘unlashtirish, zamonaviy pedagogik texnologiyalardan foydalanish, laboratoriya mashg‘ulotlari va ishlab chiqarish amaliyotini kuchaytirish asosiy yo‘nalish bo‘lib xizmat qiladi. Shuningdek, innovatsion yondashuvlarni ta‘lim jarayoniga tatbiq etish kelajakdagi kimyo muhandislarining yuqori malakali, raqobatbardosh va ijodkor bo‘lishini ta‘minlaydi.

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ZAMONAVIY METOD VA USULLAR YORDAMIDA FAN VA TARAQQIYOTNING RIVOJLANISHIGA HISSA QO‘SHISH

Annotatsiya: *Kimyo, ilm-fanning eng asosiy sohalaridan biri sifatida, har doim zamon talablariga javob berish va yangi ilmiy, texnologik yutuqlarga moslashishga intilgan. Mazkur maqolada turli masalalar va ularni yechishning zamonaviy metod va usullar yordamida fan va taraqqiyotning rivojlanishiga hissa qo‘shish ko‘zda tutiladi.*

Kalit so‘zlar: *Rekurrent neyron, kimyoviy tahlil, kimyoviy analiz, Genetika algoritmlari, nostandart usul, kimyoviy modellar.*

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CONTRIBUTION TO THE DEVELOPMENT OF SCIENCE AND PROGRESS WITH THE HELP OF MODERN METHODS AND METHODS

Annotation: *Chemistry, as one of the most important branches of science, has always sought to meet the requirements of the time and adapt to new scientific and technological achievements. This article aims to contribute to the development of science and progress using various problems and modern methods and techniques for solving them.*

Keywords: *Recurrent neuron, chemical analysis, chemical analysis, Genetic algorithms, non-standard method, chemical models.*

Kimyo, ilm-fanning eng asosiy sohalaridan biri sifatida, har doim zamon talablariga javob berish va yangi ilmiy, texnologik yutuqlarga moslashishga intilgan. Bugungi kunda, kimyo nafaqat nazariy asoslarini chuqur o‘rganish, balki amaliy muammolarni hal qilish uchun keng qo‘llaniladigan ilmlar sifatida shakllangan. Zamonaviy kimyo usullari va metodlari kimyoviy modellashtirish, algoritmlar yaratish, katta ma'lumotlarni tahlil qilish, sun'iy intellektni qo‘llash va boshqa sohalarida keng tarqalgan. Bu metodlar va yondoshuvlar kimyoni yanada samarali va amaliy qo‘llash imkoniyatlarini taqdim etmoqda.

Bugungi kunda kimyodagi yangi yondashuvlar, metodlar va vositalar faqat ilmiy nazariyaga emas, balki iqtisodiyot, fizika, biologiya, tibbiyot va informatika kabi sohalarida ham keng qo‘llanilmoqda. Zamonaviy usullar va metodlar kimyoni yanada kengaytirib, turli sohalaridagi masalalarni yechishda samarali vosita sifatida xizmat qilmoqda.

1. Katta ma'lumotlar (Big Data) Zamonaviy kimyoda eng muhim

yondashuvlardan biri - katta ma'lumotlarni tahlil qilish va ularni kimyoviy modellarga aylantirish. Katta ma'lumotlar tahlili (Big Data) texnologiyasi rivojlanishi bilan birga, kimyoviy usullar bu yangi sohani ilgari surishda muhim rol o'ynaydi. Bu usullar:

- Ma'lumotlarni tahlil qilish va tasniflash: Katta ma'lumotlar bazasidan turli qarorlar qabul qilish uchun statistik va kimyoviy metodlar ishlatiladi. Ma'lumotlar bazasini optimallashtirish, ularning o'zgarishlarini tahlil qilish va yangi bilimlarni olish uchun statistik metodlar, regressiya tahlili, klasterlash va klassifikatsiya kabi usullar keng qo'llaniladi.

- Mashina o'rganish (Machine Learning): Mashina o'rganish kimyoviy modellarni o'rgatish uchun qo'llaniladi. Bu usul statistik tahlil va optimizatsiyaga asoslanib, algoritmning samaradorligini oshiradi. Mashina o'rganish jarayonida asosan bayes usullari, neyron tarmoqlari, suv qoplama algoritmari, kollektiv o'rganish va boshqa algoritmik usullar qo'llanadi.

- Rekurrent neyron tarmoqlari (RNN) va konvolyutsion neyron tarmoqlari (CNN): Bu usullar tasvirlarni qayta ishlash, tilni tahlil qilish, vaqt davomida ma'lumotlarni prognoz qilish kabi murakkab vazifalarni bajarishda samarali hisoblanadi. Masalan, CNN usuli tasvirlarni tanib olish va ishlov berishda, RNN esa vaqtga bog'liq ketma-ketlikni tahlil qilishda ishlatiladi.

2. Chuqur o'rganish (Deep Learning) va neyron tarmoqlari. Chuqur o'rganish (deep learning) metodlari kimyoviy tahlil va hisoblashning eng ilg'or yo'nalishlaridan biridir. Neyron tarmoqlari bu metodlarning asosiy qurilmasidir. Bu sohadagi asosiy yondashuvlar quyidagilardir:

- Neyron tarmoqlari va backpropagation algoritmi: Neyron tarmoqlarining o'zgarishi, ya'ni orqa tarqatish (backpropagation) algoritmi orqali, tizimning o'rganish jarayonini optimallashtirish mumkin. Bu algoritm differensial hisoblash va optimizatsiya metodlari yordamida o'rganish jarayonini boshqaradi.

- Chuqur neyron tarmoqlari (Deep Neural Networks): Chuqur o'rganishning ilg'or usullaridan biri chuqur neyron tarmoqlari hisoblanadi. Bu tarmoqlar turli qatlamlardan iborat bo'lib, har bir qatlam o'ziga xos yondashuv va kimyoviy modellashtirishga asoslanadi. Tarmoqni o'rgatishda, gradientni pasaytirish (gradient descent) algoritmari ishlatiladi.

- Generativ adversarial tarmoqlar (GANs): GANlar o'zining samarali usul sifatida rasmlar, videolar, musiqa va boshqa kreativ kontent yaratishda qo'llaniladi. Ushbu metod orqali sun'iy tarmoqlarni o'rgatish va yangi, ilg'or ma'lumotlarni yaratish mumkin.

3. Optimizatsiya metodlari va kimyoviy analiz. Zamonaviy kimyoning rivojlanishida optimizatsiya metodlari katta rol o'ynaydi. Optimizatsiya - bu ma'lum bir shartlar ostida eng yaxshi natijani olishni ta'minlaydigan kimyoviy jarayon hisoblanadi. Optimizatsiya metodlari quyidagilarni o'z ichiga oladi:

- Gradientni pasaytirish (Gradient Descent): Bu metod neyron tarmoqlarini o'rgatishda va boshqa optimizatsiya masalalarida qo'llaniladi. Gradientni pasaytirish usuli yordamida, tizimning optimal parametrlarini topish mumkin.

- Dinamika dasturlash: Bu metod murakkab tizimlarning optimal yechimlarini

topishda ishlatiladi. Dinamika dasturlash optimizatsiya muammolarini kichik qismlarga ajratib, har bir qismini alohida hal qilish imkonini beradi.

- Genetika algoritmlari: Genetik algoritmlar tabiiy selektsiya va evolyutsiya jarayoniga o'xshash kimyoviy metodlarni qo'llaydi. Bu metod yordamida murakkab tizimlarni optimallashtirish va yechimlarni topish mumkin.

- Simulyatsiya va Monte-Karlo metodlari: Simulyatsiya va Monte-Karlo usullari tasodifiy jarayonlar va murakkab tizimlar uchun qo'llaniladi. Bu metodlar tasodifiy ma'lumotlar asosida yechimlar ishlab chiqishga imkon beradi.

4. Kriptografiya va xavfsizlik: zamonaviy metodlar. Zamonaviy kimyoning yana bir muhim sohasi - bu kriptografiya va xavfsizlik. Kriptografiya metodlari kimyoga asoslanib, ma'lumotlarni shifrlash, autentifikatsiya va tizimlarni himoya qilish kabi vazifalarni bajaradi. Kriptografiya metodlari quyidagi kimyoviy usullardan foydalanadi:

- RSA algoritmi: RSA algoritmi - bu asosan sonlar nazariyasi va modulli arifmetikka asoslangan shifrlash usulidir. Ushbu algoritmni zamonaviy xavfsizlik tizimlarida, shu jumladan, internet orqali uzatilayotgan ma'lumotlarni himoya qilishda qo'llaniladi.

- Elliptik egri kriptografiyasi: Elliptik egri kriptografiyasi - bu kimyoviy modellarni qo'llagan holda shifrlashni amalga oshiradi. Ushbu usul ko'p hollarda mobil qurilmalarda xavfsiz ma'lumot uzatish uchun ishlatiladi.

- Hash-funksiyalar: Hash-funksiyalar ma'lumotlarni qisqa kodlarga aylantiradigan kimyoviy algoritmlardir. Ular axborot xavfsizligini ta'minlashda va ma'lumotlarni uzatishda muhim rol o'ynaydi.

5. Kvant kimyosi va kompyuterlar. Zamonaviy kimyoning yana bir kutilayotgan sohasidan biri kvant kompyuterlar va kvant kimyosidir. Kvant kompyuterlar klassik kompyuterlarga qaraganda ancha tez va samarali hisoblashlarni amalga oshira olish imkoniyatiga ega. Kvant kimyosi quyidagi sohalarda o'z aksini topadi:

- Qvant hisoblash: Kvant hisoblash kimyoviy modellarni o'zgartiradi. Kvant algoritmlarining ko'plab kimyoviy yondoshuvlari mavjud, masalan, Shor algoritmi va Grover algoritmi kabi metodlar ma'lumotlarni tezda shifrlash va de-shifrlash imkoniyatlarini beradi.

- Qvant xavfsizlik: Qvant kompyuterlar yordamida ma'lumotlarni xavfsiz uzatish va saqlash mumkin, chunki kvant kriptografiyasi klassik shifrlashdan ancha xavfsizdir. Bu yangi usul yangi kimyoviy paradigmalariga asoslanadi.

6. Kimyoviy modellashtirish va fizikadagi yondoshuvlar. Kimyo fanining rivojlanishida fizikadagi yangi kashfiyotlar va ularning kimyoviy modellarini yaratish katta ahamiyatga ega. Zamonaviy fizika, ayniqsa, nisbiylik nazariyasi, kvant mexanikasi va kosmologiyada kimyoviy modellashtirish asosiy rol o'ynaydi.

- Tizimlar nazariyasi: Tizimlar nazariyasi kimyoviy modellashtirishning yana bir rivojlangan yo'nalishi hisoblanadi. Bu metodlar, ayniqsa, murakkab tizimlarni tahlil qilishda qo'llaniladi.

Xulosa. Zamonaviy kimyoning rivojlanishida yangi usul va metodlardan foydalanishning ahamiyati katta. Bu metodlar kimyoviy tahlil va modellashtirishni

yangilab, ilm-fanning turli sohalariga yangi imkoniyatlar yaratmoqda. Katta ma'lumotlar, mashina o'rganish, optimizatsiya, kvant kimyosi, kriptografiya kabi zamonaviy usullar kimyoning yanada rivojlanishini ta'minlaydi va amaliy muammolarni hal qilishda samarali vositalarni taqdim etadi.

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OLIV TA'LIMDA MUTAXASSISLIK FANLARINI O'QITISHDA O'QITISHNING INTERFAOL USULLARINI QO'LLASH VA UNING DOLZARBLIGI

Annotatsiya: *Mazkur ilmiy maqolada zamonaviy ta'lim tizimida mutaxassislik fanlarini samarali o'qitish jarayonida interfaol usullardan foydalanish va uning ta'lim jarayonidagi ahamiyat beqiyos ekanligi haqida gap boradi. Ayniqsa, oliy ta'limda mutaxassislik fanlarini o'qitishda interfaol yondashuvlardan foydalanish talabalarni mustaqil fikrlashga, ijodiy yondashishga, amaliy ko'nikmalarni rivojlantirishdagi o'rniga urg'u berilgan.*

Kalit so'z: *interfaol usullar, zamonaviy texnologiya, integratsiya, metodologiya, psixologiya, didaktika, sotsiologiya, klaster, konstruktivizm, kompetensiya.*

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THE USE OF INTERACTIVE TEACHING METHODS IN TEACHING SPECIALIZED SUBJECTS IN HIGHER EDUCATION AND ITS RELEVANCE

Abstract: *This scientific article discusses the use of interactive methods in the effective teaching of specialized subjects in the modern education system and its incomparable importance in the educational process. In particular, the use of interactive approaches in teaching specialized subjects in higher education is emphasized in terms of developing students' independent thinking, creative approach, and practical skills.*

Keywords: *interactive methods, modern technology, integration, methodology, psychology, didactics, sociology, cluster, constructivism, competence.*

Asosiy qism

Interfaol usullar deganda, avvalo, ta'lim jarayonida talabani faol ishtirokini ta'minlaydigan, uning fikrlash qobiliyatini rivojlantiradigan va mustaqil qaror qabul qilishga o'rgatadigan usullar tushuniladi. Ular orasida “Aqliy hujum”, “Klaster”, “Debat”, “Insert”, “Baliq skeleti”, “Case study” kabi metodlar keng qo'llaniladi.

Ushbu usullar talabalarda tanqidiy fikrlash, muammoli vaziyatlarni tahlil qilish, turli nuqtayi nazarlarni solishtirish va xulosaga kelish ko'nikmalarini rivojlantiradi.

Mutaxassislik fanlarini o'qitishda interfaol metodlardan foydalanish, eng avvalo, o'quv jarayonini faollashtirishga xizmat qiladi. Masalan, "Case study" usuli orqali talabalar real hayotiy vaziyatlarni tahlil qilib, nazariy bilimlarini amaliyotda qo'llash imkoniga ega bo'ladilar. Shu bilan birga, debate va muammoli savollar asosida tashkil etilgan mashg'ulotlar talabalarda mustaqil va erkin fikrlash malakalarini shakllantiradi.

Interfaol usullarning afzalliklaridan yana biri — ular talabalarni faqat bilim olish bilan cheklanmay, balki hamkorlikda ishlash, jamoada faoliyat yuritish, o'z fikrini asoslab bera olishga ham o'rgatadi. Bu esa zamonaviy mehnat bozorida talab qilinadigan ko'nikmalardan biri hisoblanadi. Shuningdek, bunday usullar o'quv jarayonida monotonlikni bartaraf etib, talabalar motivatsiyasini kuchaytiradi.

Bugungi kunda oliy ta'lim muassasalarida interfaol usullarni qo'llashning dolzarbligi shundan iboratki, ular ta'lim jarayonini xalqaro talablarga yaqinlashtirish imkonini beradi. Jahonning yetakchi oliy ta'lim maskanlarida mutaxassislik fanlarini o'qitishda interfaol yondashuvlar asosiy metodlardan biri sifatida qaraladi. Shu bois, O'zbekistonda ham oliy ta'lim tizimida interfaol usullarni keng tatbiq etish, ularni pedagoglarning kasbiy faoliyatiga integratsiyalash muhim ahamiyat kasb etadi.

Xulosa

Xulosa qilib aytganda, oliy ta'limda mutaxassislik fanlarini o'qitishda interfaol usullarni qo'llash bugungi kun ta'limi uchun dolzarb masalalardan biridir. Interfaol usullar yordamida talabalar nafaqat chuqur nazariy bilimlarga ega bo'ladilar, balki mustaqil fikrlash, jamoada ishlash, turli muammolarga ijodiy yechim topish ko'nikmalarini ham shakllantiradilar. Bu esa, o'z navbatida, oliy ta'lim muassasalarida raqobatbardosh mutaxassislarni tayyorlash jarayonining samaradorligini oshiradi.

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FUNDAMENTALS OF TEACHING METHODOLOGY

Abstract: *This scientific article focuses on the foundations of teaching methodology in the current educational process. The importance and relevance of teaching methodology in today's education system are explained.*

Keywords: *methodology, psychology, didactics, sociology, modern technology, integration, interactive method, cluster, constructivism, competence.*

The effectiveness of education largely depends on teaching methods. Methodology justifies not only how to teach, but also why it is necessary to choose a particular method. Therefore, the importance of the methodological approach in modern pedagogy is extremely great.

1. The essence and tasks of teaching methodology

Teaching methodology is a scientific system aimed at harmonizing the content, form and means of the educational process. It performs the following tasks:

- directing the teacher's activities towards a specific goal;
- forming knowledge, skills and competencies in students;
- logical, systematic and effective organization of the educational process;
- ensuring an integral connection between theory and practice.

Teaching methodology, on the one hand, is closely related to didactics, and on the other hand, it develops in an integrated manner with psychology, sociology and modern technologies.

2. Teaching methods and their classification

The main element of methodology is methods. Method is a way to achieve the goal, and various methods are used in the teaching process. In the traditional classification, teaching methods are divided into the following groups:

1. Oral methods - story, conversation, explanation, lecture.
2. Demonstrative methods - exhibitions, experiments, use of video and graphic materials.
3. Practical methods - exercises, laboratory work, independent tasks.
4. Interactive methods - "Brainstorming", "Cluster", "Discussion", "Role playing", "Debate", etc.

Today, interactive methods are widely used. They serve to develop students' independent thinking, analysis, and creative approaches.

3. Methodological approaches in modern education

In the 21st century, new views on teaching methodology have been formed. The traditional “teacher-centered” approach is gradually being replaced by “student-

centered” education. In this approach, the main emphasis is on the development of the student’s personality, revealing his abilities and teaching him to think independently.

Also, the following areas are of particular importance in modern methodology:

- Constructivism - knowledge is created in the process of the student’s own activity.

- Competency approach - emphasis is placed on practical skills and qualifications rather than knowledge.

- Information and communication technologies - teaching through e-learning, online courses, virtual laboratories.

4. Conditions for the effectiveness of the teaching methodology

For the teaching methodology to be successful, the following conditions must be met:

- the teacher must select methods in accordance with the goals and objectives;
- taking into account the age and psychological characteristics of students;
- combining theory and practice in the educational process;
- using interactive, innovative methods;
- use of a fair and motivating assessment system.

Conclusion

In conclusion, teaching methodology is one of the main tools that ensure the effectiveness of education. Properly selected methods develop not only knowledge in students, but also independent thinking, creativity and practical skills. Therefore, each teacher must thoroughly master methodological approaches and have the skills to apply them in practice.

In today's era of globalization, the use of innovative forms of methodology serves to improve the quality of education, train competitive personnel and contribute to the development of society.

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TEXNIKA OLIY O'QUV YURLARIDA TA'LIM JARAYONIDA ILMIY- INNOVATSION TEXNOLOGIYALARNING AHAMIYATI

Annotatsiya: Mazkur ilmiy maqolada texnika oliy o'quv yurtlarida ta'lim jarayonida ilmiy-innovatsion texnologiyalarning ahamiyati beqiyos ekanligi haqida gap boradi. Ayniqsa, texnika oliy oliy o'quv yurtlarida mutaxassislik fanlarini o'qitishda ilmiy-innovatsion texnologiyalardan foydalanish talabalarni mustaqil fikrlashga, ijodiy yondashishga, amaliy ko'nikmalarni rivojlantirishdagi o'rniga urg'u berilgan.

Shu bois texnika oliy ta'lim muassasalari oldida innovatsion texnologiyalarni ta'lim jarayoniga keng joriy etish dolzarb vazifa bo'lib qolmoqda.

Kalit so'z: zamonaviy texnologiya, integratsiya, interfaol metod, metodologiya, psixologiya, didaktika, sotsiologiya, klaster, konstruktivizm, kompetensiya.

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THE IMPORTANCE OF SCIENTIFIC AND INNOVATIVE TECHNOLOGIES IN THE EDUCATIONAL PROCESS IN TECHNICAL HIGHER EDUCATIONAL INSTITUTIONS

Abstract: This scientific article discusses the incomparable importance of scientific and innovative technologies in the educational process in technical higher educational institutions. In particular, the role of the use of scientific and innovative technologies in teaching specialized subjects in technical higher educational institutions in developing students' independent thinking, creative approach, and practical skills is emphasized. Therefore, the widespread introduction of innovative technologies into the educational process remains an urgent task for technical higher educational institutions.

Keywords: modern technology, integration, interactive method, methodology, psychology, didactics, sociology, cluster, constructivism, competence.

Asosiy qism

Texnika oliy ta'lim muassasalarida ilmiy-innovatsion texnologiyalarning qo'llanilishi, avvalo, ta'lim sifatini oshirish, talabalarning mustaqil va ijodiy

fikrlashini rivojlantirishga xizmat qiladi. Innovatsion texnologiyalar qatoriga axborot-kommunikatsiya vositalari, virtual va raqamli laboratoriyalar, masofaviy ta'lim platformalari, sun'iy intellekt asosidagi dasturlar, robototexnika va simulyatsiya tizimlari kiradi. Ular yordamida talabalarga nazariy bilimlarni amaliyot bilan uyg'unlashtirish imkoniyati yaratiladi.

Masalan, raqamli simulyatorlar va virtual laboratoriyalar yordamida talaba murakkab muhandislik jarayonlarini tajriba asosida sinab ko'rishi, turli konstruksiyalarni modellashtirishi mumkin. Bu nafaqat vaqt va resurslarni tejashga, balki xavfsizlikni ta'minlashga ham xizmat qiladi. Masofaviy ta'lim tizimlari esa talabalarining mustaqil o'qish jarayonini qo'llab-quvvatlaydi, ularning o'zlashtirish samaradorligini oshiradi.

Ilmiy-innovatsion texnologiyalar ta'lim jarayonida interfaol metodlarni joriy etishga ham keng yo'l ochadi. Jumladan, loyiha asosida ta'lim, muammoli ta'lim, startap-loyihalar orqali o'qitish talabalarining faolligini oshiradi va ularda amaliy ko'nikmalar shakllanishiga olib keladi. Muhandislik ta'limida startap-loyihalarining ahamiyati shundaki, ular talabalarga real iqtisodiy muammolarni hal qilishga, innovatsion yechimlar ishlab chiqishga yordam beradi.

Bundan tashqari, ilmiy-innovatsion texnologiyalar ishlab chiqarish bilan hamkorlikda ham muhim rol o'ynaydi. Texnika oliy o'quv yurtlari zamonaviy korxonalar bilan hamkorlik qilib, talabalarni ishlab chiqarishdagi innovatsion jarayonlarga jalb etadi. Bu esa bitiruvchilarning raqobatbardoshligini ta'minlaydi.

Bugungi kunda ko'plab rivojlangan davlatlarda muhandislik ta'limi va ishlab chiqarish o'rtasidagi uzviy aloqadorlik ilmiy-innovatsion texnologiyalar asosida yo'lga qo'yilgan. O'zbekiston oliy ta'lim tizimida ham ushbu yo'nalishda muhim qadamlar tashlanmoqda. Jumladan, kredit-modul tizimining joriy etilishi, raqamli ta'lim platformalari, laboratoriya va texnoparklarning tashkil etilishi shular jumlasidandir.

Xulosa

Xulosa qilib aytganda, texnika oliy o'quv yurtlarida ta'lim jarayoniga ilmiy-innovatsion texnologiyalarni joriy etish dolzarb va strategik ahamiyatga ega. Ular yordamida talabalarda nafaqat chuqur nazariy bilimlar, balki amaliy ko'nikmalar, ijodkorlik, mustaqil fikrlash, zamonaviy muammolarga innovatsion yechim topish malakalari shakllanadi. Bu esa mamlakatimizda raqobatbardosh, yuqori malakali muhandislarni tayyorlashda asosiy omillardan biri hisoblanadi. Shu bois, texnika oliy ta'lim muassasalari oldida innovatsion texnologiyalarni ta'lim jarayoniga keng joriy etish, ularni ishlab chiqarish bilan integratsiyalash muhim vazifalardan biridir.

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BO‘LAJAK KIMYO MUHANDISLARINI KASBGA YO‘NALTIRISHNING ZAMONAVIY METODLARI

Annotatsiya : Ushbu maqolada bo‘lajak kimyo muhandislarini kasbga yo‘naltirishning zamonaviy metodlari yoritilgan. Ta‘lim jarayonida innovatsion pedagogik yondashuvlardan foydalanish, kasbiy kompetensiyalarni shakllantirish va talabalarda mustaqil fikrlash ko‘nikmalarini rivojlantirishning samarali usullari tahlil etilgan. Shuningdek, bo‘lajak mutaxassislarni ishlab chiqarish amaliyotiga tayyorlashda integratsiyalashgan metodlarning ahamiyati ko‘rsatib o‘tilgan.

Kalit so‘zlar : Kimyo muhandisi, kasbga yo‘naltirish, innovatsion metod, kompetensiya, ishlab chiqarish amaliyoti.

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MODERN METHODS OF CAREER GUIDANCE FOR FUTURE CHEMICAL ENGINEERS

Abstract : This article discusses modern methods of career guidance for future chemical engineers. It analyzes effective approaches in the educational process such as the use of innovative pedagogical methods, the development of professional competencies, and the enhancement of students' independent thinking skills. The importance of integrated methods in preparing future specialists for industrial practice is also highlighted.

Keywords: Chemical engineer, career guidance, innovative method, competence, industrial practice.

Maktabda o‘quvchilarni kasb-hunarga yo‘naltirish birgina mehnat ta‘limi o‘qituvchisining ishi emas, balki butun maktab jamoasining, mahalla, otanonalar,

jamoatchilikning birgalikdagi ishidir. Maktabda fan o‘qituvchilari mavzuni yoritish

jarayonida kasblar bilan bog‘lab o‘tishsa, maktab psixologi va rahbariyati o‘quvchilarning individual qobiliyatlari, qiziqishlarini hisobga olgan holda ta‘lim-tarbiya ishlarini olib borishsagina o‘quvchilarga kasb tanlashlarida ko‘mak

bergan bo‘lishadi. SHu bilan birga takrorlash zarurki, magistrLAR O‘zbekiston

Respublikasida yuz berayotgan ijtimoiy-iqtisodiy o'zgarishlar, —Kadrlar tayyorlash Milliy dasturilning qabul qilinishi o'quvchi yoshlarni va aholini kasb-hunarga yo'naltirish tizimini takomillashtirish – ish o'rinlarini bo'shab qolish jarayonlari jadallashadigan va ishchilarning malakalariga qo'yiladigan sifat talablari oshib borayotgan bozor iqtisodiyoti sharoitida yanada muhim ahamiyat kasb etadi. Aholini ratsional va samarali bandligini ta'minlashdagi kasb-hunarga yo'naltirishning asosiy roli shundan iboratki, yoshlar va aholi tomonidan kasbning ongli va ilmiy asoslangan tanlovi ularni mehnat faoliyatida yuqori natijalarga erishishda zamin yaratadi, iqtisodiyot sohalaridagi kasb-hunarga bo'lgan mavjud ehtiyojlarni hisobga olgan holda mehnat resurslarini oqilona taqsimlaydi hamda insonlarning ish qidirish, ta'lim va kasbiy faoliyat turini tanlashlaridagi zo'riqish holatlarini oldini olishga yordam beradi.

Hozirgi davrda ta'lim tizimi oldida turgan muhim vazifalardan biri — bo'lajak mutaxassislarni mehnat bozorining talablariga mos ravishda tayyorlashdir. Ayniqsa, kimyo muhandisligi sohasi mamlakat sanoati va iqtisodiyoti rivojlanishida katta o'rin tutadi. Shu bois, talabalarni kasbga yo'naltirish, ularning kasbiy qiziqishini shakllantirish hamda nazariy bilimlarni amaliy ko'nikmalar bilan uyg'unlashtirish dolzarb masalalardan biri sanaladi.

1. Kasbga yo'naltirishning dolzarbligi

Bo'lajak kimyo muhandislarini kasbga yo'naltirish ularning kelajakdagi faoliyatini belgilashda muhim ahamiyat kasb etadi. To'g'ri tanlangan kasb talabaning ijtimoiy-madaniy hayotda faol bo'lishini, o'z bilimini ishlab chiqarishga tatbiq etishini ta'minlaydi.

2. Innovatsion pedagogik yondashuvlar

Kimyo muhandislarini kasbga yo'naltirish jarayonida an'anaviy usullar bilan bir qatorda zamonaviy pedagogik metodlardan foydalanish samarali natijalar beradi. Jumladan:

Interfaol usullar – muammoli vaziyatlar yechimi, rol o'ynash, keys-stadi metodlari.

Axborot texnologiyalari – onlayn platformalar, virtual laboratoriyalar, simulyatsion dasturlar.

Loyiha usuli – talabalarning ilmiy-tadqiqot va ishlab chiqarish loyihalarida ishtirokini tashkil etish.

3. Kasbiy kompetensiyalarni shakllantirish

Kasbiy yo'naltirishning asosiy maqsadi — bo'lajak muhandisda zarur kompetensiyalarni shakllantirishdir. Bular jumlasiga:

Nazariy bilimlarni amaliyotga tatbiq etish;

Texnologik jarayonlarni tahlil qilish;

Muammoli vaziyatlarda qaror qabul qilish;

Jamoa bilan ishlash va liderlik ko'nikmalari kiradi.

4. Ishlab chiqarish amaliyotining o'rni

Talabalarni kasbga tayyorlashda ishlab chiqarish amaliyoti muhim bosqich hisoblanadi. Amaliyot jarayonida talaba nazariy bilimlarini mustahkamlaydi, real sharoitda ishlab chiqarish jarayonlari bilan tanishadi va malakasini oshiradi. Shu

sababli o'quv jarayonini ishlab chiqarish korxonalari bilan integratsiyalash kasbga yo'naltirishning samaradorligini oshiradi.

5. Zamonaviy metodlarning afzalliklari

Talabalarda mustaqil fikrlash va muammoli vaziyatlarni hal etish ko'nikmasi shakllanadi.

Kasbiy motivatsiya ortadi.

Amaliy ko'nikmalar real ishlab chiqarish muhitida sinovdan o'tadi.

Bo'lajak muhandislarning mehnat bozorida raqobatbardoshligi ta'minlanadi.

Xulosa qilib aytganda, bo'lajak kimyo muhandislarini kasbga yo'naltirishda zamonaviy metodlardan foydalanish ularning nazariy bilimlarini amaliy ko'nikmalar bilan uyg'unlashtirishga yordam beradi. Interfaol usullar, axborot texnologiyalari va ishlab chiqarish amaliyotiga asoslangan metodlar orqali mutaxassislarning kompetensiyalari shakllanadi.

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TA'LIM TEXNOLOGIYASINING KONSTEPTUAL ASOSLARI HAMDA O'QUV MASHG'ULOTLARDA O'QITISH TEXNOLOGIYALARI

Annotatsiya: Ushbu ishda ta'lim jarayonida ilg'or pedagogik texnologiyalarni tatbiq etish konseptual asoslarini o'rganishga bag'ishlangan. Maqolada kadrlar tayyorlash milliy dasturi doirasida zamonaviy pedagogik yondashuvlarni o'quv jarayoniga tatbiq etish, fan bo'yicha nazariy va amaliy mashg'ulotlarni loyihalash metodlari, o'qitishning uslubiy va texnologik jihatlari yoritilgan

Kalit so'zlar: Ta'lim texnologiyasi, Kadrlar tayyorlash Milliy dasturi, O'qitishni tashkil etish, Kommunikatsiya usullari.

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CONCEPTUAL FOUNDATIONS OF EDUCATIONAL TECHNOLOGY AND TEACHING TECHNOLOGIES IN TRAINING SESSIONS

Annotation: This work is devoted to the study of the conceptual foundations of the implementation of advanced pedagogical technologies in the educational process. The article covers the application of modern pedagogical approaches to the educational process within the framework of the national personnel training program, methods for designing theoretical and practical training in science, methodological and technological aspects of teaching

Keywords: Educational technology, National personnel training program, Organization of training, Communication methods.

Ta'lim texnologiyasining konseptual asoslari bo'limida "Energiya texnologiyasi" fanini o'qitishning dolzarbligi asoslangan, mazkur fanning tuzilmasi keltirilgan hamda fan bo'yicha o'qitishning mazmuni ochib berilgan. Shu bilan birga o'qitish, kommunikatsiya, axborot va ta'lim jarayonini boshqarish usullari va vositalarining konseptual asoslari, pedagogik texnologiyalarning yo'nalishlari, muammolari va yechimlari, tamoyillari, yangi pedagogik texnologiyalarning istiqbollari yoritilgan.

"Energiya texnologiyasi" fani bo'yicha o'qitish texnologiyalari loyihalashtirilgan:

1) Nazariy o'quv mashg'ulotlarini olib borishning kirish-ma'ruza, mavzu asosida ma'ruza, muammoli ma'ruza, vizuallashtirilgan ma'ruza, konferenstiya ma'ruzalar ko'rinishlari qo'llanilishi;

2) Amaliy mashg'ulotlarni olib borishning topshiriqlarni individul tarzda yoki guruhda bajarilishi, muammoli amaliy mashg'ulot hamda bilimlarni chuqurlashtirish va mustahkamlashga yo'naltirilgan amaliy topshiriqlarni bajarilishi.

Mamlakatimizning rivojlanishi, dunyo miqyosida hurmat va e'tiborga sazovor bo'lishi kelajak avlodni har tomonlama kuchli va bilimdon qilib tarbiyalashni taqozo etadi.

Davlat, jamiyat ishlarini mukammal bilish uchun huquqiy bilimli, ongli, madaniyatli bo'lish — davr talabi.

Xalq va davlatning o'ziga xos mentalitetini hisobga olgan holda O'zbekiston tanlab olgan o'z rivojlanish modeli shunga olib keladiki, ijtimoiy-siyosiy, iqtisodiy va ma'naviy hayotning taraqqiy etgan mamlakatlarda umume'tirof etilgan tamoyillari hamda me'yorlari hukmron va muqarrar xususiyat kasb etib, ular mamlakatimizning nafaqat hozirgi holatini, balki uning rataqqiyotini belgilaydi.

Zamonaviy iqtisodiyot, fan, texnika va texnologiyalarni rivojlantirish asosida kadrlar tayyorlashning takomillashgan tizimini yaratish mamlakatni taraqqiy ettirishning eng muhim sharti hisoblanadi. Tizimning amal qilishi kadrlarning istiqbolga mo'ljallangan vazifalarni hisobga olish va hal etish qobiliyatiga, yuksak umumiy va kasbiy madaniyatga ijodiy va ijtimoiy faollikka, ijtimoiy-siyosiy hayotda mustaqil ravishda yo'nalish ola bilish mahoratiga ega bo'lgan yangi avlodni shakllantirishni ta'minlaydi.

Yurtboshimiz tomonidan ilmiy asoslab berilgan ta'lim-tarbiya modelini amaliyotga tatbiq etish o'quv jarayonini texnologiyalashtirish bilan uzviy bog'liqdir. Shundan kelib chiqib Kadrlar tayyorlash Milliy dasturida «O'quv tarbiyaviy jarayonni ilg'or pedagogik texnologiyalar ta'minlash» uning 2- va 3-bosqichlarida bajariladigan muhim vazifalardan biri sifatida belgilandi.

Kadrlar tayyorlash Milliy dasturining ikkinchi bosqichi ta'lim jarayonidagi sifat ko'rsatkichlarini yaxshilash, ya'ni jahon andozalariga mos, raqobatbardosh, yuqori saviyaga ega bo'lgan mutaxassislar tayyorlashdir. Ushbu murakkab muammolarning echimini topib, ularni amalda keng qo'llash oliy ta'lim tizimi xodimi oldiga juda katta vazifalarni qo'yadi. Bunda aniq vazifalar sifatida bevosita o'quv jarayonini yaxshilash, o'quv dasturlarini yanada takomillashtirish, o'qitishning zamonaviy pedagogik texnologiyalarini amalga joriy qilish, texnik vositalardan keng foydalanish va shu asosda masofadan o'qitishni keng joriy qilish belgilab beriladi.

Mamlakatimizdagi ta'lim yo'nalishlarida o'qitish texnologiyalar, eng avvalo, insonparvarlik tamoyiliga asoslangandir. Ta'lim jarayonidan o'qitish texnologiyalari talabani o'ziga xos shaxsiy xususiyatlarini hisobga olgan holda, mustaqil, faol bilish faoliyatini tashkil etishga qaratilgandir. Yuqoridagilardan kelib chiqqan holda, "Energiya texnologiyasi" o'quv fani bo'yicha ta'lim

texnologiyalarini loyihalashtirishda quyidagi asosiy majmuaviy yondashuvlarni ko'rsatib beramiz:

Shaxsga yo'naltirilgan ta'lim. Bu ta'lim o'z mohiyatiga ko'ra ta'lim jarayonining barcha ishtirokchilarini to'laqonli rivojlanishlarini ko'zda tutadi. Bu esa ta'limni loyihalashtirilayotganda, albatta, ma'lum bir ta'lim oluvchining shaxsini emas, avvalo, kelgusidagi mutaxassislik faoliyati bilan bog'liq o'qish maqsadlaridan kelib chiqqan holda yondashishni nazarda tutadi.

- Tizimli yondashuv. Ta'lim texnologiyasi tizimning barcha belgilarini o'zida mujassam etmog'i lozim: jarayonning mantiqiyliigi, uning barcha bo'g'inlarini o'zaro bog'liqligi, yaxlitligi.

- Faoliyatga yo'naltirilgan yondashuv. Shaxsning jarayonli sifatlarini shakllantirish, ta'lim oluvchining faoliyatini faollashtirish va tezlashtirish, o'quv jarayonida uning barcha qobiliyati va imkoniyatlari, tashabbuskorligini ochishga yo'naltirilgan ta'limni ifodalaydi.

- Dialogik yondashuv. Bu yondashuv o'quv jarayoni ishtirokchilarining psixologik birligi va o'zaro munosabatlarini yaratish zaruriyatini bildiradi. Uning natijasida shaxsning o'z-o'zini faollashtirishi va o'z-o'zini ko'rsata olishi kabi ijodiy faoliyati kuchayadi.

- Hamkorlikdagi ta'limni tashkil etish. Ta'lim beruvchi va ta'lim oluvchi o'rtasida demokratik, tenglik, hamkorlik kabi o'zaro sub'ektiv munosabatlarga, faoliyat maqsadi va mazmunning birgalikda shakllantirish va erishilgan natijalarni baholashga e'tiborni qaratish zarurligini bildiradi.

- Muammoli ta'lim. Ta'lim mazmunini muammoli tarzda taqdim qilish asosida ta'lim oluvchining o'zaro faoliyatini tashkil etish usullaridan biridir. Bu jarayon ilmiy bilimlarni ob'ektiv qarama-qarshiligi va uni hal etish usullarini aniqlash, dialektik tafakkurni va ularni amaliy faoliyatda ijodiy qo'llashni shakllantirishni ta'minlaydi.

- Axborotni taqdim qilishning zamonaviy vositalari va usullarini qo'llash. Bu yangi kompyuter va axborot texnologiyalarini o'quv jarayonida qo'llashdir.

Berilgan konseptual qoidalarga asosan, fanining maqsadi, tuzilishi, o'quvma'lumotining mazmuni va hajmidan kelib chiqqan holda, berilgan

sharoitda va o'quv rejasida belgilangan vaqtda, fan bo'yicha davlat ta'lim standartlarida erishishni ta'minlaydigan kommunikatsiya, ma'lumot, boshqarish va

o'qitishning uslublari hamda vositalari yaxlitlikda tanlab olindi.

- O'qitish uslublari va texnikalari. Ma'ruza (kirish, mavzuiy, ma'lumotli, ko'rgazmali (vizuallashtirgan), anjuman, aniq vaziyatlarni echish), munozara, muammoli uslub, tenbord, aqliy hujum, tezkor-so'rov, savol-javob, amaliy ishlash usullari.

- O'qitishni tashkil etish shakllari: dialog, polilog, muloqot, hamkorlik va o'zaro o'qitishga asoslangan frontal, jamoaviy va guruhlarda o'qitish.

- O'qitish vositalari: o'qitishning an'anaviy vositalari (darslik, o'quv qo'llanmasi va ma'ruza matni) bilan bir qatorda chizmani organayzerlar, kompyuter va axborot texnologiyalari.

- Kommunikatsiya usullari: O'quvchilar bilan tezkor, qaytar aloqaga asoslangan bevosita o'zaro munosabatlar.

- Qaytar aloqalarning (ma'lumotning) usul va vositalari: Joriy oraliq va yakuniy nazorat natijalarini tahlil qilishga asoslangan kuzatish, tezkor-so'rov, o'qitish diagnostikasi.

- Boshqarish usullari va vositalari: o'quv mashg'ulotining bosqichlari, belgilangan maqsadga erishishda ta'lim beruvchi va ta'lim oluvchining faoliyati, nafaqat auditoriya ishini, balki mustaqil va auditoriyadan tashqari ishlar nazoratini (joriy, oraliq, yakuniy) belgilab beruvchi o'quv mashg'ulotlarini texnologik xarita ko'rinishida rejalashtirish.

- Monitoring va baholash: o'quv mashg'ulot jarayonida (o'quv vazifalari va testlarni bajargani uchun baholash, ta'lim oluvchining har bir o'quv mashg'ulotidagi o'quv faoliyatini reyting baholash), ham butun kurs davomida (har bir ta'lim oluvchining reyting bahosiga asosan joriy, oraliq va yakuniy natijalari) ta'lim natijalarini rejali tarzda kuzatib borish.

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TEXNIKA OLIY O‘QUV YURTLARIDA MUHANDISLAR TAYYORLASHDA TA’LIMGA YANGICHA YONDASHUV

Annotatsiya: *Ushbu ilmiy maqolada bugungi kunda dunyo miqyosida ta’lim jarayoniga innovatsion yondashuvlarni joriy etish katta ahamiyat kasb etayotganligi haqida fikr bildirilgan. Bundan tashqari, maqolada texnika oliy o‘quv yurtlarida muhandislar tayyorlashda ta’lim sifatini oshirish, zamonaviy texnologiyalar asosida bilim berish va amaliy ko‘nikmalarni shakllantirish jarayonning eng muhim vazifalaridan ekanligi kabi me‘zonlarga urg‘u berilgan.*

Kalit so‘z: *metodologiya, didaktika, zamonaviy pedagogik texnologiya, integratsiya, interfaol metod, klaster, kompetensiya.*

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A NEW APPROACH TO EDUCATION IN THE TRAINING OF ENGINEERS IN TECHNICAL UNIVERSITIES

Abstract: *This scientific article expresses the opinion that the introduction of innovative approaches to the educational process is of great importance today in the world. In addition, the article emphasizes the criteria such as improving the quality of education in the training of engineers in technical universities, providing knowledge based on modern technologies, and forming practical skills as the most important tasks of the process.*

Keywords: *methodology, didactics, modern pedagogical technology, integration, interactive method, cluster, competence.*

New approaches to the process of training engineers in technical universities include a number of important factors.

First, the effective use of information and communication technologies in the educational process is a modern requirement. With the help of distance learning, virtual laboratories and digital simulators, students will have the opportunity to combine theoretical knowledge with practice.

Secondly, the effective use of the credit-module system in the educational process plays an important role. This system allows the student to choose his own

individual educational trajectory. Such an approach helps students develop independent work skills and acquire the skills required in the modern labor market.

Third, it is necessary to use innovative pedagogical technologies in engineering education. In particular, project-based learning, problem-based learning, interactive methods and teamwork are effective in developing students' initiative, creative thinking and teamwork skills.

Also, technical universities should strengthen cooperation with manufacturing enterprises. Through such cooperation, students will have the opportunity to participate in real projects and consolidate their knowledge in practice. This will increase the competitiveness of future engineers.

Conclusion

In conclusion, one of the urgent tasks is to introduce a new approach to education in the training of engineers in technical universities. The use of innovative technologies, the credit-module system, project-based education and cooperation with production are the main factors in improving the quality of engineering education. As a result of these processes, engineers are trained who are not only qualified, but also creative, enterprising and able to meet modern requirements.

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TA'LIM-TARBIYA JARAYONINI TASHKIL ETISHDA ZAMONAVIY YONDASHUVLAR

Annotatsiya: Ushbu maqolada maktabgacha ta'lim tizimida amalga oshirilayotgan islohotlarning dolzarbligi, ta'lim bosqichlarining uzluksizligini ta'minlash zarurati hamda yosh avlodni har tomonlama rivojlantirishda maktabgacha ta'limning tutgan o'rni yoritilgan.

Kalit so'zlar: maktabgacha ta'lim, ta'lim islohotlari, uzluksiz ta'lim, inson kapitali,

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MODERN APPROACHES TO ORGANIZING THE EDUCATIONAL PROCESS

Annotation This article examines the relevance of reforms carried out in the preschool education system, the necessity of ensuring continuity between educational stages, and the role of preschool education in the holistic development of the younger generation.

Keywords: preschool education, educational reforms, continuing education, human capital, pedagogy, education strategy.

Dunyo va respublikamiz miqyosida yoshlarning qobiliyatlari, iste'dodlari, ichki imkoniyatlarini, o'ziga xos individual-psixologik xususiyatlarini tadqiq etish tendentsiyalari kuzatilmoqda. Yosh avlodning shaxs va faol fuqarolik pozitsiyasiga ega bo'lgan subyekt sifatida shakllanishi, aqliy rivojlanishi, tarbiyalanganlik darajasini yuksaltirish maktabgacha ta'lim tashkilotlaridan boshlanadi. Ushbu jarayonning samarali tashkil etilishi va boshqarilishi ta'lim tizimining uzluksizligini ta'minlash sharti bo'lib xizmat qiladi, chunki yosh va murg'ak qalblar bilan olib boriladigan pedagogik jarayon ularning kelajakda kim bo'lib etishishlari, qanday fuqarolik pozitsiyani egallashlari bilan bog'liq holda qaraladi.

Shuningdek, O'zbekiston Respublikasi Prezidentining 2019-yil 8-mayda PQ-4312-son "O'zbekiston Respublikasi maktabgacha ta'lim tizimini 2030-yilgacha rivojlantirish konsepsiyasini tasdiqlash to'g'risida"gi qarori mamkatimizda maktabgacha ta'limni rivojlantirishning maqsadlari, vazifalari, ustuvor yo'nalishlari, o'rta va uzoq muddatli istiqboldagi bosqichlarini belgilaydi hamda maktabgacha ta'lim sohasini rivojlantirishga yo'naltirilgan dasturlar va kompleks chora-tadbirlarni ishlab chiqish uchun asos bo'ladi. Ushbu vazifalarni amalga oshirishda ta'lim bosqichlarining uzluksizligi va izchilligini ta'minlash

bilan birga ta'limning boshlang'ich bo'g'ini - maktabgacha ta'lim va tarbiya tizimini yanada takomillashtirish talab etiladi.

Har qanday davlat siyosatining ustuvor yo'nalishlaridan birini ta'lim sohasida amalga oshiri-ladigan islohotlar tashkil etadi. Chunki bu islohot yosh avlodning ta'lim-tarbiyasiga qaratilgan bo'lib, davlatning istiqboldagi taraqqiyotini ta'minlashga xizmat qiladi. Shuning uchun ham ta'lim tizimidagi islohotlar dolzarbligini hech qachon yo'qotmaydi.

Bola tug'ilgan to 30 yoshgacha, hayotda o'z pozitsiyasiga ega bo'lguncha unga ko'mak beradigan yagona va uzluksiz tizimga ega bo'lgan ta'lim va tarbiya sohasidagi islohotlar har qachongidanda muhim ahamiyat kasb etmoqda. Sababi, globallashuv yoshlar ongiga kuchli ta'sir ko'rsatmoqda. Shuningdek ilmiy-texnikaviy jihatdan tez rivojlanayotgan dunyoda yuqori salohiyatli kadrlarga ehtiyoj ortib bormoqda. Shu nuqtai nazardan davlat asosiy e'tiborni ta'lim tizimi sohasidagi islohotlarga qaratmoqda, ko'proq kapitalni yosh avlod ta'lim-tarbiyasiga yo'naltirmoqda. Aslida inson kapitali ham noyob boylik singari baholanadi. AQSHda yalpi kapitalning shakllanishini o'rgangan olim J.Kendrik ushbu mamlakatni boy qilgan asosiy omil inson kapitali ekanini aniqlagan.

Maktabgacha pedagogika umumiy pedagogikaning alohida qismi bo'lib, uning umumiy qonuniyatlari, tamoyillari, metodologik asosi, tashkiliy shakl, metod va vositalariga tayanadi. Maktabgacha pedagogikaning nazariyasi va amaliyoti maktabgacha ta'lim yoshidagi bolalarga umumiy tarbiya berishning maqsadi, bolaning yosh imkoniyatlari va uni ilk yoshdan boshlab tarbiyalashning roli, maktabgacha ta'limni hayot, amaliyot va zamonaviylik bilan bog'liqlikda olib borishning zarurligi, bola shaxsining shakllanishida muhitning hal qiluvchi ahamiyatga egaligiga asoslaniladi.

Didaktika ta'limning nazariy jihatlarini, ta'lim jarayonining mohiyati, tamoyillari, qonuniyatlari, o'qituvchi va o'quvchi faoliyatlari, ta'limning maqsadi, mazmuni, shakl, metod, vositalari, natijasi, ta'lim jarayonini takomillashtirish yo'llari kabi muammolarni tadbqiq qiladi. Tarbiya nazariyasi esa pedagogikaning muhim tarkibiy qismlaridan biri bo'lib, tarbiya jarayoni mazmuni, shakl, metod, vosita va usullari, uni tashkil qilish muammolarini o'rganadi. Maktabgacha ta'lim tashkilotlarida ijtimoiy tarbiya aqliy, axloqiy, jismoniy, mehnat, estetik, iqtisodiy, huquqiy va ekologik tarbiya kabi yo'nalishlarda tashkil qilinadi.

Shu nuqtai nazardan Yangi O'zbekiston sharoitida ta'lim va tarbiya jarayoni maktabgacha yoshdagi bolalarni har tomonlama uyg'un rivojlantirish, ularni maktab ta'limiga tayyorlash vazifasini muvafaqqiyatli hal etadi. Mazkur jarayonda quyidagi vazifalarni bajarishga alohida e'tibor beriladi:

- Har tomonlama uyg'un rivojlangan bola shaxsini rivojlantirishga yo'naltirilgan pedagogik jarayonning mohiyatini o'rganish;
- bola shaxsini har tomonlama kamol toptirish qonuniyatlarini aniqlash;
- ijtimoiy taraqqiyot darajasidan kelib chiqqan holda, rivojlangan xorijiy mamlakatlar maktabgacha ta'lim tizimi tajribasini o'rganish asosida ta'lim tizimini takomillashtirish;

- maktabgacha ta'lim tashkilotlari hamda ularda faoliyat olib borayotgan tarbiyachilar faoliyati mazmunini asoslash;
- ilg'or pedagogik tajribalarni umumlashtirish va amaliyotga joriy etish;
- tarbiyachilarni maktabgacha pedagogikaga oid bilimlar hamda ta'lim-tarbiya usullari bilan qurollantirish;
- ta'lim-tarbiya birligi hamda ijtimoiy tarbiya yo'nalishlari o'rtasidagi o'zaro aloqadorlikni ta'minlashning pedagogik shart-sharoitlarini o'rganish;
- o'qitish hamda tarbiyalash jarayonining samarali texnologiyalarini yaratish;
- oila tarbiyasini muvaffaqiyatli tashkil etish yuzasidan ota-onalar uchun ilmiy-metodik tavsiyalarni ishlab chiqish.

Maktabgacha pedagogikaning asosiy kategoriyalari fanning asosiy mohiyatini ochib berishga xizmat qiladi.

Maktabgacha ta'lim tashkilotlari o'quv faoliyatining sifati o'quv jarayonini rejalashtirish, uni amalga oshirish, o'quv reja, dasturlarining mazmun mohiyati bilan emas, balki bolalarning olgan bilimlari, malaka va ko'nikmalari, mustaqil ravishda olgan bilimlari bilan bog'liq ta'lim natijasi sifati bilan belgilanmoqda. Shunday qilib, ta'lim-tarbiya sifatini oshirish jarayonida yangi mazmun va mohiyatga ega bo'lgan insonparvarlik tamoyillariga asoslangan, yaratuvchanlik, ijodkorlikka intilish hissi bilan yo'g'rilgan ta'lim komil inson shaxsini etuklikka yo'naltiradi. Binobarin, O'zbekistonda maktabgacha ta'lim tashkilotlarida olib borilayotgan islohotlar ta'lim-tarbiyaning maqsadini yangi yo'nalishga burdi. Demak, ta'lim-tarbiyaning maqsadi butunlay yangilandi, unga mos holda mazmunning ham, pedagogik jarayonning ham yangilanishi tabiiydir. Bu omil davlatimizning ijtimoiy siyosatini belgilab berganligi tufayli shaxs manfaatlarini ta'minlashga xizmat qiladi.

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TASVIRIY SAN'AT SABOQLARI: INSONIYLIK VA GO'ZALLIKNING ENG SAMIMIY TARG'IBOTCHISI

Annotatsiya: Maqolada tasviriy san'atning inson kamolotidagi o'rni va uning shaxs ma'naviy-axloqiy rivojlanishiga ta'siri tahlil qilinadi. San'at asarlari orqali insoniylik, mehr-oqibat, go'zallik va boshqa ezgu fazilatlarning qanday targ'ib qilinishi, shuningdek, san'at darslarining o'quvchilarda nafaqat badiiy didni, balki axloqiy qarashlarni shakllantirishdagi ahamiyati ochib beriladi. Maqolada tasviriy san'atning insonning ijodiy salohiyatini rivojlantirish, dunyoga keng va chuqurroq qarashga o'rgatish hamda uning hissiy intellektini oshirishdagi roli yoritilgan. Tasviriy san'atning jamiyatda tinchlik, bag'rikenglik va insoniylik qadriyatlarini mustahkamlashda muhim vosita ekanligi ta'kidlanadi.

Kalit so'zlar: tasviriy san'at, insoniylik, go'zallik, estetika, tarbiya, ma'naviyat, ijodkorlik, hissiy intellekt, badiiy did.

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LESSONS OF FINE ARTS: THE MOST SINCERE PROMOTER OF HUMANITY AND BEAUTY

Annotation: The article analyzes the role of visual arts in human development and its influence on the spiritual and moral growth of an individual. It explores how works of art promote virtues such as humanity, compassion, and beauty, and highlights the importance of art classes in shaping not only students' artistic taste but also their ethical views. The article also sheds light on the role of visual arts in developing a person's creative potential, teaching them to see the world from a broader and deeper perspective, and enhancing their emotional intelligence. It emphasizes that visual arts are a crucial tool for strengthening values like peace, tolerance, and humanity in society.

Keywords: visual arts, humanity, beauty, aesthetics, upbringing, spirituality, creativity, emotional intelligence, artistic taste.

Inson hayoti faqatgina moddiy ehtiyojlar bilan cheklanmaydi. Uning qalbi va ruhi ham oziqlanishga muhtoj. Bu ehtiyojlarni qondirishda esa san'atning o'rni beqiyosdir.

Ayniqsa, tasviriy san'at – ranglar, shakllar va chiziqlar vositasida insonning ichki dunyosini, his-tuyg'ularini, orzu-umidlarini aks ettiruvchi noyob vositadir.

Tasviriy san'at shunchaki chiroyli suratlar chizish yoki haykallar yasashdan iborat emas. U insoniylikning asl mohiyatini ochib beradigan, qalblarni ezgulikka chorlaydigan va dunyoga go'zallik nuqtai nazaridan qarashga o'rgatadigan samimiy targ'ibotchidir. U bizni tabiatga, insonga va borliqqa mehr bilan qarashga undaydi. San'at asarlari orqali biz turli davrlar, madaniyatlar va insonlarning hayot tarzi bilan tanishamiz, ularning shodlik va qayg'ulariga sherik bo'lamiz.

Shu sababli, tasviriy san'at darslari nafaqat badiiy ko'nikmalarni rivojlantiradi, balki o'quvchilarda chuqur axloqiy qadriyatlarni – mehr-oqibat, bag'rikenglik, hurmat va ezgulikni shakllantirishda muhim rol o'ynaydi. Bu darslar insonni yaxshiroq, ma'rifatliroq va hayotga teranroq qaraydigan qilib tarbiyalaydi.

Tasviriy san'at saboqlari o'quvchilarni faqatgina rasm chizish texnikasi bilan tanishtirishdan tashqari, ularga chuqurroq, ma'naviy va ruhiy tarbiya berishga xizmat qiladi. Bu darslarning inson kamolotidagi ahamiyatini bir necha jihatdan ko'rib chiqish mumkin.

1. Estetik didni shakllantirish: Tasviriy san'at darslari o'quvchilarni go'zallikni ko'rishga va uni qadrlashga o'rgatadi. Ranglar uyg'unligi, shakllar mutanosibligi va kompozitsiya qonunlari bilan tanishish ularda estetik did va go'zallik hissini rivojlantiradi. Natijada, ular nafaqat san'at asarlaridagi, balki atrof-muhitdagi tabiat manzaralari, arxitektura yodgorliklari va oddiy buyumlardagi go'zallikni ham ilg'ashga odatlanadilar. Bu esa insonning hayotga munosabatini ijobiy tomonga o'zgartiradi.

2. Ijodiy fikrlashni rivojlantirish: Rasm chizish jarayoni o'quvchilardan mustaqil fikrlashni, yangi g'oyalarni o'ylab topishni va ularni amalga oshirishni talab qiladi. Bu esa ijodiy fikrlash va tasavvurni kuchaytiradi. O'quvchilar bir masalani hal qilishning turli yo'llarini izlaydilar, o'z dunyoqarashlarini kengaytiradilar va nostandart qarorlar qabul qilishga o'rganadilar. Bu ko'nikmalar ularga nafaqat san'atda, balki hayotning boshqa sohalarida ham muvaffaqiyat qozonishiga yordam beradi.

3. Insoniylik va empatiyani targ'ib qilish: Tasviriy san'at ko'pincha insonlarning his-tuyg'ulari, kechinmalari va munosabatlarini aks ettiradi. San'at asarlarini tahlil qilish orqali o'quvchilar boshqalarning dunyoqarashini, kayfiyatini va his-tuyg'ularini tushunishga o'rganadilar. Masalan, qayg'uli portret yoki shodlikka to'la manzara ularda empatiya – boshqalarning holatini his qilish qobiliyatini rivojlantiradi. Bu esa ularni hayotda yanada mehribon, bag'rikeng va insoniylik fazilatlariga ega bo'lishiga yordam beradi.

4. Ma'naviy oziqlanish va ruhiy xotirjamlik: Rasm chizish jarayoni insonga ichki dunyosini ifoda etish imkoniyatini beradi. Bu jarayon ruhiy xotirjamlik va ichki muvozanatni ta'minlaydi. Stress va hayotiy qiyinchiliklardan charchagan inson tasviriy san'at orqali o'z his-tuyg'ularini tashqariga chiqara oladi va ijobiy energiya bilan to'yinadi. Shuningdek, bu darslar o'quvchilarni chidamlilik, sabr va e'tiborli bo'lishga o'rgatadi.

Tasviriy san'at ustozlari nafaqat rasm chizish texnikasini o'rgatadigan, balki o'quvchilarning dunyoqarashini kengaytiradigan, ularda go'zallikni his qilish qobiliyatini rivojlantiradigan va ijodiy salohiyatini shakllantiradigan muhim shaxslardir. Ularning faoliyati keng qamrovli bo'lib, bir necha asosiy yo'nalishlarni o'z ichiga oladi.

1. O'qitish va metodika

Tasviriy san'at o'qituvchisining asosiy vazifasi — bu bilim va ko'nikmalarni o'quvchilarga yetkazish. Bu jarayonda ular quyidagilar bilan shug'ullanadilar:

Nazariy bilimlarni berish: Rangshunoslik, kompozitsiya, perspektiva, yorug'lik va soya qonunlari kabi fan asoslarini tushuntirish.

Amaliy mashg'ulotlarni o'tkazish: Akvarel, moyli bo'yoq, guash, qalam va boshqa materiallar bilan ishlash texnikasini o'rgatish.

Ijodiy fikrlashni rivojlantirish: O'quvchilarni mavzu tanlash, g'oyalarni shakllantirish va o'z qarashlarini san'at asarida ifoda etishga undash.

Individual yondashuv: Har bir o'quvchining qobiliyati va qiziqishlarini hisobga olgan holda, ularning ijodiy o'sishiga yordam berish.

2. San'at targ'iboti va ko'rgazmalar

Ustozlar o'z shogirdlarining mehnatlarini namoyish etish orqali ularni yanada ruhlantiradilar. Ular turli ko'rgazmalar, tanlovlar va festivallarni tashkil etadilar. Bu tadbirlar o'quvchilarning o'z asarlarini keng jamoatchilikka ko'rsatishiga imkon beradi, ularga ishonch bag'ishlaydi va yangi yutuqlarga erishishga undaydi.

3. Shaxsiy ijodiy faoliyat

Ko'pgina san'at ustozlari o'z ijodiy faoliyatini ham yuritadilar. Ularning shaxsiy asarlari o'quvchilar uchun namuna va ilhom manbai bo'lib xizmat qiladi. Ularning ijodi zamonaviy san'at tendensiyalari bilan tanishishga yordam beradi va o'quvchilarga haqiqiy ijodkor qanday bo'lishi kerakligini ko'rsatadi.

4. Jamoatchilik va madaniy hayotda ishtirok

Tasviriy san'at ustozlari ko'pincha jamoatchilik hayotida faol ishtirok etib, san'at va madaniyatning targ'ibotchisi sifatida maydonga chiqadilar. Ular turli loyihalarda qatnashadilar, mahorat darslari o'tkazadilar va san'atning jamiyatdagi ahamiyatini tushuntirib beradilar.

Xulosa qilib aytganda, tasviriy san'at ustozlarining faoliyati o'quvchilarga texnik ko'nikmalarni berish bilan cheklanmaydi. Ular insonlarda estetik qarashlarni shakllantiradi, ijodkorlikka undaydi va ularni haqiqiy san'at asarlarini yarata oladigan shaxslar etib tarbiyalaydi. Ularning mehnati tufayli kelajak avlodda go'zallikka bo'lgan muhabbat va uni yaratish istagi shakllanadi. Tasviriy san'at saboqlari oddiy bir mashg'ulot emas, balki insonni har tomonlama kamolga yetkazadigan, uning ma'naviy-axloqiy rivojlanishiga hissa qo'shadigan muhim vositadir. U insonni insoniylik va go'zallikni qadrlashga undaydigan eng samimiy yo'ldir.

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GENOTYPE IDENTIFICATION OF HBV AND HDV IN PATIENTS WITH CHRONIC VIRAL HEPATITIS B+D IN SAMARKAND REGION

Abstract: Chronic hepatitis B virus (HBV) and hepatitis D virus (HDV) co-infection remains one of the most severe forms of viral liver disease, contributing to rapid progression of fibrosis, cirrhosis, and hepatocellular carcinoma. Genotype identification of HBV and HDV is critical for understanding viral epidemiology, disease severity, and treatment outcomes. In Uzbekistan, particularly in the Samarkand region, where viral hepatitis is highly prevalent, recent molecular studies have revealed that HBV genotype D dominates in the majority of patients, with subtypes D1–D3 identified in those with advanced liver disease. HDV genotype 1 is the most frequent in Central Asia, correlating with aggressive clinical outcomes. Advances in molecular diagnostic technologies, including PCR-based assays, sequencing, and phylogenetic analysis, have facilitated more precise genotyping. This review summarizes global and regional data on HBV and HDV genotypes, highlights studies conducted by Uzbek researchers, and discusses their epidemiological and clinical implications for patient management in Samarkand.

Keywords: chronic hepatitis B, hepatitis D virus, HBV genotype, HDV genotype, Samarkand region, molecular epidemiology, Uzbekistan.

Introduction

Chronic viral hepatitis remains a major cause of liver-related morbidity and mortality worldwide. Among these, HBV and HDV co-infection represents the most aggressive form, accelerating progression to cirrhosis and hepatocellular carcinoma compared to HBV monoinfection [1]. In Uzbekistan, viral hepatitis continues to be an urgent public health problem. Despite mass vaccination programs, HBV remains endemic, and HDV co-infection is frequently observed in clinical practice. Genotype analysis is essential for understanding local epidemiology and guiding therapeutic strategies [2].

Global and regional epidemiology. HBV is classified into at least ten genotypes (A–J), while HDV has eight genotypes (HDV-1 to HDV-8). HBV genotype D is common in the Mediterranean, Middle East, and Central Asia, whereas HDV genotype 1 is distributed worldwide and associated with severe disease [3].

In Uzbekistan, several molecular epidemiological studies have provided valuable insights into HBV genotype distribution. A large cohort analysis demonstrated that 96.5% of patients carried HBV genotype D, while 3.5% had genotype A [4]. Another study confirmed similar findings, with 87% of patients

infected with genotype D and 13% with genotype A [5]. Additional research among patients with fibrosis and cirrhosis revealed exclusively HBV genotype D, predominantly subgenotypes D1, D2, and D3, highlighting its role in advanced liver disease [6]. A pediatric study also reported HBV/D in 69% of children, HBV/A in 23%, and HBV/C in 8%, indicating some genetic diversity and possible influence of transmission routes [7].

Molecular methods for genotype identification. Modern techniques for HBV/HDV genotyping include PCR with restriction fragment length polymorphism (RFLP), S-gene sequencing, and next-generation sequencing (NGS). These approaches allow precise identification of subgenotypes and mixed infections. In Uzbekistan, PCR-based diagnostics are widely used, but sequencing remains limited to research centers in Tashkent and Samarkand. Integration of NGS into regional laboratories could significantly improve molecular surveillance.

Clinical implications in Samarkand region. The predominance of HBV genotype D and HDV genotype 1 in Uzbekistan has important therapeutic consequences. Genotype D is associated with poorer response to interferon-based therapy compared to genotype A, while HDV-1 infection is linked to more aggressive disease and limited treatment success. For Samarkand region, where co-infection is common, genotype identification may guide clinicians in predicting treatment response, planning long-term monitoring, and considering new therapeutic approaches.

Conclusion

Genotype identification of HBV and HDV is crucial for understanding the molecular epidemiology and clinical outcomes of chronic hepatitis B+D. Data from Uzbek studies confirm that HBV genotype D and HDV genotype 1 are predominant in the region, with implications for treatment efficacy and prognosis. Expanding molecular diagnostic capacity in Samarkand will contribute to improved patient management and strengthen regional contributions to global hepatitis research.

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MODERN APPROACHES TO THE DEVELOPMENT OF THE FOOD INDUSTRY (A CASE STUDY OF SAMARKAND REGION)

Abstract. *In the further development of our country's economy, it is important to improve the cluster management mechanism in food industry enterprises, study the influencing factors, modernize the relevant sectors, and support food-producing enterprises. This article reveals the relevance of applying the cluster system in managing the activities of food industry enterprises. The article analyzes the significance of innovative and cluster approaches in the development of the food industry in Samarkand region. It highlights the opportunities for diversifying food production through the effective use of existing production resources, raw material base, and labor potential. Moreover, the issues of improving product quality and ensuring competitiveness in domestic and foreign markets are examined through establishing cooperation between enterprises, farms, educational and research institutions on the basis of clustering principles. The introduction of innovative technologies, the improvement of logistics systems, and the expansion of export potential are identified as the main prospects for the development of the food industry in Samarkand region.*

Keywords: *Food industry, modern approaches, Samarkand region, modern management methods, development strategies, investment potential.*

Introduction.

Currently, scientific research is being carried out in the food industry enterprises on the creation of an organizational and economic mechanism based on cluster management systems, digital technologies, and flexible innovative approaches that meet market demands, as well as on the formation of clusters in managing enterprise activities. In the further development of food industry enterprises, the new uzbekistan development strategy outlines specific tasks: “to increase supply in the food and non-food product markets and eliminate seasonal shortages, ensure the domestic market is supplied with food products and maintain price stability, by 2026 increase the volume of food products to 7.4 million tons, raise the processing rate to 32 percent for dairy, 25 percent for meat, and 28 percent for fruits and vegetables; create food reserves and determine the volume of market interventions, clearly define the responsibilities of regional authorities in ensuring price stability in the domestic market, as well as develop rules for forming and using reserves of essential food products to stabilize prices.

The objectives of the study include examining the theoretical foundations of innovative and cluster-based development of the regional economy, analyzing the state and development trends of the food industry in uzbekistan and the samarkand region, identifying the role of innovation in the modernization of processing

enterprises, assessing the opportunities and prospects for the formation of food clusters, as well as developing practical recommendations for the use of cluster and innovative approaches to improve the efficiency and competitiveness of the regional economy.

Literature review.

The study of innovative and cluster-based approaches in regional economics has a broad theoretical and practical foundation. The concept of clusters as a basis for regional competitiveness was first systematized by m. Porter, who demonstrated that the integration of enterprises, suppliers, and research institutions into a single network generates a synergistic effect and enhances innovation activity [1]. In russian research (a.g. granberg and others), emphasis is placed on the fact that clustering contributes to more efficient use of regional potential, stimulates investment inflows, and accelerates industrial modernization [2]. The uzbek scientific tradition has also accumulated certain experience in analyzing factors of regional development. For example, b. Karimov emphasizes that the transition to a cluster model in uzbekistan's agro-food sector increases the efficiency of agricultural production through the integration of farming and processing [3]. Sh. Sultanov points out that the introduction of innovative technologies and the formation of sectoral clusters are considered priority directions for the sustainable development of the country's food industry [4].

According to the world bank, uzbekistan is characterized by a low ratio of processing to total production: only about 15–16% of fruits and vegetables are processed, which is significantly below international standards [5]. Data from the united nations development programme show that underdeveloped logistics and cold chain infrastructure lead to post-harvest losses of up to 25–30%, thereby limiting added value and export potential [6]. From the perspective of innovative development, recent studies highlight the role of digitalization, automation, and the adoption of modern management technologies. Reports by the ministry of agriculture of the republic of uzbekistan and the center for economic research and reforms indicate the need to transition to “smart agro-technologies,” erp systems, and digital platforms for quality control and logistics (direct publications of these documents were not found in open sources). At the same time, a study published on researchgate demonstrates that adapting international experiences of food industry clustering (eu, china, south korea) could significantly enhance the competitiveness of the sector in uzbekistan [7].

Thus, the literature review—both international and national—shows that the combination of innovative solutions and the cluster approach is regarded in global and regional economics as a key factor for sustainable development. For the samarkand region, these findings are of particular importance, as the region possesses significant agricultural potential but faces institutional and technological constraints that hinder the effective integration of production, processing, and export.

The studies presented in the table suggest that international science and practice primarily focus on cluster theory and innovative technologies as universal

drivers of regional development, while national authors emphasize the need to adapt these approaches to the specific context of uzbekistan. Whereas foreign models prioritize a high degree of integration of production, processing, logistics, and exports, uzbek research highlights the elimination of institutional and infrastructural barriers that limit the efficiency of the agro-food sector. Therefore, both theoretical and practical experience confirm that innovative and cluster-based approaches should be regarded as complementary mechanisms capable of ensuring the sustainable development of the food industry in the samarkand region.

Research methodology.

The methodological framework of the study is based on a combination of systemic, institutional, statistical, and comparative-analytical approaches. This comprehensive toolkit, in turn, makes it possible to consider the food industry of the samarkand region as an integral part of the regional economy and to identify the factors of its innovative and cluster-based development.

First, the systemic approach was applied, which, as rightly noted by a. Granberg [1], makes it possible to study the regional economy as an interconnected system of industries, institutions, and resources. In this context, system analysis was used to identify the interrelations between agricultural production, processing, infrastructure, and export activities.

Second, the institutional approach was employed, focusing on the assessment of the impact of the regulatory framework, government programs, and public-private partnership mechanisms. It should be emphasized that, as demonstrated by the studies of b. Karimov and sh. Sultanov [2;3], the institutional environment largely determines the effectiveness of clustering and innovative activity.

Third, statistical methods of analysis were widely applied. Based on data from the state committee on statistics of the republic of uzbekistan [4], the world bank [5], and the united nations development programme [6], dynamic series for 2017–2023 were examined. This, in turn, made it possible to identify trends in production, investment, employment, the share of processing, and the development of logistics infrastructure.

Fourth, a comparative-analytical approach was used, involving the comparison of national and international experience. Consequently, comparing the conditions of uzbekistan with the practices of the eu, china, and the republic of korea [7] made it possible to adapt the best models of cluster development to the conditions of the samarkand region.

Finally, the expert assessment method was applied, based on consultations with specialists from the ministry of agriculture of the republic of uzbekistan, the center for economic research and reforms, as well as representatives of regional processing enterprises. As practice shows, the inclusion of expert opinion makes it possible to complement statistical data with qualitative assessments and to identify institutional barriers that are not reflected in formal indicators.

Thus, the research methodology has a comprehensive and interdisciplinary character. Therefore, the combination of systemic, institutional, statistical, and analytical approaches, together with expert assessments, ensures the scientific

validity of the findings and their practical applicability for developing strategies to modernize the food industry of the samarkand region.

Analysis and results.

First of all, it should be emphasized that innovation is one of the key factors in enhancing the competitiveness of the food industry. As statistical analysis shows, uzbekistan has witnessed a steady increase in investment in the processing sector. At the same time, the level of technological equipment of enterprises remains insufficient, which reduces the efficiency of processing and storage of products [4;5]. In this regard, the digitalization of production processes, the introduction of automated quality control systems, and the use of erp platforms are considered priority areas of modernization [6]. Consequently, the transition to innovative technologies makes it possible to increase productivity, minimize losses, and enhance the added value of products. Figure 1 presents the dynamics of investment in uzbekistan's food industry in 2017–2023. During this period, the volume of investments increased more than 2.5 times (index from 100 to 250). This reflects the strategic orientation of the state and business towards the development of processing and the modernization of the sector.

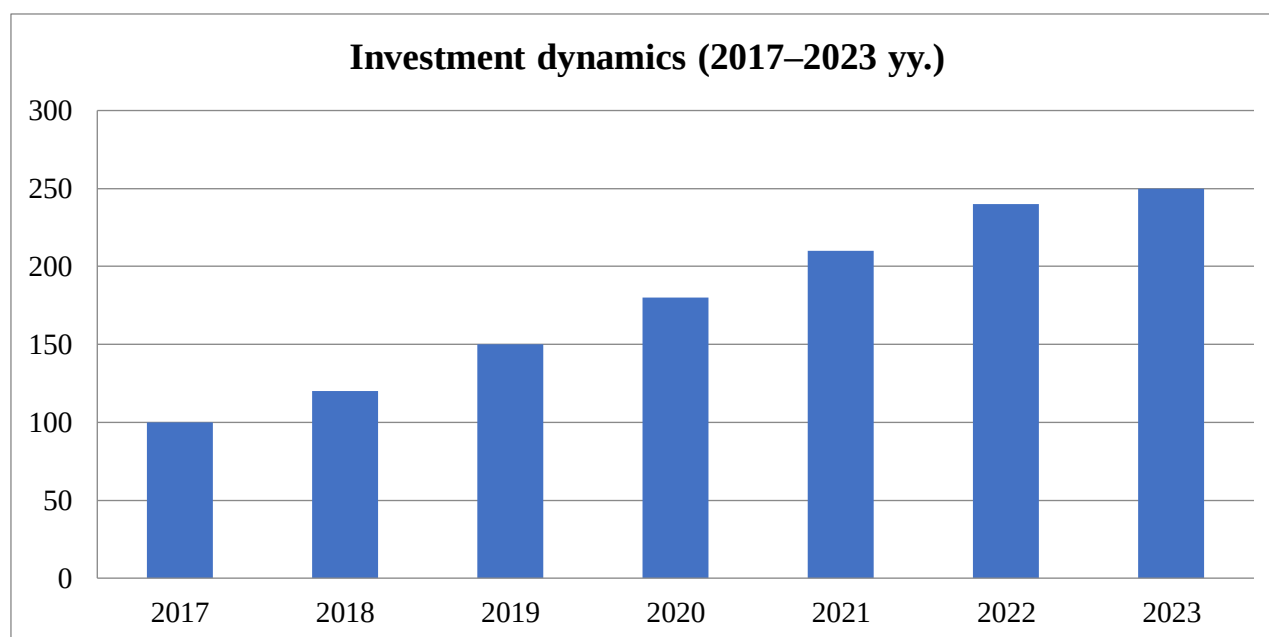


Diagram 1. Dynamics of investments in the food industry of Uzbekistan, 2017–2023.

At the same time, the indicators of processing and storage remain at a low level. As shown in Figure 2, the processing of fruits and vegetables increased only from 12% to 16% over six years, while cold storage capacity grew from 4% to 7%. With a harvest exceeding 20 million tons, such indicators are extremely insufficient and lead to losses of up to 25–30% of products [5;6]. For a more comprehensive assessment of the situation, let us consider a comparative analysis (Table 2). It shows that Uzbekistan lags significantly behind international standards in terms of the level of processing and storage infrastructure.

**Table 2. Comparison of processing and storage indicators
(international and national levels)**

Indicator	Uzbekistan (2023)	International standards (EU, Korea, China)
The share of fruit and vegetable processing	16 %	50–60 %
Cooling capacity (depending on harvest)	7 %	25–30 %
The share of food industry in agricultural employment	2,5 %	8–12 %
Export orientation of processed products	Limited	High (up to 40–50% of processing is exported)

As the analysis shows, the rapid growth of investment and production is accompanied by extremely slow development of processing and storage infrastructure. In this regard, a contradiction emerges: despite the availability of resource potential and investment interest, the industry faces institutional and technological barriers. Therefore, for the Samarkand region it is strategically important to establish regional food clusters that integrate agriculture, processing, logistics, and export. This will help eliminate the imbalance and ensure the innovative transformation of the sector, which is particularly important under conditions of global competition [7;8].

Conclusion and recommendations.

The results of the study make it possible to identify a number of priority areas for modernizing the food industry of the Samarkand region. As key measures, it is advisable to consider the formation of regional clusters that integrate agricultural producers, processing enterprises, logistics centers, and research institutes, which will generate a synergistic effect and enhance the competitiveness of the sector. An important condition for sustainable development is the expansion of public-private partnership mechanisms aimed at attracting long-term investments and supporting innovative projects.

In addition, it is necessary to train a new generation of specialists with competencies in digital technologies, innovation management, and international food safety standards. Thus, the implementation of these recommendations will contribute to improving the efficiency of processing, strengthening export potential, and ensuring sustainable socio-economic development of the region in the long term.

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TA'LIMDA INNOVATSION YONDASHUVLAR: KELAJAK PEDAGOGIKASIGA YO'L

Annotatsiya: Mazkur maqolada ta'lim jarayonida innovatsion yondashuvlarning ahamiyati, zamonaviy pedagogik texnologiyalarning o'rni hamda kelajak pedagogikasiga qo'yilayotgan talablar yoritilgan. Shuningdek, interfaol metodlar, raqamli ta'lim, creativlik va shaxsga yo'naltirilgan yondashuvning afzalliklari tahlil qilinadi.

Kalit so'zlar: Innovatsion yondashuvlar, zamonaviy pedagogik texnologiyalar, interfaol metodlar, raqamli ta'lim, shaxsga yo'naltirilgan ta'lim, ijodkorlik, kelajak pedagogikasi.

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INNOVATIVE APPROACHES IN EDUCATION: THE PATH TO FUTURE PEDAGOGY

Abstract: In this article, the significance of innovative approaches in the educational process, the role of modern pedagogical technologies, and the requirements for future pedagogy are highlighted. Moreover, the advantages of interactive methods, digital education, creativity, and a learner-centered approach are analyzed.

Keywords: Innovative approaches, modern pedagogical technologies, interactive methods, digital education, learner-centered education, creativity, future pedagogy.

***Mamlakatni qudratli, millatni buyuk qiladigan kuch bu – ilm-fan, ta'lim
va tarbiyadir. Shavkat Mirziyoyev***

Bugungi kunda ta'lim tizimi globallashuv, raqamli texnologiyalar taraqqiyoti va jamiyat ehtiyojlari bilan chambarchas bog'liq holda rivojlanayotgan bir davrda pedagogning kreativ yondashuvi muhim ahamiyat kasb etadi.

Ta'lim jarayonida innovatsion yondashuv - bu o'qitish va tarbiyada ilg'or usul, texnologiya va metodlarni qo'llash orqali samaradorlikka erishishdir. Zamonaviy talablar doirasida ta'lim-tarbiyani to'g'ri yo'lga qo'yish, xalqaro tajribalarni amaliyotga olib kirish va natijadorlikka erishish, o'quvchilarda bilim, ko'nikma va malakalarni rivojlantirishda ushbu jihatlar e'tiborga olinishi kerak:

➤ **Interfaol metodlar** – “Sehrli shlyapa”, “Bu kim?”, “Sayohat”, “Davrlar stuli” kabi metodlar orqali o‘quvchilarning mustaqil fikrlashini rivojlantirish.

➤ **Raqamli texnologiyalar** – elektron darsliklar, mobil ilovalar, onlayn ta’lim platformalari (Kahoot, Google Classroom, ZOOM va boshqalar).

➤ **Gamifikatsiya** – “Kim zukko”, “Ob havo”, “Mevali salat” kabi o‘yin elementlari va enerjayerlar orqali ta’lim jarayonini qiziqarli tashkil etish. Shuningdek, kelajak pedagogikasi oldiga ham o‘ziga xos talablar qo‘yiladi:

- **Shaxsga yo‘naltirilgan yondashuv** – har bir o‘quvchining qiziqishi, qobiliyati va ehtiyojini hisobga olish.

- **Ijodkorlik va kreativlik** – o‘quvchilarda yangicha fikrlashni shakllantirish.

- **Axborot-kommunikatsiya kompetensiyasi** – raqamli texnologiyalardan samarali foydalanish.

- **Hamkorlikda ta’lim** – jamoada ishlash, muloqot qilish va muammolarni birgalikda hal etish. **Sifatli ta’lim berishdagi eng muhim jihatlardan biri o‘qituvchi va o‘quvchi o‘rtasidagi hamkorlikdir. O‘quvchi bilan hamkorlik** — bu o‘qituvchi va o‘quvchi o‘rtasida bilim olish jarayonida tenglik, o‘zaro hurmat va faol muloqot asosida tashkil etiladigan pedagogik munosabatdir.

O‘quvchi bilan hamkorlikning mazmuni:

- ❖ **O‘qituvchi va o‘quvchi o‘rtasida ishonch** – o‘quvchi o‘z fikrini erkin ayta olishi, savol berishdan qo‘rqmasligi, har bir o‘tilgan mavzuni erkin bayon qilishi.

- ❖ **Sheriklik asosida ta’lim** – o‘qituvchi bilimni “tayyor” bermaydi, balki o‘quvchi bilan birgalikda izlaydi.

- ❖ **O‘quvchini faol subyekt sifatida ko‘rish** – o‘quvchi bilimni passiv qabul qiluvchi emas, balki yaratuvchi.

- ❖ **O‘zaro hurmat va qo‘llab-quvvatlash** – o‘qituvchi o‘quvchining fikrini qadrlaydi, xatolarni to‘g‘rilashda uni kamsitmaydi.

O‘qituvchi o‘quvchi bilimini oshirishda noodatiy usuldan foydalanishi maqsadga muvofiq. Shu o‘rinda, darsni qiziqarli tashkil etish yuzasidan tavsiya. Kayfiyat ulashuvchi stikerlar tarqatiladi. Stikerlar kayfiyat ulashadi, shu bilan birga orqa qismida yozuv va raqam yashiringan. Yozuvlarda kayfiyat ulashuvchi va faollikka ilhom beruvchi ijobiy sifatlar aks etgan. O‘quvchilar kayfiyatni a’lo darajaga ko‘taradi, ingliz tilida berilgan ta’rifni yodida saqlab qolishi lozim. O‘quvchilar berilgan raqamlarni inglizcha aytadi va shu raqamlar orasidan tanlangan o‘quvchilarga vazifa beradi. Bunda chaqirgan o‘quvchilar doska yoniga chiqadi. Juft raqamlar o‘ng tomonga, toq raqamlar chap tomonga joylashadi. Stol ustida mevalar solingan savat. O‘quvchilar stolga teskari turadi. Jarayon boshlandi. 1-topshiriq. O‘qituvchi aytgan mevani stolga yuz burib, zudlikda topishi lozim. Topshiriqni guruhlar raqibi bilan juftlikda amalga oshiradi. Tabiiyki, topshiriqni bajarolmagan o‘quvchilar joyiga o‘tiradi. O‘qituvchi 2-topshiriqni beradi. Mevalarning orqa qismiga milliy cholg‘ular rasmi joylashtirilgan. O‘quvchilar ushbu savollarga ketma ketlikda javob beradi:

1-savol. Ushbu cholg‘u nomini ayting.

2-savol. Nimaga bu meva ortida aynan ushbu cholg‘u rasmi turibdi? Javoblar eshutilgach, o‘qituvchi savolni o‘z javobi bilan to‘ldiradi.

3-savol. Qanday cholg‘ular guruhiga kirishi haqida 3 ta ma’lumot bering.

4-savol. Ushbu ohang hozir biz o‘rgangan cholg‘ular orasidan qaysi biriga tegishli?

Savolga to‘liq javob bergan o‘quvchilar baholanadi. O‘qituvchi faol qatnashmagan o‘quvchilarni doska oldiga chiqaradi. Darsda o‘rganilishi uchun berilgan musiqiy asar audiosi qo‘yiladi va o‘quvchilarga musiqa tinglash davomida tasavvurida gavdalangan rasmni chizish topshirig‘i beriladi. Fanlararo integratsiya asosida berilgan topshiriqlarni bajarish darajasini hisobga olgan holda o‘quvchilar baholash yo‘li bilan rag‘batlantiriladi.

Bir so‘z bilan aytganda, o‘quvchi bilan hamkorlik ta’lim jarayonida shaxsiy rivojlanishga, mustaqil fikrlashga, mas’uliyatni his qilishga, ijtimoiy ko‘nikmalarni shakllantirishga xizmat qiladi. O‘qituvchi – yo‘lboshchi, o‘quvchi esa faol ishtirokchi bo‘ladi.

Xulosa o‘rnida ta’kidlash joizki, zamonaviy pedagogik texnologiyalarni joriy etish ta’lim sifatini oshirish, o‘quvchilarning mustaqil fikrlashini, ijodkorligini va hayotiy kompetensiyalarini shakllantirishga xizmat qiladi. Innovatsion metodlarni tizimli tatbiq etish orqali ta’lim jarayonida samaradorlikka erishish, kelajak avlodni zamon talablari darajasida tarbiyalash mumkin. Innovatsion ta’limning afzalliklari o‘quvchilarda mustaqil fikrlash va qaror qabul qilish ko‘nikmalari rivojlanaishi, bilim olish jarayoni samarali va qiziqarli bo‘lishi, o‘quvchilarni real hayotiy vaziyatlarga tayyorlashida namoyon bo‘ladi.

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TA'LIMNI YANADA TAKOMILLASHTIRISHDA TARBIYANING TUTGAN O'RNI

Annotatsiya: Ushbu maqolada Respublikamizning ijtimoiy siyosiy hayotida milliy o'zlikni anglash, milliy va umumbashariy qadriyatlarni o'zlashtirish orqali shaxs bilan jamiyat o'rtasida uyg'unlikni vujudga keltirish, har tomonlama voyaga yetayotgan yoshlarning qobiliyatlari, iste'dodlari, ichki imkoniyatlari, o'ziga xos individual-psixologik xususiyatlarini tadqiq etish, yosh avlodning shaxs va sub'ekt sifatida shakllanishi, aqliy rivojlanishi, tarbiyalanganlik darajasi va ta'lim-tarbiya jarayoni samaradorligini oshirish haqida aytib o'tiladi.

Kalt so'zlari: Uzluksiz ta'lim, sub'ekt, ta'lim-tarbiya, ma'naviy-ma'rifiy, Vatan, Tarbiya, ijtimoiy - gumanitar, Sharqona, vatanparvarlik.

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THE ROLE OF UPBRINGING IN THE FURTHER IMPROVEMENT OF EDUCATION

Annotation: This article discusses the creation of harmony between the individual and society through the understanding of national identity in the socio-political life of the Republic, the assimilation of national and universal values, the comprehensive study of the abilities, talents, internal capabilities, and unique individual-psychological characteristics of young people as they grow up, the formation of the younger generation as a person and subject, their mental development, level of upbringing, and the effectiveness of the educational process.

Keywords: Continuing education, subject, education-education, spiritual-educational, Homeland, Education, social-humanitarian, Oriental, patriotism.

Bugungi kunda Respublikamizning ijtimoiy siyosiy hayotida milliy o'zlikni anglash, milliy va umumbashariy qadriyatlarni o'zlashtirish orqali shaxs bilan jamiyat o'rtasida uyg'unlikni vujudga keltirish, har tomonlama voyaga yetayotgan yoshlarning qobiliyatlari, iste'dodlari, ichki imkoniyatlari, o'ziga xos individual-psixologik xususiyatlarini tadqiq etishni, shuningdek, rivojlantirishni talab etadi. Yosh avlodning shaxs va sub'ekt sifatida shakllanishi, aqliy rivojlanishi,

tarbiyalanganlik darajasini aniqlamay turib ta'lim-tarbiya jarayoni samaradorligini oshirish mumkin emas.

Mamlakatimiz oldida turgan iqtisodiy, ijtimoiy siyosiy masalalar ta'lim va tarbiya ishini takomillashtirish bilan chambarchas bog'liqdir. Ta'lim tizimidagi vazifalarga zamonaviy yondashuv davlatimizning bu sohaga nihoyatda katta e'tibor berayotganida, qabul qilingan bir qator Qanun va Qanun osti hujjatlarda o'z ifodasini topdi.

Uzluksiz ta'lim tizimi malakali raqobatbardosh kadrlar tayyorlashning asosi bo'lib, ta'limning barcha turlarini, davlat ta'lim standartlarini, kadrlar tayyorlash tizimi tuzilmasi va uning faoliyat ko'rsatish muhitini o'z ichiga oladi.

Uzluksiz ta'lim tizimi inson va jamiyatning turli xil ta'limiy ehtiyojlarini qondirishi, bilimlarning qadr-qimmatini va mavqeini ko'tarish uchun keng imkoniyatlar yaratib berishi, shuningdek, iqtisodiyotning o'zgaruvchan ehtiyojlari sharoitida umumta'limiy, umumma'daniy, kasbiy va ilmiy asosda mutaxassislar tayyorlash yo'li bilan fundamental bilimlar berib, shaxsni ijtimoiy himoya qilishni ta'minlashi kerak.

Tarbiya - arabcha so'zdan olingan bo'lib, parvarish qilmoq, ta'lim bermoq, o'rganish, odob o'rgatish, mehribonlik ko'rsatish, himoya qilish singari ma'nolarni anglatadi[2].

Tarbiya odamlarning ichki mavjud imkoniyatlarini, irsiy tug'ma qobiliyatlarini ro'yobga chiqarishdir. O'qituvchining ilk vazifasi ham shunda. Ma'naviyat olamida bir yoqlama, boshqa narsalar hisobiga rivojlanib ketmasligi kerak. Ulug' mutafakkir, buyuk san'atkor bo'lib yetishish mumkin, lekin haqiqiy inson bo'lish qiyin, degan hikmatning mazmuni ham fikrimiz dalilidir.

Ta'lim tizimida ta'lim va tarbiyaning uzviy ravishda olib borilishi nafaqat mamlakatning intellektual jihatdan yuksalishiga, shuningdek ma'naviy barkamol bo'lishini ham ta'minlaydi. "Shuni unutmaslik kerakki, kelajagimiz poydevori bilim dargohlarida yaratiladi, boshqacha aytganda, xalqimizning ertangi kuni qanday bo'lishi farzandlarimizning bugun qanday ta'lim va tarbiya olishiga bog'liq. Buning uchun har qaysi ota-ona, ustoz va murabbiy har bir bola timsolida avvalo shaxsni ko'rishi zarur. Ana shu oddiy talabdan kelib chiqqan holda, farzandlarimizni mustaqil va keng fikrlash qobiliyatiga ega bo'lgan, ongli yashaydigan komil insonlar etib voyaga yetkazish - ta'lim-tarbiya sohasining asosiy maqsad va vazifasi bo'lishi lozim, deb qabul qilishimiz kerak. Bu esa ta'lim-tarbiya ishini uyg'un xolda olib borishni talab etadi"[3].

Globallashuvning bugungi kunda yanada keng miqyosda avj olishi sharoitida ta'lim va tarbiya uyg'unligini ta'minlash dolzarb vazifa darajasiga aylandi. Chunki, agar ta'limni tarbiyadan ajralgan xolda, ya'ni yoshlarga faqat bilim berish bilan cheklanadigan bo'lsak, ular ana shu bilimlarni egallashlari mumkin, ammo ular bugungi kun uchun o'ta muxim bo'lgan vatanparvarlik, millatparvarlik, ota-ona, mahalla oldida mas'uliyat kabi qadriyatlardan bebahra bo'lib qoladilar. Bunday xolatning yuzaga kelishi esa istiqbolida mamlakat taraqqiyoti va shaxs kamoloti uchun salbiy zaminlarning shakllanishiga olib kelishi mumkin.

Tarbiya bilan ta'limni uzviy ravishda olib borishda ta'lim tizimida

o'qitilayotgan ijtimoiy - gumanitar fanlarning o'rni nixoyatda kattadir. Chunki ana shu fanlar dunyoqarashni shakllantirish va rivojlantirishda yetakchilik qiladi. Ular o'qituvchi, talaba va butun ta'lim tizimidagi yoshlar nafaqat ongi, tafakkurini rivojlantiradi, shuning bilan birga ularning ma'naviyatini ham boyitadi. Vatan va millat taqdiri, uning istiqboli uchun mas'ullik tuyg'usini shakllantirib boradi. «har qaysi davlat har qaysi millat nafaqat yer osti va yer usti tabiiy boyliklari bilan, harbiy qudrati va ishlab chiqarish salohiyati bilan, balki birinchi navbatda o'zining yuksak madaniyati va ma'naviyati bilan kuchlidir»[4].

Yuqoridagilarni nazarda tutib, yoshlar ma'naviyatini shakllantirishda ta'lim tizimining o'rni alohida ahamiyatga ega ekanligini aytib o'tish kerak. Chunki ta'lim tizimida ong va tafakkurning rivojlanish jarayoni kechadi va ular o'z navbatida yoshlarga bilim egallash bilan birga, vatanparvarlik, millatparvarlik va umuminsoniylik kabi qadriyatlarni o'zlashtirishiga yaqindan yordam beradi. Shuning uchun ham ta'lim bilan tarbiya uyg'un xolatda yoshlarning ma'rifat va ma'naviyatini rivojlantirishning muhim omili sifatida har doim katta ahamiyatga ega bo'lib keladi.

Insonni tarbiyalash, uni rivojlantirishning aniq qonuniyatlarini ishlab chiqish pedagogika fani zimmasiga tushadi. Pedagogikaning predmeti shaxsni rivojlantirish bilan tarbiya o'rtasidagi qonuniyatni aniqlash va shu asosda tarbiyaviy faoliyatning nazariy hamda uslubiy asoslarini ishlab chiqishdir.

Avlod-ajdodlarimiz juda qadim zamonlardan boshlab tarbiya masalasida har doim umumbashariy his-tuyg'ular, milliy qadriyatlarni birinchi o'ringa qo'yib kelganlar. Sharqona ta'lim-tarbiya masalalari har vaqt Markaziy Osiyo hayotida kechgan ma'daniy tarixiy jarayonning, axloqiy estetik tarbiyaning markazida turgan. Sharq mutafakkirlari asarlarida barkamol inson shaxsi, uning ta'limi va tarbiyasi masalalari Movarounnaxrning o'rta asr davri buyuk mutafakkirlari, ilm-fan allomalari asarlarida shaxs kamoloti masalalarini har tomonlama asoslab berilganligi xam buni to'liq isbot qiladi.

Umuman Sharq xalqlari qadimgi go'zal axloqiylikni jamiyat taraqqiyotining va insoniy munosabatlar rivojining mezonini deb bilganlar. Odamlarda chinakam insoniy-ahloqiy fazilatlarni shakllantirish orqali ijtimoiy taraqqiyotning ongliligiga erishish mumkin deb hisoblaganlar. Masalan, buyuk alloma Abu Ali ibn Sino «Hayo - insonning abadiy go'zalligi va latofatidir. Hayosiz yuz jonsiz jasadga o'xshaydi» desa, ulug' mutafakkir olim Abu Rayhon Beruniy insonning ichki va tashqi go'zalligi to'g'risida fikr yuritib shunday deydi: «Tashqi go'zallik, qiyofadagi jamol, bular ikkovi ham yoqimli bo'lishi kerak, odamlar o'zaro uchrashganlarida ushbu go'zal jamolni ko'rishga rag'bat qiladilar»[5].

Tarbiya masalasiga kompleks yondashish talab etiladi. Gap yaxlit ma'naviy-ma'rifiy tarbiya xususida boryapti. Chunki, bozor munosabatlariga asoslangan iqtisod sharoitida, fuqarolik jamiyati qurish davrida yoshlarni ma'naviy-ma'rifiy jihatdan yetuk insonlar qilib tarbiyalash jamiyat oldidagi eng muhim vazifalardan biri bo'lib, u ayni vaqtda barchamizdan katta mas'uliyat va mehnat talab qiladi[4].

Tarbiya jarayoni o'qituvchi va o'quvchilar o'rtasida tashkil etiluvchi hamda aniq maqsadga yo'naltirilgan hamkorlik jarayonidir. Tarbiya jarayonida

tarbiyalanuvchining ongi shakllana boradi, xis-tuyg'ulari rivojlanadi. Tarbiya jarayonida bolalarning hayoti va faoliyatini pedagogik jihatdan to'g'ri uyushtirish g'oyat muhimdir. Faoliyat jarayonida bola tashqaridan kelayotgan tarbiyaviy ta'sirlarga nisbatan ma'lum munosabatda bo'ladi. Bu munosabat shaxsning ichki ehtiyoji va xohishlarini ifodalaydi. Tarbiya jarayonida tarbiyalanuvchining ongigina emas, balki, his tuyg'ularini ham o'stira borish. Unda jamiyatning shaxsga qo'yadigan ahloqiy talablariga muvofiq keladigan xulqiy malaka va odatlarni hosil qilish lozim. Bunga erishish uchun o'quvchining ongiga ta'lim jarayoni asosida hissiyotiga va irodasiga sistemali va muntazam ta'sir etib boriladi. O'quvchini tarbiyalashda bularning birortasi (ongi, hissiyoti, irodasi) e'tibordan chetda qolsa maqsadga erishish qiyinlashadi. Shuning uchun tarbiya jarayoni ko'p qirrali va murakkab jarayon deb yuritiladi[5].

Tarbiya jarayonining xususiyatlari: ko'p qirralilik, uzoq muddatlilik, uyushtiruvchi, uzluksizlik, ikki tomonlama aloqadorlik va qarama-qarshilikdir. Tarbiya jarayoni, odatda, o'z-o'zini tarbiyalash, o'z-o'zini qayta tarbiyalash, bolaning atrof-muhitdagi u yoki bu hodisalar bilan salbiy aloqasi natijasida vujudga keladigan munosabatlar va ularning xususiyatlarini bartaraf etish bilan olib boriladi. Insoniyat yaratgan ma'naviy boyliklar bisotida donishmandlarning pand nasihatlarini, o'g'itlari va tarbiya haqidagi fikrlari alohida o'rin egallaydi. Donishmandlarning pand-nasihatlarini umrboqiy ma'naviy boylik hisoblanadi. Chunki ular hayotdan, hayot tajribalaridan kelib chiqqan va ezgu orzu niyatni ifodalaydi. Shuni ta'kidlash lozimki, eng qadimgi tarbiya haqidagi fikrlar bizgacha bevosita yetib kelmagan. Bu fikrlar insonning shakllanishida moddiy va ma'naviy madaniyatning yillar davomida rivojlanishi natijasidir.

Xulosa qilib aytadigan bo'lsak, Tarbiya jarayoni samaradorligi maqsad va manfaatlarning, uslub va yo'nalishlarning uyg'unligiga, amalga oshirilayotgan ma'naviy-ma'rifiy tadbirlarning doimiyliigi va ketma-ketligiga ham bog'liqdir. Ma'naviy-ma'rifiy tarbiya samaradorligini oshirish yo'llari, omillari, vazifalari, usul va shakllarini nazariy rivojlantirish, uning tajriba natijalarini umumlashtirish bunda muhim ahamiyat kasb etadi. Erishiladigan muvaffaqiyatlar faqat o'tkazilgan tadbirlar ko'lamini, yoxud unda ishtirok etgan odamlar soni, salmog'i bilan o'lchanmaydi, balki, ta'lim-tarbiya jarayonining doimiyliigi, uzluksizligi, muntazamligi bilan baholanadi. Bu esa yoshlarni mustaqil fikrlashga o'rgatadi, ularning faolligini oshiradi.

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ARAB TILI CEFR IMTIHONIDA TALAB ETILADIGAN B2 DARAJASIDAGI GRAMMATIK QOIDALAR

Annotatsiya: Maqolada arab tilidan CEFR inmtihonida B2 darajasidagi sertifikatni qo'lga kiritmoqchi bo'lgan talabalar uchun bilish nihoyatda zarur bo'lgan grammatik qoidalar mavjud. Hususan nahv va sarf qoidalariga katta e'tibor qaratilgan. Bazi o'rinlarda qoidalarni to'liq sharhlanmay uning nomini aytib o'tish bilan kifoya qilindi va ularni to'liq o'rganib chiqish talabaning o'z ehtiyooriga topshirildi va bu uchun kerakli manbaalar ko'rsatildi. Maqolaning yana bir o'ziga hosligi shundaki qoidalar tartibi xar bir ko'nikma uchun alohida tuzilgan va arab tildagi misollar bilan boyitilgan.

Kalit so'zlar: grammatika, nahv, sarf, fonetika, tinish belgilari, nutq uslublari.

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GRAMMAR RULES REQUIRED FOR THE CEFR B2 LEVEL OF ARABIC

Abstract: This article provides an overview of essential grammar rules for students preparing for the CEFR B2 Arabic language exam. It focuses on grammar structures and word usage. In some cases, the rules are mentioned without full explanation, allowing students to explore them further using the recommended sources. One of the key features of the article is the way the rules are organized by language skills, each supported with examples in Arabic.

Keywords: grammar, syntax, word usage, phonetics, punctuation, speech styles.

Biron bir tilni o'rganishning ikki hil usuli mavjud, ulardan birinchisi: o'rganilayotgan tilda muloqotga kirishish. Bu usul o'sha tilda muloqot qiluvchi davlatga borib qo'llanilsa samaraliroq va kamroq vaqt sarflaydi. Biroq bu usulning yagona kamchiligi - tildagi grammatik qoidalarning yaxshi o'zlashtirilmasligidir va bu tildagi ko'plab nuqson va kamchiliklarga olib keladi. Shuning uchun talabalarga til o'rginishni ikkinchi uslubidan, yani ustozdan o'rganishni boshlash tavsiya etiladi. Bu uslub talabaga tilni tartib bilan programmalashtirilgan holda dars olishini ta'minlaydi va bu til organuvchining grammatik qoidalarga rioya qilgan holda tilni o'rganib unda bexato so'zlashiga yordam beradi.

CEFR (Common European Framework of Reference for Languages) til bilish ko'nikmalarini baholashda imtihon topshiruvchining grammatik qobiliyatiga katta ahamiyat qaratadi va bu ko'p hollarda yozish va gapirish ko'nikmalarini aniqlashda ko'rinadi. Shu sababdan imtihonga kirishdan avval til bilishda grammatik mahoratni oshirish tavsiya etiladi. Arab tili grammatikasi esa bundan mustasno emas va quyida bu haqida zaruriy ma'lumotlar keltirilgan.

Arab tili grammatikasining kelib chiqishi. Arab tili somiy tillar oilasiga mansub bo'lib u ko'p yillik tarixga ega. Ammo uning grammatikasining asosiy ustuni milodiy yettinchi asrda nozil bo'lgan musulmonlarning diniy kitobi Qur'oni Karim xisoblanadi. Bundan avval arab tili aniq bir qoidaga asoslanmay, unda so'zlashuv qabilalar va ularning geografik joylashuviga ko'ra farqlanar edi va bu holat hozirgacha davom etmoqda, lekin endi bu lahja (dialekt)larni birlashtiruvchi yagona qoidalar jamlanmasi ya'ni arab tili grammatikasi mavjud. Endi arab tilini o'rganish osonlashdi va bu uchun kerakli qo'llanmalar juda ham ko'p. Bu darajaga erishishda Qur'oni Karim asosda arab tilli grammatikasini tuzib chiqqan va uni o'rgangan olimlarning hissasi katta. Masalan Sibavaih hazratlari (760-796yy.) arab tili grammatikasini o'rgangan eng birinchi filolog olimlardan. U kishining arab tili grammatikasiga bag'ishlangan "Al-Kitob" asari hozirgi kunga qadar bu tilning eng asosiy qo'llanmalaridan hisoblanadi. Va yana shu qatorda Al-Farobiy, Al-Beruniy, Abu Ali ibn Sino, Az-Zamaxshariy kabi buyuk o'zbek olimari bu tilning rivojida o'zlarining buyuk hissalarini qo'shganlar va xozirda arab diyorlarda bu yetuk olimlarimizning asarlari katta obro'ga ega.

B2 darajasi uchun talab etiladigan grammatik ko'nikmalar. Grammatikani o'qigan va o'qimay shunchaki suhbatlashuv orqali tilni o'rgangan talabaning nutqida sezilarli farqlar mavjud. Bu tafovutni savodli inson darhol sezishi tabiiy, chunki biron bir tilda ravon va bexato gapirish uchun grammatika shart va zarur. Quyida arab tili grammatikasining muhim bo'limlariga qisqacha ta'rif berilgan.

1. Nahv (النحو) – sintaksis, yani arab tilidagi *gaplarning to'g'ri tuzilishini* va so'zlarning gapdagi ishtirokini o'rganuvchi fan hisoblanadi. Arab tilida naxv qoidalarini bilmaslik arab bo'lmaganlar uchun tarjima qilish jarayonida ko'plab qiyinchiliklarni yuzaga keltiradi.

2. Sarf (الصرف) – morfologiya, sintaksisdan farqli o'laroq arab tilidagi gaplarni emas, balki alohida *so'zlarning tuzilishini* o'rganuvchi fan. Arab tili leksikasida sarf ilmi o'ta muhim o'ringa ega, chunki arab tilidagi ko'plab so'zlar bir o'zakdan yasaladi va ana shu o'zak so'zning ma'nosini bilish orqali taxminan 120ga yaqin so'z yasash mumkin.

3. Fonetika (الصوتيات) – so'zlarni tashkil qiluvchi *harflarning talaffuzini* o'rganuvchi fan hisoblanadi. Bu fan xarflarning maxraji, yani nutq a'zolaridan chiqish joyi va sifatlarini o'rganadi.

4. Tinish belgilari (علامات الترقيم) – punktuatsiya, bu fan yozuvda aks etuvchi *tinish belgilarining to'g'ri joylashuvini* o'rganuvchi fan hisoblanadi. Har bir til o'z tinish belgilari sistemasiga ega.

5. Nutq uslublari (أساليب الكلام) – bu insonning vaziyatga muvofiq muluqot qilish uslubidir. Inson turli o‘rinlarda turlicha so‘zlashadi, turli so‘z va iboralardan foydalanadi, bu holatni o‘rganish foidadan holi emas.

CEFR imtihonining grammatik talablari. CEFR imtihonining baholash qismida, talabaning grammatik bilimlari ma’lum me’zonga asosan tekshiriladi. Quyida xar bir ko‘nikmadan talab etiladigan grammatik qoidalarini B2 darajasida sharhladi.

Eshitib tushunish ko‘nikmasi. Bu bo‘limda asosan leksik bilim yuqori ahamiyatga ega, chunki eshitish orqali tayyor ma’lumot qabul qilinadi va uni analiz qilish orqali savollarga javob topiladi. Biroq bu grammatikani o‘rganish shart emas ekan, degani emas. Sarf ilmini bilish yuqorida aytilganidek so‘zlarni to‘g‘ri tarjima qilish uchun o‘ta muhim. Masalan:

U arab tilini o‘rganadi – هو يَدْرُسُ اللغة العربية

U arab tilini o‘rgatadi – هو يُدْرِسُ اللغة العربية

Bu ikki jumlaning farqi faqatgina fe’lning harakatlarida biroq ma’no tubdan farq qiladi. Birinchi jumladagi fe’l sulosiy mujarraddagi bir maf’ulga ega mutaaddiy fe’l, ish harakati birgina maf’ul ustida sodir bo‘layotganini anglatadi, yani nimani o‘rganadi? Arab tilini, bu yerda arab tili so‘zi maf’ul hisoblanadi. Ikkinchi jumlada esa mutlaq boshqacha ma’no, bu jumlada fe’l sulosiy maziddagi ikki maf’ulga ega mutaaddiy fe’l, va bu yerda ahamiyatli narsa shuki u arab tilini o‘rgatadi deyilganida gap to‘liq tugallanmayapti, balki هو يَدْرُسُ fe’li kimga dars o‘tdi? degan savolga javob berilishini talab etadi, va bu savolning javobi ikkinchi maf’ul bih hisoblanadi, misol uchun هو يَدْرِسُ الطفل اللغة العربية jumlasida kabi. Bu qoida bizga arab tilidagi fe’llarning manosi ularning tuslanishiga ko‘ra qanchalar o‘zgarishini ko‘rsatadi.

Quyidagi jadvalda sarf ilmining B2 darajasidagi talaba bilishi lozim bo‘lgan asosiy mavzular ko‘rsatilgan:

№	Mavzu nomi
1.	Mujarrad va mazid
2.	Moziy, muzore, amr
3.	Fe'l boblari
4.	Lozim va mutaaddiy
5.	Ma'lum va majhul
6.	Sahih va mu'tal
7.	Inkor ma'nosini anglatuvchi fe'llar
8.	Ismi foil
9.	Ismi maf'ul
10.	Ismi zamon va makon
11.	Ismi olat
12.	Ismi tafzil
13.	Fe'llarning tasrif va siyg'asi
14.	Masdar
15.	Muzakkar va muannas
16.	Mufrad, musanno, jam
17.	Nakira va ma'rifa
18.	Alam va ismi ishora
19.	Zamir
20.	Ismi mavsula

Bu mavzularni chuqur egallash orqali eshitib tushunish paytida matndagi ma'noni sarfiy jihatdan to'liq tushunish mumkin, chunki savollar chalg'itivchi bo'lishi mumkin va bunday savollarga javobni faqatgina matnni tushunish orqali topiladi. Sarf ilmiga oid o'zbek tilida ko'plab qo'llanmalar mavjud, bulardan eng mashhuri Ibodulloh Axrorovning "Taysirus sarf" kitobidir. Bu kitob sarf ilmiga oid kerakli barcha ma'lumotlarni o'zida jamlagan va eng muhimi tushunarli va oson uslubda.

Eshitib tushunish ko'nikmasida sarf ilmi bilan kifoyalanilmaydi, albatta. Talaba egallashi lozim bo'lgan yana bir eng muhim narsa bu leksik ko'nikmadir, yani so'z boyligi. Bu mavzu grammatikaga oid bolmagani sabab bunga alohida to'xtalib o'tilinmadi. Va keyingisi naxv ilmi, bu bo'lim haqidagi kerakli mavzular quyida o'qib tushunish ko'nikmasining sharhida qisqacha bayon qilingan.

O'qib tushunish ko'nikmasi. Bu ko'nikmaning eng birinchi qismi talabaning sarf ilmidagi qobiliyatini tekshirish uchun mo'ljallangan. Sarf ilmining asosiy mavzulari yuqorida zikr qilindi va bu bilimlar B2 darajasi ushun kifoya qiladi. Keyingi qismlarda asosan grammatikadan naxv qoidalari muhim o'rin tutadi. Chunki matnlarni tushunish uchun so'zlarning joylashuvi va gapdagi o'rni haqida kerakli ma'lumotga ega bo'lish lozim, chunki matnlar harakatsiz, yani eroblanmagan xolda taqdim qilinadi. Naxv imini o'rganmay turib, matnlardan to'liq ma'noni anglash mushkul. Masalan:

ona pirog pishirib, uni o'g'liga berdi – طبخت الأم الفطيرة، وأعطتها لابنها

Bu jumlaning birinchi qismida طبخت (pishirdi) so'zi fe'l, yani ish-xarakati, الأم (ona) esa foil (ish-harakatining bajaruvchisi) va الفطيرة (pirogni) so'zi maf'ul bih hisoblanib o'zbek tilida to'ldiruvchi deyiladi. Ikkinchi qismda أعطت (berdi) so'zi fe'l (ish-harakati) va uning foili (bajaruvchisi) jumlaning birinchi qismidagi

الأم so'zi. Va bu fe'lga zamiri muttasil bo'lib kelgan ها (uni) qo'shimchasini qoshish orqali birinchi qismdagi maf'ul bihiga الفطيرة so'ziga ishora qilinadi. Va keyingi so'z لابن (o'g'liga) jar va majrur maf'ul bihi o'rnida va zamiri muttasil, yani ها qo'shimchasi qo'shilib الأم so'ziga ishora qilyapti. Bu birgina jumlaning qisqacha o'zbek tilidagi e'robi va bu gapni to'liq anglash uchun uning tarkibi tushunarli bo'lishi lozimligining yaqqol misoli. Quyida B2 darajasiga oid zaruriy naxv fanidagi mavzular ketmaketligi ko'rsatilgan:

№	Mavzu nomi
1.	Kalima
2.	Kalom
3.	Mo'rob va mabniy
4.	Rof, nasb, jar va jazm
5.	Ism, fe'l va xarf
6.	Mubtado, xabar
7.	Foil
8.	Noibi foil
9.	Maf'ul bih
10.	Maf'ul mutlaq
11.	Kana va uning axovatlari
12.	Inna va uning axovatlari
13.	Jar va majrur
14.	Atf va ma'tuf
15.	Sifat va mavsuf
16.	Adad va ma'dud
17.	Tavobe'
18.	Tavkid
19.	Asma ul-xomsa
20.	Asma ul-mavsula

Yuqorida keltirilgan mavzular ro'yxati eng zarur mazularni o'zida jamlagan va bu qoidalarga o'zbek tilidagi eng tushunarli sharx San'atulloh Bekpo'latning "Mabdaun naxv" kitobidir. Biroq arab tilida bu mavzuga oid kitoblar talaygina, misol uchun Ibn Ajrumning Ajrumiyya matni, Xolid Abdulazizning "Naxv tatbiqiy" asari, Xifniy Nosif, Muhammad Diyab, Mustafo Tammum va Muxammadbek Solihlarning "Ad-durusun-naxviyya" kitoblari va shunga o'xshash yana ko'plab kitoblar.

Mutolaa. O'qib tushunish ko'nikmasi talabadan ko'proq mutolaa tajribasini ham talab etadi. Arab tilidagi matnlarni mutolaa qilish orqali miyyada arab tilidagi gaplarning strukturalariga bo'lgan ko'nikma hosil bo'ladi va matnlarni tezroq o'qish va tarjima qilishga yordam beradi. Bunda talaba shoshqaloqlik qilmay soddaroq kitoblarni mutolaa qilishdan boshlamog'i darkor, aks holda bu undagi mutolaaga bo'lgan qiziqishini so'ndiradi va samaradorlikni pasaytiradi. Quyida mutolaa qilishda ahamiyatli bo'lgan muhim maslaxatlar taqdim etilgan:

1. Mutolaani sodda matn va dialoglardan boshlash. Bunda arab tilini o'rganishdagi silsilaviy kitoblar ko'proq qo'l keladi. Bu kitoblarning boshlang'ich qismidagi matnlar, asosan oson struktura va bazaviy leksik birliklardan tuzilgan

bo'lib o'quvchidagi o'qishga bo'lgan rag'batni oshiradi. Shu tariqa asta sekin qiyinroq matnlarga o'tiladi. Bunga turli hil ertaklar, qissalar, buyuk insonlarning biografiyasi, global muammolar yoritilgan matnlar misol bo'la oladi.

2. Yangi so'zlarni belgilab ularni lug'atdan qidirish. Lug'at kitobisiz yangi tildagi kitobni mutolaa qilishni boshlash - qaychisiz mato kesishga o'xshaydi, yangi so'zlar mavhumligicha qolaveradi va mutolaadagi samaradorlik pasayib ketadi. Bu vaziyatda lug'at sifatida turli gadjetlardan foydalanish tavsiya etilmayda, bu o'quvchini mutolaadan tez zerikib boshqa narsalarga chalg'ib ketishiga olib keladi.

3. Matndagi yangi so'zlar va ta'birotlarga mustaqil jumla tuzish. Bu oson eslab qolishning eng samarali usuli.

4. Takroran o'qish. Ba'zan matndagi barcha so'zlar tanish bo'lsa ham undan biron ma'no chiqarish qiyin bo'ladi. Bunday hollarda matnni takroran o'qish ayni muddao. Bu usul, miyyani mutolaa jarayonida turlicha fikrlashiga yordam beradi, birinchi bor o'qilganda tushunilmagan gap, ikki yoki undan ko'proq miqdordagi takrorlardan so'ng tushunarli bo'lishni boshlaydi. Bu hol ilmiy tilda *reframing* deyiladi.

5. Matnni to'liq analiz qilish. Gaplarni shunchaki tarjima qilib, o'tib ketish bilan ish bitmaydi. Agar matn hayolan ma'no jihatidan jamlanmas ekan undan biron manfaat olish mushkul. Ko'p hollarda o'quvchilar mutolaa so'ngida matnning boshi va o'rta qismini yoddan chiqarib qo'yishadi. Buning sababi - mutolaa jarayonida diqqatning bir joyga jamlanmasligidir. Bu hollarda eng zo'r usul matnni o'z ona tilida yodda saqlash. Agar matn haqida savol berilsa ma'lumotni yana arab tiliga soddaroq so'zlar bilan tarjima qilib javob berish mumkin.

6. Mutolaa qilingan matnni mustaqil aytib bera olish. Bunda matnni yoddan aytish tushunilmaydi, balki chiqarilgan hulosani aytib berilsa bas. Bu talabani arab tilidagi matndan kerakli ma'lumotni chiqarib olishga va uni tinglovchiga to'g'ri yetkazib berishga undaydi va mahoratni oshiradi.

Bu qoidalar mutolaadan olinadigan foidani yanada oshiradi. Ularga amal qilish orqali arabtilida o'qib tushunish ko'nikmasini oson rivojlantirish mumkin.

Yozish ko'nikmasi. Bu bosqich talabadan katta grammatik ko'nikma talab etadi. Yozish orqali arab tilidagi bor mahorat matn shaklida k'rsatib beriladi. Bunda sarf, naxv, so'z boyligi, nutq qilish uslublari, shaxsiy fikr barchasi bir matnda jamlanadi. Sarf va naxv ilmidan B2 darajasi uchun bilish lozim bo'lgan mavzular yuqoridagi jadvallarda aytib o'tildi. Bu mavzularga yuzaki qarash hato, chunki mukammal ravishta o'zlashtirilgan mavzugina insho yozish jarayonida foyda bera oladi. Bu qoidalardan foydalangan holda matn yaratishni mashq qilish lozim. Buning uchun tayyor matnning sifatini tekshirib bera oladigan uztoz muhim ro'l o'ynaydi, chunki inson o'zidagi kamchiliklarni aniqlashi mushkul masala. Demak, yozish mahoraini rivojlantirishning eng yaxshi yo'li bu *tajriba*.

Murakkab gap tuzish strukturalaridan foydalana bilish yozish ko'nikmasining yuqori bo'lishida muhim ahamiyat kasb etadi. Yozma nutqning go'zal bo'lishida turli ibora va so'z birliklarini oqilona ishlata bilish shart. Misol uchun quyidagi ma'no jihatidan bir biriga yaqin bo'lgan ikki jumlani olaylik:

(A2 darajasida) عندما عُدتُ إلى البيت، هو كان يلعب في الحديقة

-

- بعد عودتي إلى المنزل، وجدته لاعبا في الحديقة (B2 darajasida)

Uyga qaytganimda, u bog'da o'ynayotgan edi.

Bu ikki jumla o'rtasidagi tafovut uncha katta emas, biroq ularning qay biri grammatik jihatdan murakkabroq, nutqda kam qo'llaniluvchi va talaffuz jihatidan chiroyliroq bo'lsa shunisi afzal. Bu misol matn yaratishda gapning strukturasi yozuvchining til bilishdagi darajasini yaqqol namoyon qiladi. Shu sababda mutolaa qilish orqali foydalanish mumkin bo'lgan gap strukturalarini mulohaza qilish tavsiya etiladi.

CEFR imtihonlarida yozish ko'nikmasini tekshirishda talabadan uch hil nutq uslubida matn yaratish talab etiladi. Avval arab tilidagi funksional nutq uslublari bilan tanishib chiqish lozim. Demak:

1. Adabiy uslub (الأسلوب الأدبي) – arab adabiyotida, sher va nazmlarda foydalaniluvchi uslub.

2. Ilmiy uslub (الأسلوب العلمي) – ilm-fanga oid mavzuarda, tahlil qilish va fikr bildirishda foydalaniladi.

3. Diniy uslub (الأسلوب الديني) – Qur'oni Karim, xadislari va diniy matnlarda qo'llaniladi.

4. Jurnalistik uslub (الأسلوب الصحفي) – televideniye, radio, gazeta va jurnallarga hos.

5. Kundalik nutq uslubi (الأسلوب اليومي أو الشخصي) – doimiy muloqotda foydalaniladigan nutq uslubi hisoblanadi.

6. Rasmiy uslub (الأسلوب الرسمي) – hujjatlar, rasmiy murojaatlar, davlat idoralarida qo'llaniladi.

Bilish zarur bo'lgan 3 hil uslub, bular: ilmiy, rasmiy va kundalik nutq uslublari. Ilmiy uslubda insho yoziladi. Bunda insho aniq, grammatik qoidalarga rioya qilingan holda, ortiqcha hissiyotlarsiz, ma'lumot va faktlarga boy turli terminlardan foydalanilgan hola yoziladi. Bu sifatlar inshoning to'g'ri va mazmunli bo'lishiga yordam beradi.

Keyingi bosqich xat yozish. Bu qism mavzuning nomiga ko'ra rasmiy yoki shaxsiy bo'lishi mumkin. Masalan:

اكتب رسالة شخصية لأخيك أو أختك تخبرهم فيها كم تفنقدهم، وكم تحبهم، وكم تريد مقابلتهم، وأيضا أذكر الأيام الممتعة قضيتها معهم.

Ushbu xatning mavzusi yaqin birodaga, ya'ni aka yoki opaga yonaltirilgan, demak bu shaxsiy xat va unda kundalik og'zaki uslubdan foydalanish mumkin va erkinlik mavjud. Bunday xat yozish uslubida xissiyotlar, shaxsiy savollar, sodda va kundalik iboralaridan foydalaniladi va xech qanday takalluf va rasmiyatchilik talab etilmaydi. Quyida rasmiy xat mavzusiga misol:

شركة توظيف: أكتب رسالة تعبر فيها عن رغبتك في الانضمام للشركة، وتقديم سيرتك الذاتية للتوظيف.

Bu mavzuda ishga joylashtiruvchi kompaniyaga murojat qilinmoqda va bu o'z o'zidan rasmiyatchilikni talab etadi. Xatda aniq bir insonga aniq bir maqsad ila murojaat qilinadi, gaplar ortiqcha takalluflarsiz hurmat dorasida tuziladi va aniq-ravshan bayon qilinadi.

Nutq uslublaridan tashqari yozish ko'nikmasida tinish belgilarining ham ahamiyati katta, arab tili *punktuatsiyasi* naxv fani orqali o'rganiladi. Talabaning matnga tinish belgilarini joylashtirishiga ko'ra undagi tartib, ma'no jihatidan tugallangallik va grammatik mukammallik baholanadi. Shu sababdan bu ilmni ham ahamiyatdan chetda qoldirmaslik zarur.

Gapirish ko'nikmasi. Bu ko'nikma leksik grammatik va fonetik bilimlarni aniqlash uchun ayni muddao. Bu qismda naxv, sarf va lug'atdan o'rganilgan barcha narsalar og'zaki nutqda qo'llaniladi. Bu esa albatta tajriba va mashq orqali orttiriladi. Eng ko'p duch kelinadigan muammolardan biri ham aynan miyyadagi ma'lumotlarni gapirish orqali ifoda eta olmaslikdir. Buning yechimi esa arab tili ona tilisi bo'lgan inson yoki sun'iy intellekt bilan ko'proq muloqot, matnlarni ovoz chiqarib o'qish, turli global mavzularda nutq qilish va hokazolar.

Gapirish ko'nikmasini boshqalaridan ajratib turuvchi yana bir muhim jihat - bu *fonetika* hisoblanadi. Chunki talabaning til o'rganishdagi tajribasi uning harflarning to'g'ri talaffuz qilishida namoyon bo'ladi, buning sabablari turlicha:

1. Ko'p muloqot natijasida so'zlarni talaffuz qilish osonlashadi va mahorat oshadi. Biroq gapirish ko'nikmasini baholashda tezlik emas, balki aniqlik muhim, shu sababli harflar talaffuziga ham ahamiyat bermoq darkor.

2. Xarflarni to'g'ri talaffuz qilish natijasida so'zlardan qasd qilingan ma'nolar oson tushuniladi. Masalan og'riq ma'nosini anglatuvchi **ألم** so'zi, va bayroq ma'nosini anglatuvchi **علم** so'zi, bu so'zlarni **أ** va **ع** xarflari ajratib turadi, biroq o'zbek tilida **ع** xarfi bo'lmagani uchun tallaffuzda xatolarga duch kelish mumkin, va bu tinglovchida nutqni tushinishda ba'zi qiyinchiliklarni keltirib chiqaradi.

3. Og'zaki nutqda o'zbek aksentining sezilmasligi. Bu ham katta tajriba orqali erishiladigan ko'nikma hisoblanadi.

Gapirish ko'nikmasi nutqdagi ravonlik va o'ziga bo'lgan ishonchni talab etadi. Savollarga javob berishda ko'p o'ylanmay dadil javob berish muhim, shu sababli ko'proq arab tilida so'zlashishni mashq qilish lozim.

Xulosa. Maqoladan asosiy maqsad arab tilini o'rganuvchilarni naxv va sarf kabi grammatik qoidalarni o'rganishga rag'batlantirish. Cefr imtihonida B2 darajasiga erishish uchun o'zlashtirilishi lozim bo'lgan asosiy grammatik mavzularni belgilab chiqish va amalga tatbiq qilish. Bu maslahatlarga rioya qilish orqali talaba ko'plab xato va kamchiliklarni bartaraf etadi. Shuningdek CEFR sertifikatini qo'lga kiritish uchun o'z oldiga kerakli vazifalarni qo'yishni o'rganadi.

Yuqorida zikr qilingan adabiyotlarni o'qib chiqish orqali grammatik ko'nikmani bazaviy darajada o'zlashtiriladi. Bu mavzudagi kitoblarning soni juda ko'p va bu kitoblarni internet tarmog'idan oson topish mumkin. Asosiysi dangasalik qilmasik va astoydil shug'ullanish.

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TEKNOLOGIYA FANIDA ROBOTOTEXNIKANI QANDAY O'RGANAMIZ

Annotatsiya. Mazkur maqolada texnologiya fanini o'qitish jarayonida robototexnika asoslari fanini mazmun mohiyati, uni dars davomida qo'llash va amaliy ishlar orqali ardino va uning imkoniyatlari, uning texnologik haritasi tuzilishi, dars samarali tashkil etishda turli hil metodlardan foydalanish kabi tavsiyalar bilan tanishasiz.

Kalit so'zlar: robototexnika, Ardino, interfaol metodlar, amaliy mashg'ulotlar, Blok sxema, Elektronika, Mexanika, Scratch dasturi, mBlock dasturi, Python dasturi.

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HOW DO WE LEARN ROBOTICS IN TECHNOLOGY CLASS

Abstract. In this article, you will learn about the content and essence of the fundamentals of robotics in the process of teaching technology, its application during the lesson and through practical work, its capabilities, the structure of its technological map, and recommendations for using various methods to effectively organize the lesson

Keywords: robotics, Arduino, interactive methods, practical exercises, Block diagram, Electronics, Mechanics, Scratch program, mBlock program, Python program

Bugungi kunda olimlar robotlarni odamlarga o'xshatishga harakat qilmoqda. Robotlarni qadim zamonlardan beri mavjud bo'lib, ammo bu bo'yicha tadqiqotlar XX asrdan boshlangan. Bugungi kunda robototexnika jadal rivojlanayotgan soha hisoblanib, texnologiya rivojlanib borayotgan bir vaqtda robototexnika ham rivojlanib bormoqda, chunki robototexnika bilan texnologiya chambarchas bog'liq. Texnologiya rivojlanib borgan sari tadqiqotlar ham ishlab chiqarish ham o'zgarib boradi, shuningdek robotlardan foydalanish ham. Bugungi kunda robotlarni uy sharoitida, ishlab chiqarishda, biznesda ko'p qo'llaniladi. Avtomat robotlar savdo va sanoat robotlari keng tarqalgan bo'lib, ushbu robotlar odamlarga qaraganda arzonroq, ixchamroq va mustaxkamroq hisoblanadi.

Eng avval Robototexnika bo'yicha qisqa ma'lumot berib o'tamiz. Bu soha nima o'zi? Bizga nimalarni o'rgatadi? Robototexnikani o'rganish bosqichlari? Kabi savollarga javob topamiz.

Robototexnika bu- robotlarni qurish va ulardan foydalanish ularni boshqarish shuningdek ma'lumotlarni qayta ishlash bilan shug'ullanadigan soha. Robototexnika fani bu robotlardan tashqari avtomatlashtirilgan texnik tizimlar va ishlab chiqarish jarayonlarni inson omilisiz boshqarishni va qo'llashni o'rgatadi. Avtomatlashtirilgan mashinalar boshqacha qilib aytganda robotlar odamlarni o'rnida, hafli joylar va zavodlarda ishlashi mumkin. Robotlar 3 ga bo'linadi,

Mexanik robotlar-bu insonlar bilan bevosita bog'liq bo'lin, ular insonlar orqali ishga tushiriladi.

Pol avtomat robotlar- Bevosita insonlar buyrug'i asosida ishga tushiriladi va o'z nomi bilan yarim Avtomat robotlar yani inson va robotlar bevosita birgalikda ishlatiladi.

Avtomat robotlar- Avtomat robotlarni faqat yoqishgina kifoya, yani yoqilgandan keyin avtomat ravishda ishlay boshlaydi.

Robotlarni yana bir asosiy jihati ular kompyuter kodiga muxtoj, huddi shu algoritmi robotlarni qanday ishlashini ko'rsatadi. Kodni yozgan odam dasturda robotni qanday ishlashini qanday qaror qabul qilishini ko'rsa bo'ladi.

Robototexnikani o'rganish bosqichlari:

1. Nazariy bilim berish.

- a) Elektronika asoslari (tok, kuchlanish, sxemalar).
- b) Mexanika asoslari (g'ildiraklar, dvigatellar, uzatmalar)
- s) Dasturlash asoslari (blok dasturlash-Scratch, mBlock: keyinroq Python, Arduino)

2. Oddiy konstruktorlar bilan boshlash.

- a) LEGO Mindstorms, VEX IQ, Arduino Starter Kit kabi konstruktordan foydalanish.

b) O'quvchilar avval soda modellar (Chiroq yoqish, signal berish, oddiy robot mashina)

3. Amaliy loyihalar.

- a) Oddiy robot mashina yorug'likka qarab harakatlanuvchi robot chiziq bo'ylab yuruvchi robot.

b) Sensorlardan foydalanish (ultrasonic, signal berish, oddiy robot mashina) yasashadi.

s) Masalan "Chiziq bo'ylab yuruvchi robot" Loyihasida o'quvchilar sensor yordamida yo'lni aniqlovchi dastur yaratadilar.

4. Dasturlashni chuqurlashtirish.

- a) Blok dasturlashdan real ko'ndashga o'tishni o'rganadi.
- b) Arduino, Raspberry Pi kabi mikrokontrollerlarda dastur yozishni o'rganish.

s) Arduinoda sevro motorni boshqarish uchun dastur tuzishni o'rganish.

5. Robototexnika musobaqalarida qatnashish.

"Robot sumo", "Line follower", "Robo futbol", "Drone control" kabi musobaqalarda ishtirok etishga tayyorgarlik ko'rish va qatnashish.

Robototexnika o'z ichiga nimalarni oladi:

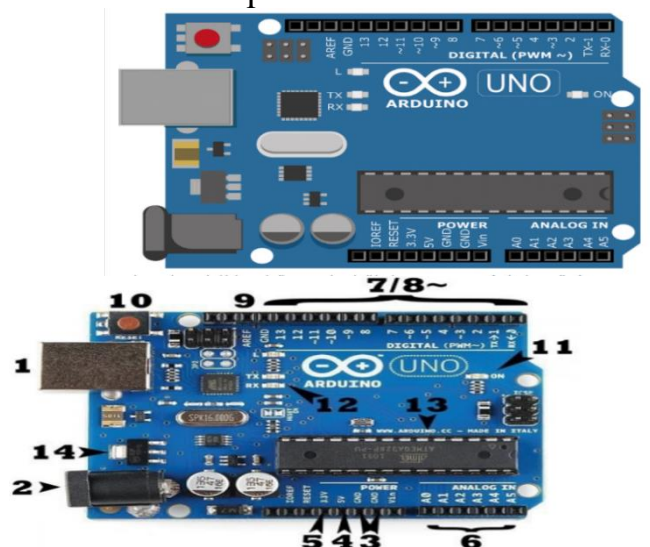
Mexanika-yasaladigan robotni tanasini tuzishdan iborat. U qanday ishlaydi, qanday aylanadi, qayerda yuradi, nechta qismdan iborat va x.k. Harakat yo'nalishini o'rganuvchi fan xisoblanadi.

Elektronika- Robotni miyasi mikrossxemasi ustida ishlanadigan fan xisoblanadi.

Dasturlash- Dasturlashda bir necha dasturdan foydalanadi. Paytun va boshqa dasturlardan foydalanadi. Robotlar ma'lum bir dasturlash tilida yozilgan

Robototexnikani o'rganishda matematika va fizika darslarida o'rganigan bilimlarni amaliyotda qo'llashga yordam beradi. Robotexnikaning o'rganishda biz asosan arduino qurilmasi bilan bevosita robotlarga dastur tizishda foydalanamiz. Chunki arduino arzon va o'rganish uchun qulay va uni qayta-qayta dasturlash mumkin. Arduino platasi o'zi nima? Arduino bugungi zamonaviy elektronika qurilmalarining vazifalari turlicha bo'lsa-da, ularning ishlash va tuzilish prinsiplari deyarli bir xil. Ulardan birini o'rganish orqali biz turli qurilmalarni ishlatish, o'quvchilarni mustaqil ishlash, mustaqil dasturlash, hatto o'zlari mustaqil ravishda ishlab chiqarishda jarayonida o'zlari tayyorlagan loyihalar asosida jamiyatga kerakli bo'lgan maxsulotlar yaqratishga imkon beradi.

Arduino- elektron loyihalarni yaratish uchun foydalaniladigan ochiq manbali platforma hisoblanadi. O'quvchilar Arduino dasturi bilan ishlashda eng avvalo kompyuterda Arduino dasturini o'rnatamiz masalan: Arduino 1,8 dasturini o'rnatamiz. Dastur yuklangandan so'ng unga kerakli bo'lgan dastur topshiriqlarini kiritamiz. Quyida Arduino qurilmasi rasmi keltirilgan va shu qurilma orqali robotlarni boshqarish dasturini kiritamiz.



Arduino asosan quyidagi qismlardan iborat.

1. Arduino UNO ga quvvat usb portini ulash imkonini beradi Undan foydalanib yozilgan dastur Arduino UNO ga ko'chirib yoziladi Uni kompyuterga ulovchi USB ni simsiz ham ishlatish mumkin

2. Maxsus batareyalar (9 voltli)

3. Manfiy qutb GND (ground zamin)

4. 5 voltli quvvatni ta'minlovchi pinlar

5. 3.3 voltli quvvatni ta'minlovchi pinlar
6. Anolog pinlar (AO,.....A5) yordamida qurilmadan analog signal qabul qiladi
7. Digital pinlaridan raqamli signallar qabul qiladi
8. Digital pinlardan raqamli signallar qabul qilinadi
9. Qo'shimcha vazifadagi oyoqlar .
10. “Resert” tugmachasi dasturni qayta ishga tushirish uchun foydalaniladi
11. Arduino sozligini ko'rsatuvchi chiroqchalar
12. Dastur yuklanishi va ishlashini ko'rsatuvchi chiroqchalar RX va TX oyoqchalardagi holat haqida ma'lumot berib turadi
13. Atmega 328 mikrokontroller kompyuterga yozilgan va Arduinoga yuklangan dastur joylashadigan qism robot miyasi
14. Voltage regulatori kuchlanishni me'yorlab berish uchun xizmat qiladi

Foydalanilgan adabiyotlar:

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GIS DASTURLARI ASOSIDA FAN VA ILMIY KADRLAR SOXALARIGA OID KARTALARNI TUZISH

Annotatsiya: *Fan va ilmiy kadrlar muammosi jamiyat taraqqiyotining muhim omillaridan biri bo'lib, uni hududiy tahlil asosida o'rganish va kartografik ifodalash bugungi kunda dolzarb ahamiyat kasb etadi. Ushbu tadqiqot ishida aynan ana shu masalaga e'tibor qaratilgan. Ishda O'zbekiston Respublikasi hududi misolida ilmiy salohiyat, ilmiy-tadqiqot muassasalari soni, ilmiy darajali mutaxassislar va ularning hududiy taqsimoti kartografik tahlil asosida o'rganilgan.*

Kalit so'zlar: *Gemeralizatsiya, grafika, GIS, kadr, legenda, platforma, texnika, web.*

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DEVELOPMENT OF MAPS RELATED TO SCIENCE AND ACADEMIC PERSONNEL FIELDS BASED ON GIS SOFTWARE

Abstract: *The problem of science and scientific personnel is one of the important factors of social development, and its study and cartographic display based on territorial analysis is of current importance today. This research work is devoted to this issue. In the work, based on cartographic analysis, the scientific*

potential, the number of research institutions, specialists with academic degrees and their territorial distribution are studied using the example of the territory of the Republic of Uzbekistan.

Keywords: *Generalization, graphics, GIS, frame, legend, platform, methodology, web.*

Kirish: Zamonaviy kartografiyada GIS (Geografik Axborot Tizimlari) texnologiyalari alohida o‘rin tutadi. Hozirgi kunda xaritalar shunchaki ma’lumot beruvchi vosita emas, balki chuqur tahlil uchun asosiy qurol sifatida qaratiladi. Ayniqsa, ilmiy kadrlar va oliy ta’lim ma’lumotlarini hududiy jihatdan tasvirlashda an’anaviy uslublar o‘rniga zamonaviy GIS yechimlaridan foydalanish tobora muhimlashmoqda. GIS texnologiyalari fan va ta’lim sohasidagi ma’lumotlarni yanada aniqroq ko‘rsatish, tizimlashtirish va keng ko‘lamli tahlil qilish imkoniyatlarini yaratadi. Bu tizimlar orqali xaritalarda tasvirlangan obyektlarga bog‘liq atributlar bilan samarali ishlash, ularni turli mezonlar bo‘yicha ajratish, ma’lum guruhlarga bo‘lish va vaqt o‘tishi bilan o‘zgarishlarini kuzatish mumkin bo‘ladi. Masalan, har bir ilmiy tashkilot bo‘yicha ilmiy darajali mutaxassislar soni, doktorantura bosqichidagi o‘quvchilar miqdori yoki ilmiy nashrlar faolligini ko‘rsatuvchi parametrlarni interaktiv xarita formatida aks ettirish mumkin. Bunday kartografik loyihalarni amalga oshirish uchun asosan ArcGIS, QGIS, MapInfo kabi dasturlar yoki Google Earth Engine, Leaflet singari veb asosidagi GIS platformalar qo‘llaniladi. Ushbu dasturiy ta’minotlar orasida eng mashhur va bepul bo‘lgani – QGIS hisoblanadi [**Error! Reference source not found.**].

Asosiy qism: Bundan tashqari, GIS texnologiyalari xaritalarni tahliliy vosita sifatida ishlatish imkonini ham beradi. Misol uchun, qaysi hududlarda oliy ta’lim muassasalari soni ko‘p yoki kamligi, qayerda ilmiy xodimlarning salohiyati yuqoriligi yoki resurslar taqsimoti qandayligi kabi masalalarni aniqlashda GIS asosiy rolni o‘ynaydi. GIS platformalarining yana bir afzalligi — foydalanuvchi uchun qulay interfeys va tezkor yangilanish imkoniyati. Bu esa xaritani doimiy takomillashtirib borish, yangi statistik ma’lumotlarni qo‘shish va ularni avtomatik ravishda yangilanishga yo‘naltirishga xizmat qiladi. Natijada, fan va ta’lim sohasidagi muhim tendensiyalarni doimiy kuzatish, tahlil qilish va xulosalar chiqarish imkoniyati yaratiladi [**Error! Reference source not found.**].



1- rasm. Geografik axborot tizimi.

Geografik axborot tizimi (GIS) turli ilmiy yo‘nalishlarni bir nuqtada birlashtirgan holda rivojlanayotgan zamonaviy axborot qayta ishlash mexanizmidir (1-rasm). Bu innovatsion tizim tabiat resurslarini samarali boshqarish,

aholishunoslik tendensiyalarini kuzatish, sog'liqni saqlash sohasidagi muammolarni hal etish, favqulodda vaziyatlarni boshqarish va shunga o'xshash mintaqaviy hamda makonga oid masalalarni yechishda ilmiy-amaliy poydevor vazifasini bajaradi. GIS texnologiyalaridan foydalanish murakkab jarayon bo'lib, maxsus dasturiy ta'minot va malakali mutaxassislar yordamida ma'lumotlarni yig'ish, ularni qayta ishlash, chuqur tahlil qilish va vizual tasvirlash bosqichlarini o'z ichiga oladi [**Error! Reference source not found.**]. Bu tizimning asosini tashkil etuvchi makonga oid ma'lumotlarni tahlil qilish, ularning xarakteristik ko'rsatkichlarini (o'ziga xos belgilarini) to'plash va GIS ma'lumotlar bazasining qatlamlarini shakllantirish jarayoni katta hajmdagi vaqt, resurslar va mehnat sarfini talab etadi. GIS texnologiyalari kundalik hayotda qo'llaniladigan kartografiya bilan cheklanib qolmasdan, balki murakkab makonga oid analitikadan foydalangan holda fan, ta'lim va amaliyotning ko'plab sohalarida yangi imkoniyatlar yaratadi. Ayniqsa, zamonaviy axborot texnologiyalarining rivojlanishi bilan GIS tizimlari ham takomillashib, keng ko'lamli makonga oid ma'lumotlarni qayta ishlash orqali strategik qarorlar qabul qilish jarayonini sezilarli darajada optimallashtirish imkonini beradi [1].

Fazoviy ma'lumotlarni tasvirlash va tahlil qilish GIS ma'lumotlari bazasi qatlamlarining bir va undan ko'p bo'lgan operatsiyalarni, o'lchashlarni va ma'lumotlar so'rovini o'z ichiga oladi. Ushbu tizim asosida geografik voqea va hodisalarni tahlil qilish orqali turli bog'lanuvchi grafiklar tuzish imkoniyati yaratiladi. Geografik axborot tizimlari ko'plab tarmoqlarni hududiy tashkil etish rejalarini ishlab chiqishda o'z samarasini ko'rsatmoqda va bu, o'z navbatida, boshqaruv tashkilotlari uchun muhim bo'lgan muammolar echimini o'z vaqtida aniqlashga katta yordam beradi.

Kartografiya va GIS so'ngi yillarda bir-biri bilan chambarchas bog'lanib borayotgan bilimlar sohalaridir. Bugungi kunda kartograflar GIS bilan shug'ullanib, kartografik modellar yaratmoqdalar [**Error! Reference source not found.**].

Fan va maorif kartalarni loyihalash va tuzishda GISda bajariladigan ishlar bosqichlarini quyidagicha ta'riflash mumkin: dastlabki ma'lumotlarni to'plash, EHM xotirasiga ma'lumotlarni kiritish va "tashqi" vositalarda saqlash, ma'lumotlarni qayta ishlash, shartli belgilar tanlash va ularni yaratish, belgilar bankini hosil qilish, ularning tizimini va mavzuli kartalar qatlamlarini hosil qilish va ularni joylashtirish, tuzilgan kartalarda muharrirlik ishlarini olib borish.

GIS-bu hududiy va vaqt o'tishi mobaynida o'zgarib boruvchi ma'lumotlarni to'plash, qayta ishlash, uzatish va saqlashdan iborat bo'lib, bir necha komponentlar orasidagi o'zaro hududiy bog'liqliklarni yoki tafovutlarni tahlil qilish va tasvirlashni ta'minlaydigan apparat-dasturli avtomatlashgan majmuadir.

Mamlakatimizga juda tezlik bilan kirib kelayotgan GIS texnologiyalari dasturlaridan samarali foydalanish, hududiy va boshqarishga taalluqli ma'lumotlarni to'plash, ularni tezlik bilan qayta ishlash, samarali tahlil qilish imkoniyatini yaratadi [**Error! Reference source not found.**].

GISda bajaradigan omillar har bir hudud uchun alohida ahamiyatga ega bo'lgan yagona jarayonni amalga oshiradi. U ma'lum bir loyiha uchun voqea va

hodisaning talablarga muvofiq ravishda hosil qilingan fazoviy modelidir. GIS da boshqariladigan jarayonlar shu sababli ham loyiha uchun yagonadir. Binobarin, geografik axborot tizimi kompyuter ko‘magi asosida bajariladigan, to‘planiladigan, tahlil qilinadigan va fazoviy ma’lumotlar hamda ularning atributlarini tasvirlaydigan jarayon deb tushuniladi. Bu tushunchaning asl ma’nosi-GISning texnik qobiliyati bo‘lgan ma’lumotlar tahlilidir. tahlil qilish bu–kompyuter yordami bilan kartalashtirish va ma’lumotlar bazasini boshqarishda GIS taqsimoti bo‘lgan geografik joylashuvga asoslanadi. GIS juda muhim bo‘lgan funksiyalar to‘plamidir, chunki u manipulyasiya qilish va geografik ma’lumotlarni ta’svirlashning yangi yo‘llarini ochib beradi, shuningdek, an’anaviy tarzda olib boriladigan fazoviy ma’lumotlar tahlili samaradorligini keskin oshiradi [Error! Reference source not found.].



2- rasm. Geografik axborot tizimi.

Taraqqiyotning jadal o‘sishi bilan GIS geografiya, geodeziya, kartografiya, kompyuter hisoblash tizimlari, matematika, statistika va ko‘plab fanlarga oid bilimlarni o‘zida birlashtiradi. So‘ngi paytlarda mikrokompyuterlar quvvatining oshishi va GIS dasturlaridan foydalanish imkoniyatining oshishi natijasida ulardan foydalanuvchilar soni ham oshib bormoqda (3-rasm).

Bunday ma’lumotlar quyidagi xususiyatlarga ega: geografik joylashuviga, yuridik adresiga, hududiy birligiga, to‘liqligiga, uzluksizligiga, ko‘rinishiga, aniqligiga va h.k.

1. Geografik joylashuvi – obyektlarning geodezik, geografik va boshqa koordinatalari;

2. Ijtimoiy-iqtisodiy ma’lumotlar;

3. Uzluksizligi bo‘yicha–ma’lumotlar banki hosil qilinishi va u uzluksiz yangilanib turilishi;

4. Aniqligi bo‘yicha–hozirgi vaziyatga, holatiga to‘g‘ri kelishining real holatini ta’minlashi;

5. Ko‘rgazmaliligi to‘liq, yaqqol, sodda namoyon etishi; Fan va maorifga tizimiga oid ma’lumotlar asosida mavzuli kartalar tuzilib, ular kartografik qonuniyatlarga tayangan holda doimo yangilanib borish [Error! Reference source not found.].

Ma'lumotlar bazasini tashkil etishda zarur manbalar kompyuter xotirasiga kiritiladi. Fan va maorifga tizimiga oid ma'lumotlarni boshqarish, kerakli tashkilotlar va shaxslarga ularni etkazish ishlari ham muhim o'rin tutadi. Bunday vaqtda GISda olib boriladigan boshqarish ishlari jarayonini hosil qilinadi. Bu texnologiyani tashkil qilish uchun GIS dasturlar tanlanishi, kompyuter va monitorlar uchun talablar ishlab chiqilishi zarur. Kartalarini tayyorlash ishlarida mavzuli va majmualari kartalarini tuzishda zamonaviy geografik axborot tizimidan (GIS) foydalanish talab etiladi.

Fan va ilmiy kadrlar xaritalarini matematik va geografik asosi

Xaritaning dasturini ishlab chiqishda iqtisodiy-ijtimoiy xaritalashtirishning o'ziga xos xususiyatlaridan kelib chiqqan holda ish yuritiladi. Maqsadi bo'yicha tuzilayotgan har bir ijtimoiy-iqtisodiy xarita ma'lum halq xo'jaligi vazifasini yechishga mo'ljallanadi. Mazmuni bo'yicha esa xaritalar ilmiy-ma'lumotnomali, o'quv ishlariga mo'ljallangan, ommabop va boshqalar bo'lishi mumkin.

Xarita dasturini ishlab chiqishda dastlabki ma'lumotlarning (ro'yxatli-statistik) hududiyligi hisobga olinadi [**Error! Reference source not found.**]. Bu esa xaritaning dasturini ishlab chiqishda va tuzishda ma'lumotlar bilan to'liq ta'minlangan hududiy bosqichni, ya'ni qaysi bosqichda (rayonda yoki viloyat miqyosida) xaritalashtirish ishlari olib borilishi mumkinligini belgilaydi. Shunga qarab, xaritalashtirish ishlari olib boriladigan hududiy birlik, ma'lumotlarning detallashtirish darajasi, hajmi va ularni hududga bog'lash ishlari, ma'lumotlarni qayta ishlash, to'plashga ketadigan harajatlar miqdori aniqlashtirilishi mumkin. Xarita dasturi quyidagi bo'limlarni o'z ichiga oladi:

1. Xaritaning maqsadi;
2. Matematik asosi;
3. Xarita mazmuni;
4. Xarita mazmunini ko'rsatishda ishlatiladigan kartografik tasvirlash usuli va xaritani jihozlash;
5. Generalizatsiya va generalizatsiya qilish tamoyillari;
6. Xaritani tuzishda ishlatiladigan manbalar. Ularning ishlatish yo'llari, kompyuter grafikasidan foydalanish;
7. Xaritasi tuzilayotgan hududning geografik tavsifi;
8. Xarita tayyorlash texnologiyasi; [**Error! Reference source not found.**].

Xarita dasturini tuzish uchun qo'yidagilar kerak bo'ladi: xarita nomi, masshtabi, hududi va kimlar uchun mo'ljallanganligiga e'tibor qaratiladi. O'rta maxsus, kasb-hunar ta'lim muassasalari xaritalari maorif, ta'lim tizimi hodimlari qolaversa keng foydalanuvchilar uchun mo'ljallangan. Bu xarita ilmiy ma'lumotnomali xarita hisoblanib, ijtimoiy-iqtisodiy geografiya o'quv darsligining ma'lum mavzularida qo'llanishi mumkin. Xaritaga quyidagi talablar qo'yiladi.

- xaritada aniq va yaqqol holat ko'rsatilishi kerak va hududlar bo'yicha ta'lim tizimining taqsimlanganligi ko'rsatilish kerak;
- xarita nashrga chiqarilayotgani uchun proektsiyasi va komponovkasi ko'rsatilishi shart.

Xarita mazmunini ishlab chiqishda xaritaga olishning umumiy qonun qoidalari talablariga amal qilgan holda tartibga solinib, sifat va miqdor ko'rsatkichlarini ifodalovchi kartografik tasvirlash usullari tanlandi [**Error! Reference source not found.**]. Xaritaning asosiy mazmuni mavjud statistik ma'lumotlarning aniq, ko'rgazmali va samarali ko'rsatilishida deb hisoblanadi.

O'zbekiston Respublikasi xaritalarining umumiy geografik asosi sifatida, aholi yashaydigan joylar, chegaralar, aloqa yo'llari, sotsial-iqtisodiy obyektlar va boshqalar olingan [**Error! Reference source not found.**].

Ta'lim tizimi muassasalari holatiga tavsif berish va uni ifodalash uchun kartografik tasvirlash usullarini tanlash, shu sohaning o'rganilganlik darajasiga va ma'lumotlarning bor-yo'qligiga bog'liq bo'ladi. Masalan ta'lim maskanlarining soni, unda faoliyat olib borayotgan o'qituvchi va o'quvchilarning miqdor ko'rsatkichlari, ta'lim muassasalarining iqtisodligi bo'yicha tasvirlanishi, umumiy aholi soniga nisbatdan ta'limda band bo'lgan aholi sonini ko'rsatilish usuli va jihozlanishiga bog'liq [**Error! Reference source not found.**].

Kartografik tasvirlash usullarini tanlashda xaritada tasvirlanayotgan obyektlarning barcha hususiyatlari e'tiborga olinishi kerak. Bu ishda xaritaning maqsadi ham muhim o'rin tutadi. O'rta maxsus, kasb-hunar ta'lim muassasalari xaritasida aholi soniga nisbatdan ta'limda band bo'lgan aholi soni nisbatini ko'rsatish maqsadida va aniq tasvir hosil qilish uchun, kartogramma usuli to'rt bosqichdagi ranglar bilan tasvirlanadi [**Error! Reference source not found.**].

Xaritaning tasvirlanish usuli va jihozlanishini ishlab chiqish, xaritani badiiy loyihalash yoki xarita dizayini deb nomlanadi. Qabul qilingan ranglar va ularni och-to'qligi, shriftlar va ularning o'lchamlari va boshqalar xaritaning jihozlanishini ko'rsatadi. Xaritani jihozlashda kompyuter grafikasini qo'llash, uninig estetik va ilmiy sifatini yanada oshiradi. Generalizatsiya bo'yicha ko'rsatmalar xaritani ishlatish usuli va maqsadiga qarab beriladi. Generalizatsiya hududning geografik jihatlar bilan uzviy bog'liq. Dasturda asosiy e'tibor manbalarini baholash va ularning ishlatish bo'yicha ko'rsatmalarga qaratiladi. Masalan, generalizatsiya normalarini aniqlashda foydalanilayotgan xaritaning katta auditoriyada ishlatilishini hisobga olinib, u uzoq masofadan auditoriya oxiridan o'qilishi nazarda tutiladi [**Error! Reference source not found.**].

O'zbekiston Respublikasi fan va ilmiy kadrlar xaritasi ijtimoiy sohaga oid bo'lganligi uchun eng yangi ma'lumotlar ishga jalb qilinadi. Xaritadagi statistik ma'lumotlar Toshkent shahar statistika boshqarmasidan olingan 2015-2016 o'quv yillarga tegishli ma'lumotlardir. Ijtimoiy sohadagi xaritalarda matematik talablar uch tomonlama namoyon bo'ladi: kartografik proeksiyani tanlashda, masshtabni aniqlashda va xarita komponovkasini ishlab chiqishda. Ijtimoiy-iqtisodiy xaritalarga proeksiya tanlashda teng maydonli kartografik proeksiyalarga ko'proq tayaniladi, chunki bu proeksiyalarda maydon o'zgarmas holda tasvirlanadi. Bu esa hududiy tarqalgan, aholi yashaydigan joylar, transport tarmoqlar izchiligi va boshqa iqtisodiy tarmoqlar ko'satkichlarini xaritada mukammal tasvirlab beradi.

Xaritaning masshtabini tanlashda qo'yiladagilar e'tiborga olinadi:

- hududiy jihatdan ijtimoiy-iqtisodiy territorial tizimlar va ularning geografik bog'liqligini qamrab olishlik;
- voqea va hodisalar uchun qabul qilingan geografik detallashtirish darajasini ifodalashlik;
- xaritalashtirilayotgan hududning ijtimoiy-iqtisodiy hodisalar xususiyatlari bilan to'liqligini, ularning ichki tuzilishini va turli-tuman ko'rsatkichlarni to'liq tasvirlay olishlik.

Xaritaning masshtabini tanlashga uning maqsad ham ta'sir ko'rsatadi. U turli ko'rsatkichlarni to'liq tasvirlay olishligiga e'tibor qaratilgan. Ma'lumotnomali xaritalarning mazmuni juda keng, aniqligi ancha yuqori bo'lganligi uchun ularni tuzishga ko'p vaqt ketadi[Error! Reference source not found.].

Fan va ilmiy kadrlar xaritasining kompozitsiyasi hususida oladigan bo'lsak ramka ichida xaritadan tashqari xarita legendasi, xarita mavzusiga oid bir necha diagrammalar va jadval berilgan. Xaritaning kompozitsiyasini ishlab chiqishda geografik asosning asosiy elementlari ya'ni daryolar, aloqa yo'llari, muhim aholi punktlari, chegaralar saqlab qolingan[2].

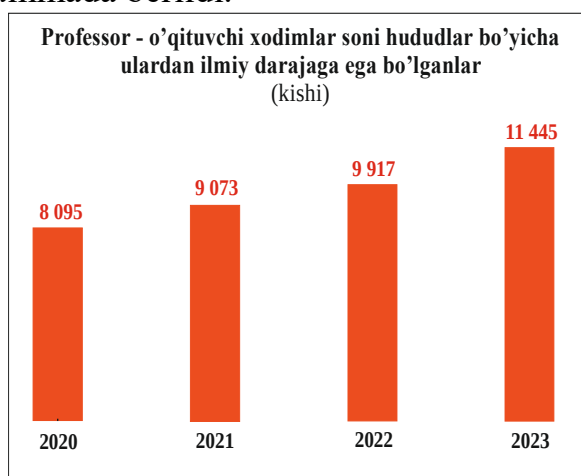
Xaritada berilgan raqamli ma'lumotlar ularga kartografik tavsif berib o'tamiz. Xaritamiz:

1- Fan va ilmiy kadrlar;

2- Katta ilmiy hodim-izlanuvchilar institutlari faoliyatining asosiy ko'rsatkichlari;

O'zbekiston respublikasi Fan va ilmiy kadrlar foydalanish uchun mo'ljallangan xarita. Uning masshtabi 1:5 500 000 dan iborat. Xaritada (planda) kartografik to'r mavjud emas. Xarita katta o'lchamda yaratilganligi sababli undan foydalanishda devorga ilib xolda o'rganiladi va xaritaga tavsif beriladi.

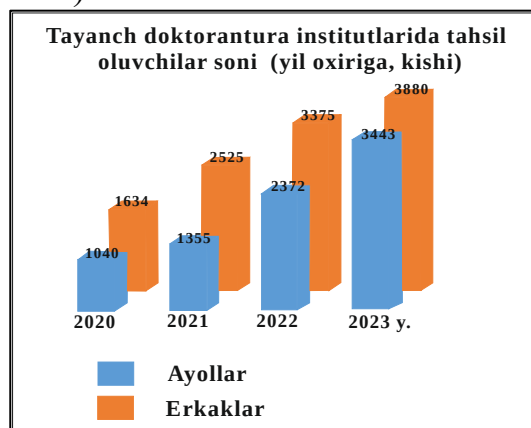
Xaritani yaratishda kartografik tasvirlash usullaridan raqamli belgilar usuli va kartodiagramma usullaridan foydalanildi. Xaritaning shimoli-g'arbiy burchagida ilmiy tadqiqotlar tajriba ishlanmalarini bajargan mutaxassislar soni foiz hisobida, tumanlar bo'yicha diagrammada berildi.



3-rasm. Professsor – o'qituvchi xodimlar soni hududlar bo'yicha ulardan ilmiy darajaga ega bo'lganlar.

Diagrammada 2020–2023 yillar davomida hududlar bo'yicha ilmiy darajaga ega bo'lgan professor-o'qituvchi xodimlar sonining o'sish dinamikasi aks ettirilgan.

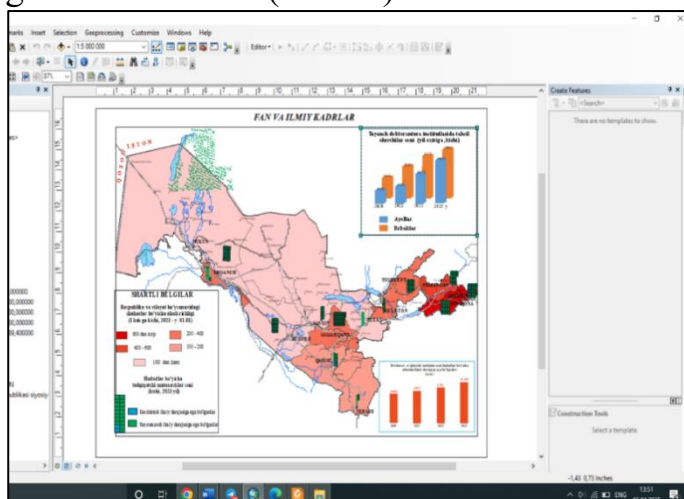
2020 yilda ushbu ko'rsatkich 8 095 kishini tashkil etgan bo'lsa, 2021 yilda bu raqam 978 kishiga ko'payib, 9 073 kishiga yetgan. 2022 yilda yana 844 kishiga ortib, 9 917 nafarni tashkil qilgan. 2023 yilga kelib esa ilmiy darajaga ega bo'lgan professor-o'qituvchilarning soni 11 445 kishiga yetgan, ya'ni 2022 yilga nisbatan 1 528 kishiga ko'paygan (3-rasm).



4 - rasm. Tayanch doktorantura institutlarida tahsil oluvchilar soni.

Mazkur ko'rsatkichlardan ko'rinib turibdiki, yildan-yilga ilmiy salohiyatli kadrlar soni ortib bormoqda. Ushbu oliy ta'lim tizimida ilmiy izlanishlar va professor-o'qituvchilarning ilmiy daraja olishga bo'lgan intilishi kuchayib borayotganidan dalolat beradi. Shuningdek, ilmiy salohiyatning oshishi ta'lim sifatining yuksalishiga xizmat qilishi kutilmoqda [Error! Reference source not found.,].

Diagrammada 2020–2023 yillar davomida tayanch doktorantura institutlarida tahsil olayotgan ayollar va erkaklar sonining o'sishi aks ettirilgan. 2020 yilda ayollar soni 1 040, erkaklar esa 1 634 nafarni tashkil qilgan bo'lsa, 2023 yilda bu ko'rsatkich mos ravishda 3 443 va 3 880 nafarga yetgan. Bu esa ilmiy tadqiqotlarga qiziqish ortib borayotganini ko'rsatadi (4-rasm).



5-rasm. Arcmap dasturida xarita kompnovkasi.

Fan va ilmiy kadrlarni ko'rsatuvchi xaritaning tashkil etilishini tahlil qiladigan bo'lsak, uning asosiy ramkasi ichida nafaqat xaritaning o'zi, balki qo'shimcha muhim elementlar ham joylashtirilgan. Bunday elementlarga xarita belgiarining izohi (legenda), mavzu bilan bog'liq bir nechta ko'rgazmali

diagrammalar hamda ma'lumotlarni tizimli aks ettiruvchi jadval kiradi [**Error! Reference source not found.**,15,14]. Xaritaning umumiy joylashuvini ishlab chiqish jarayonida geografik asosning eng muhim tarkibiy qismlari saqlab qoling. Bu elementlarga suv havzalari (daryolar), transport kommunikatsiyalari, strategik ahamiyatga ega aholi manzigoqlari va ma'muriy chegaralar kiradi. Bu yondashuv xarita ko'ruvchiga asosiy geografik orientirlarni yo'qotmasdan, ilmiy kadrlar va fan sohasiga oid ma'lumotlarni kontekstda to'g'ri tushunish imkonini beradi. Shuningdek, diagrammalar va jadvallar orqali qo'shimcha ma'lumotlar berilib, xaritada aks ettirilgan vaziyatni yanada chuqurroq anglash uchun qo'shimcha vositalar taqdim etiladi. Bunday mukammal komponent fan va ilmiy kadrlar bilan bog'liq hududiy taqsimotni nafaqat ko'rgazmali taqdim etish, balki ularning mavjud hududiy xususiyatlar bilan o'zaro bog'liqligini ham tahlil qilish imkonini beradi (5-rasm).

Xulosa. Ushbu mavzudagi bitiruv malakaviy ishi (BMI) bugungi kunda O'zbekiston hududida joylashgan ilmiy-ta'lim muassasalarining viloyatlar va tumanlar kesimidagi joylashuvini hamda ular haqidagi turli statistik ma'lumotlarni kartografik usullar yordamida tasvirlagan. Ishlab chiqilgan xarita nafaqat ilmiy kadrlar taqsimotini, balki ta'lim tizimining barcha pog'onalarini ham aks ettirgan holda, mamlakat ta'lim tizimining to'liq manzarasini ko'rsatib beradi. Bu esa tegishli soha mutaxassislariga mintaqaviy rivojlanish jarayonlarini baholash va kelajakdagi strategiyani belgilashda muhim manba bo'lib xizmat qiladi. [**Error! Reference source not found.**] "Fan va ilmiy kadrlar mavzusidagi xaritalarni loyihalash va tuzish" yo'nalishidagi ilmiy izlanish natijasida quyidagi xulosalarga kelindi. Avvalo, ta'lim tizimiga oid xaritalarning asosiy maqsad va vazifalari aniqlab olindi. Shu asosda, O'zbekiston Respublikasining ikkita muhim mavzudagi 1:5 500 000 masshtabli xaritasi yaratildi:

1. Fan va ilmiy kadrlar;
2. Katta ilmiy hodim-izlanuvchilar institutlari faoliyatining asosiy ko'rsatkichlari.

Tadqiqot jarayonida ta'lim muassasalariga bog'liq mavjud kartografik materiallar, xususan "O'zbekiston geografik atlas" hamda 8-sinf o'quvchilari uchun tayyorlangan ijtimoiy-iqtisodiy geografiya atlasidagi maorif sohasiga oid xaritalar chuqur o'rganildi. Ushbu atlaslarda mavzuga oid materialni yetkazishda raqamli belgilar va kartodiagramma usullaridan foydalanish orqali ko'rgazmalilik yuqori darajada ta'minlangani aniqlandi. O'rganilgan atlaslar va xaritalarda O'zbekistondagi o'rta maxsus, kasb-hunar ta'limi muassasalari haqidagi umumiy ko'rsatkichlar tasvirlangan. Mavjud xaritalarni tahlil qilish va olingan natijalarni umumlashtirish asosida yangi «Fan va ilmiy kadrlar» xaritasi ishlab chiqildi, unda avvalgi xaritalarda uchramagan ma'lumotlar va yangicha tasvirlash usullari qo'llanildi.

Xaritalarda ta'lim muassasalari o'ziga xos belgilar bilan tasvirlandi. Maorif sohasi hodimlari uchun mo'ljallangan xaritalarning aniq statistik ma'lumotlar asosida tuzilganligi, hozirgi ta'lim tizimining mutloq aniqlikdagi holatini ko'rish imkoniyatini bergan. Ma'lumotlarning hudud bo'yicha alohida tasvirlanganligi,

uning geografik jihatdan aniq joylashuvini ko'rsatadi. Xaritadagi fan va ilmiy kadrlar soni, xaritalarda 2020-2023 o'quv yillariga tegishli bo'lgan Toshkent shahar statistika boshqarmasining to'plamlaridan olingan ma'lumotlardan foydalanildi.

Katta ilmiy hodim-izlanuvchilar institutlari faoliyatining asosiy ko'rsatkichlari xaritalarini tuzishda, ta'lim tizimi xaqidagi ma'lumotlarini tahlil qilishda hamda xaritalarni tuzishda GIS dasturidan foydalanildi.

Tuzilgan xaritalar devoriy xarita hisoblanib, xududlar bo'yicha o'zgarayotgan ma'lumotlarni ko'rgazmali tarzda ko'rsatib beradi va kelajakda ta'lim sohasida yangi loyihalar tuzishdagi ishlarda, maorif tizimini rivojlantirishda qolaversa e'tibor qaratilishi kerak bo'lgan mavjud kamchiliklarni bartaraf etishda xizmat qiladi.

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CHET TILINI O'QITISHDA GAMIFIKATSIYANING O'RNI

Annotatsiya: *Ushbu maqolada chet tili ta'limida gamifikatsiya usullarining pedagogik samaradorligi, motivatsiyani oshirishdagi roli, metodlar va amaliy misollar tahlil qilinadi. Maqola gamifikatsiyani o'qitish jarayoniga integratsiyalash usullari, platformalar (masalan, Kahoot!, Quizlet, Duolingo) hamda bu yondashuv orqali o'quvchilarni faol ishtirokchiga aylantirish usullari tahlil qilingan. Shuningdek, chet tilini o'rgatishda o'rganuvchilarning til ko'nikmalarini (tinglash, o'qish, yozish, gapirish) qamrab olishni ko'rib chiqadi.*

Kalit so'zlar: *gamifikatsiya, chet tili ta'limi, motivatsiya, interaktiv metodlar, til ko'nikmalari*

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THE ROLE OF GAMIFICATION IN FOREIGN LANGUAGE TEACHING

Abstract. *This article analyzes the pedagogical effectiveness of gamification in foreign language teaching, its role in enhancing motivation, methods, and practical examples. It examines ways to integrate gamification into the teaching process, platforms (e.g., Kahoot!, Quizlet, Duolingo), and how to turn learners into active participants. It also covers the development of language skills (listening, reading, writing, speaking) in the context of foreign language education.*

Keywords: *gamification, foreign language teaching, motivation, interactive methods, language skills*

Chet tili o'qitishda rivojlanayotgan pedagogik yondashuvlardan biri — gamifikatsiya (ingl. *gamification*) bo'lib, o'qitish jarayonlarini o'yin elementlari bilan boyitish orqali o'quvchilarni motivatsiya qilish va faol ishtirokni ta'minlashga qaratilgan. Bugungi kunda bu yondashuv pedagoglar va tadqiqotchilar e'tiborini jalb qilgan va uning samaradorligi turli kontekstlarda sinovdan o'tkazilmoqda [1].

Ta'lim jarayonining o'yin asosida olib borilishi o'quvchilarning ongida maqsadlilik, raqobatbardoshlik, ishtiyoq va qoniqish hissini uyg'otadi. Bu holat ularni mavzularni chuqurroq anglashga, qo'shimcha resurslardan foydalanishga, xatolardan saboq olishga va yangidan-yangi yondashuvlarni sinab ko'rishga undaydi.

Gamifikatsiya o'z ichiga ball to'plash tizimi, reytinglar, belgilar (badges), topshiriqlarni bajarish orqali darajalarni oshirish, reglament asosida vazifalar va

rag'batlantirishni o'z ichiga oladi. Bu elementlar orqali o'quvchilar ta'limiy faoliyatni raqobat muhiti sifatida qabul qiladi. Bu esa o'z navbatida dars jarayoniga qiziqish, faollik va o'zlashtirish ko'rsatkichlarini oshiradi [2]. Gamifikatsiya o'z ichiga o'yin texnologiyalariga xos bo'lgan bir qancha asosiy elementlarni oladi. Jumladan, bu tizimda ball to'plash mexanizmi, reyting jadvali, belgilar (badges), bosqichma-bosqich darajalarni oshirish, vaqt bilan chegaralangan topshiriqlar va rag'batlantirish bosqichi muhim o'rin tutadi. Ushbu elementlarning har biri o'ziga xos tarzda o'quvchilarning rag'batini oshirish, darsga jalb qilish va motivatsiyasini kuchaytirishga xizmat qiladi. Ball to'plash tizimi — bu o'quvchining bajargan har bir vazifasi, test natijasi yoki faol ishtiroki uchun beriladigan sonli ko'rsatkichdir. Bu ballar yig'ilib, o'quvchining ta'limiy faolligini ko'rsatadi. Masalan, har bir to'g'ri javob uchun 10 ball berilishi mumkin. Bu ballarni yig'ib, o'quvchi o'z yutuqlarini aniq ko'rib boradi. Ushbu jarayon o'z-o'zini baholash va rivojlantirishga xizmat qiladi.

Reytinglar — guruhdagi barcha o'quvchilarning umumiy natijalari asosida tuziladi. Bu element o'quvchilar orasida sog'lom raqobat muhitini shakllantiradi. Reyting jadvalidagi yuqori pog'onada bo'lishga intilish, o'quvchini muntazam ravishda faollik ko'rsatishga undaydi. Bu jarayonni doimiy tarzda yangilab borish esa ularni rag'batlantirib turadi. Sog'lom raqobat o'z navbatida bilim olishga bo'lgan ehtiyojni kuchaytiradi, chunki har bir o'quvchi o'z pozitsiyasini saqlab qolishga yoki yaxshilashga harakat qiladi. Belgilar (badges) — bu o'quvchining muayyan yutuqlarini ifodalovchi vizual mukofotlardir. Masalan, “5 ta topshiriqni ketma-ket bajarish”, “100% to'g'ri test natijasi” yoki “Haftalik eng faol o'quvchi” kabi yutuqlar uchun belgilar beriladi. Bu belgilar orqali o'quvchi o'z muvaffaqiyatlarini nafaqat ichki, balki tashqi darajada ham ko'ra oladi. Bu o'z-o'zini tan olish hissini kuchaytiradi. Darajalarni oshirish — bu o'quvchining o'zlashtirish darajasiga qarab, yangi bosqichlarga o'tishidir. Masalan, boshlang'ich (beginner), o'rta (intermediate), ilg'or (advanced) kabi darajalar mavjud bo'lib, o'quvchi topshiriqlarni bajargan sayin yangi darajaga ko'tariladi. Bu jarayon muvaffaqiyatlarni namoyon etadi va o'quvchida rivojlanish hissini kuchaytiradi.

Gamifikatsiya chet tili ta'limining to'rt asosiy ko'nikmasini ham rivojlantirishga yordam beradi. Tinglab tushunish, o'qish, yozish va gapirish bo'yicha alohida afzalliklarga ega. Masalan, **Quizlet** yoki **Wordwall** platformalarida o'quvchilar flesh-kartalar orqali so'z yodlaydi, interaktiv testlar yordamida o'z bilimlarini mustahkamlaydi. Duolingo orqali esa gapirish va eshitish ko'nikmalari o'yin shaklida rivojlantiriladi [3].

Gamifikatsiya o'qituvchilar uchun ham yangi imkoniyatlar yaratadi. Darsni rejalashtirishda kreativ yondashuvni talab qiladi. Masalan, o'qituvchi quiz yaratadi, viktorina tashkil etadi yoki vazifalarni bosqichma-bosqich gamifikatsiyalash orqali o'quvchilarga qiziqarli ta'limiy muhitni yaratadi. Shu bilan birga, o'quvchilarning faol ishtiroki kuzatilib, ballar asosida baholash amalga oshiriladi [4].

Raqamli vositalar — Kahoot!, Quizizz, Duolingo, Classcraft, Wordwall, Socrative va shunga o'xshash platformalar chet tilini o'rganishda samarali vosita

bo'lib xizmat qilmoqda. Bu ilovalar yordamida o'quvchi o'zi uchun qulay vaqt va jarayonda mustaqil shug'ullanishi mumkin. Ayniqsa, masofaviy ta'limda bu platformalar o'quv motivatsiyasini yuqori darajada saqlab qolishga xizmat qiladi [5].

Zamonaviy ta'lim tizimida gamifikatsiya texnologiyasi chet tilini o'rgatish jarayonida tobora ommalashib bormoqda. Ushbu yondashuv o'zining samaradorligi, interaktivligi va o'quvchilarga ijobiy ta'siri bilan ajralib turadi. Biroq, har qanday innovatsion metod singari, gamifikatsiyaning ham afzalliklari bilan birga, ayrim cheklovlari va kamchiliklari mavjud. Quyida ushbu ikki jihat har tomonlama ko'rib chiqiladi.

Afzalliklardan yana biri- gamifikatsiya orqali real vaqt rejimida fikr-mulohaza olish (feedback). Har bir o'quvchi o'z natijalarini darhol ko'radi, xatolarini anglaydi va shu zahoti to'g'rilash imkoniyatiga ega bo'ladi. Bu reflektiv o'rganish tamoyiliga to'liq mos keladi va o'quvchi o'z bilimini nazorat qilishga o'rganadi. Shuningdek, gamifikatsiya raqamli texnologiyalarga asoslangan ta'limda o'z o'rniga ega. Onlayn ta'limda o'quvchilar ko'pincha ishtiroksiz qoladi yoki darsga bo'lgan e'tibori pasayadi. Gamifikatsion elementlar esa o'quvchini masofadan turib ham faol tutadi, ularni darsga jalb qiladi va muntazam mashg'ulot olib borishga undaydi [6].

Shunga qaramay, gamifikatsiyani to'g'ri rejalashtirmaslik va noto'g'ri pedagogik yondashuv ham muammo kelib chiqishiga sabab bo'ladi. O'yin elementlarini maqsadsiz yoki mavzuga aloqasiz qo'llash darsni chalkashtirib yuboradi. Bu holat o'qituvchining metodik savodxonligi, darsni rejalashtirish ko'nikmasi va texnologik kompetensiyasiga bevosita bog'liq. Shu sababli, gamifikatsiyani qo'llashda muvozanat saqlanishi lozim. Ya'ni o'yin vositasi emas, balki o'quv maqsadi yetakchi rol o'ynashi kerak [7]. O'yin elementlari- o'rgatishning yo'li, lekin mazmun va kompetensiya-o'rgatishning maqsadidir. Har bir gamifikatsiyalangan topshiriq o'quvchi qanday bilim va ko'nikmani egallashi kerakligini aniq ko'rsatishi lozim.

Xulosa qilib aytganda, gamifikatsiya chet tili ta'limi jarayonini jonlantiradi, interaktiv va qiziqarli ta'limiy muhitni shakllantiradi. O'quvchilarning darsga bo'lgan munosabatini ijobiy tomonga o'zgartiradi, ular o'z bilim va ko'nikmalarini mustaqil shakllantirishga undaydi. Shuningdek, gamifikatsiya o'quvchilar o'rtasida sog'lom raqobatni rivojlantiradi, hamkorlikda ishlash ko'nikmalarini oshiradi va darsdan tashqari ham chet tilini o'rganishga bo'lgan intilishni kuchaytiradi. Umuman olganda, gamifikatsiya-bu zamonaviy ta'limning ajralmas qismi bo'lib bormoqda. U faqat darsni o'yin shaklida o'tkazish emas, balki chuqur didaktik, metodik va texnologik yondashuvni talab etuvchi pedagogik strategiyadir. Chetdan til o'rganish jarayonida gamifikatsiyadan oqilona foydalanish o'qitish jarayonining sifati, o'quvchilar motivatsiyasi va bilim olish samaradorligini keskin oshiradi.

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TALABALAR BILIMINI BAHOLASHNING TA’LIM SIFATI VA PEDAGOGIK JARAYONGA TA’SIRI

Annotatsiya: Mazkur maqolada talabalar bilimini baholashning ta’lim jarayonidagi o‘rni, o‘qituvchi faoliyatiga, talaba motivatsiyasi va o‘quv kontenti shakllanishiga ta’siri keng yoritilgan. Muallif zamonaviy baholash tizimining kompetensiyaviy yondashuv asosida tashkil etilishi zarurligini asoslab beradi. Maqolada test va nostandart topshiriqlarning ijodiy fikrlash, kasbiy tayyorgarlik va o‘zlashtirish darajasini oshirishdagi ahamiyati ko‘rsatib berilgan. Shuningdek, baholash jarayonining o‘quv jarayonini takomillashtirish, ta’lim sifatini oshirish va o‘qituvchining metodikasini rivojlantirishdagi roli tahlil qilinadi. Bunda B.Blum taksonomiyasi asosida topshiriqlar murakkablik darajasi bo‘yicha guruhlanib, baholash samaradorligini ta’minlashga urg‘u berilgan. Maqola talimdagi baholash tizimini chuqur tahlil etish, zamonaviy yondashuvlar asosida takomillashtirish zaruratini ilmiy asosda yoritib beradi.

Kalit so‘zlar: Talabalar bilimini baholash, ta’lim sifati, test topshiriqlari, kompetensiyaviy yondashuv, o‘qitish metodikasi, nostandart baholash.

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THE IMPACT OF ASSESSMENT OF STUDENTS' KNOWLEDGE ON THE QUALITY OF EDUCATION AND THE PEDAGOGICAL PROCESS

Abstract: This article comprehensively examines the role of student assessment in the educational process, its impact on teacher performance, student motivation, and the development of learning content. The author substantiates the need for organizing a modern assessment system based on a competency-based approach. Particular attention is given to the significance of tests and non-standard tasks in fostering creative thinking, enhancing professional preparedness, and improving knowledge acquisition. The article also analyzes the role of assessment in improving teaching practices, enhancing education quality, and supporting pedagogical development. Tasks are categorized according to Bloom's taxonomy, emphasizing the importance of differentiated evaluation. The study provides a

scientifically grounded analysis of the current assessment system in education and the necessity of its improvement through modern approaches.

Keywords: *Student assessment, quality of education, test tasks, competency-based approach, teaching methodology, non-standard evaluation.*

O'zbekiston Respublikasi ta'lim tizimini 2030 yilgacha rivojlantirish konsepsiyasi ta'lim tizimida talabalarning tabiiy yo'nalishdagi o'quv modulilardan savodxonlik darajasini baholashning milliy tizimini yaratish, ta'lim-tarbiya jarayoniga individuallashtirish tamoyillarini tatbiq etish, davlat ta'lim standartlarida ko'zda tutilgan kompetensiyalarni baholash mezonlarini ishlab chiqish kabi dolzarb funksiyalarni ilgari surgan. Amaldagi bakalavriat yo'nalishi davlat ta'lim standartlari kompetensiyaviy yondashuvga asoslanganligiga qaramasdan, o'qitish va baholash metodlari asosan o'quv materialli va axborotni yodlash hamda bayon qilishga qaratilganligi, tanqidiy fikrlash, axborotni mustaqil izlash va tahlil qilish ko'nikmalari va boshqa malakalarni rivojlantirishga yo'naltirilgan nazorat va baholash metodlarini chuqur tahlil etish zaruriyatini talab etadi.

Ta'lim tizimida islohotlarni amalga oshirish jarayonida talabalarning bilim, ko'nikma va malakalarini nazorat qilish va baholash ham yangicha mazmun kasb etdi. Davlat ta'lim standartlarining ishlab chiqilganligi, yangi o'quv dasturining amaliyotga joriy etilganligi, erkin va mustaqil fikrlovchi shaxsni tarbiyalashga nisbatan yuqori talabning qo'yilayotganligi, ta'lim amaliyotiga pedagogik texnologiyalar olib kirilayotganligi, talabalarni kasbga muvaffaqiyatli yo'llash maqsadida psixologik va pedagogik diagnostika barcha turdagi ta'lim muassasalarida keng ko'lamda amalga oshirilayotganligi kabi holatlar ko'zga tashlanayotgan bir vaqtda talabalarning bilim, ko'nikma va malakalarini eng samarali shakl, metod va vositalar yordamida nazorat qilish hamda baholash muhim ahamiyatga ega.

Nazorat va baholash aniq belgilangan faoliyat, ya'ni davlat ta'lim standarti bilan me'yorlangan bilim, ko'nikma, malaka va kompetensiyalarning o'zlashtirish darajasini aniqlashga qaratilgan pedagogik vosita sifatida talabaning shaxs sifatida rivojlanishi, kasbiy faoliyatga oid bilimlar, o'quv moduli asoslarini o'rganishga bo'lgan qiziqishini orttirish, dunyoqarash, tafakkuri, xotira va irodasini tarbiyalashga imkon yaratadi. Nazorat va baholash orqali talabalar bilimini baholash bilan birga o'quv jarayonida ta'lim maqsadiga qay darajada erishilgani, shuningdek, sifatli ta'lim ko'rsatkichi dinamikasini tahlil qilish mumkin.

Muntazam va tizimli ravishda tashkil etilgan nazorat va baholash jarayoni talabani unumli mehnat qilish, o'zi egallagan bilim darajasini o'zi baholashga o'rgatadi, o'quv moduliga bo'lgan qiziqishini orttiradi. Shuningdek talabalarning o'zlashtirishini nazorat va baholash o'qituvchilarning faoliyatiga baho berishga asos bo'ladi, ya'ni o'qituvchi o'quv materialini qanchalik tushunarli qilib bayon qila olishi va o'qitishning samarali usullaridan foydalanishi, talabalarning mustaqil bilim olish jarayonini tashkil etish va o'tkazish jarayoniga baho berish imkonini beradi. Nazorat va baholashdan olingan natijalariga tayangan holda o'qituvchi kam samara beruvchi ish usullarini samarali ish usullari bilan almashtiradi va

shuningdek, davlat ta'lim standartlari bilan me'yorlangan bilim, ko'nikma, malaka va kompetensiyalarni egallashga keng sharoit yaratadi.

Ta'lim-tarbiya jarayonining samaradorlik va sifat ko'rsatkichini aniqlashda talabalar tomonidan bilim, ko'nikma, malaka va o'quv moduliga doir xususiy kompetensiyalarni o'zlashtirilish darajasini nazorat va baholash qilish va baholash muhim ahamiyat kasb etadi. Nazorat va baholashni maqsadga muvofiq tashkil etish o'qituvchi tomonidan nazorat va baholash turlari va ularning didaktik maqsadlarini aniq tasavvur etishni talab qiladi. Professor-o'qituvchi talabalarning davlat ta'lim standartlari bo'yicha me'yorlangan bilim, ko'nikma, malaka, tayanch va o'quv moduliga doir xususiy kompetensiyalarni o'zlashtirilish darajasini nazorat va baholash qilish va baholash jarayonida nostandart o'quv va test topshiriqlaridan foydalanishi zarur. Test nazorat va baholashining boshqa an'anaviy nazorat va baholashlardan afzalligi shundaki, bu nazorat va baholash mashg'ulot uchun ajratilgan vaqtdan unumli foydalanish, katta hajmdagi mazmunni qamrab olish, ularning o'quv materialini o'zlashtirish natijalarini ham tez aniqlash imkonini beradi. Test nazorat va baholash qisqa vaqt ichida barcha talabalarning bilim darajasini aniqlashni ta'minlash bilan birga talabalarning har bir mashg'ulotga tayyorgarlik ko'rish xususiyatini shakllantiradi. Modullarni o'qitishda talabalarning bilim olishga qiziqishlarini orttirish, mustaqil va mantiqiy fikrlashga o'rgatish uchun test topshiriqlari mazmun va shakl jihatdan ham xilma-xil bo'lishi zarur. Bu esa bir tomondan talabalarning bir xillikdan zerikib qolishining oldini olsa, ikkinchi tomondan esa talabalarda ijodiy faoliyatni shakllantiradi. Test-shaxsning aqliy taraqqiyoti, qobiliyati, irodaviy sifatleri, shuningdek, egallagan bilim, ko'nikma va malakalarini aniqlash va Nazorat va baholash qilishda qo'llaniladigan standart topshiriq turi sanaladi. Test – standartlashtirilgan nazorat va baholash topshiriqlari turi bo'lib, u kerakli statistik xususiyatlarga ega bo'lgan, konseptual tanlangan o'zgaruvchan o'lchovning ishonchli hamda validli bahosini ta'minlab beradi. Ijtimoiy amaliyotda testlar insonning qanday kasb-hunar egallashi mumkinligi, uning kasbga layokati yoki layoqatsizligini, iste'dodli yoki aqliy zaifligini aniqlashda, muayyan hamkorlikdagi faoliyatga shaxslarni saralashda keng qo'llaniladi.

Talabalarning ijodiy va mustaqil fikr yuritishni ko'nikmalarini rivojlantirishda kasbiy va mutaxassislik o'quv modullarini o'qitishda nostandart test topshiriqlaridan foydalanish muhim ahamiyatga ega. O'qitishda nostandart test topshiriqlaridan foydalanish talabalarning kasbiy tayyorgarlik darajasini orttiradi, ilmiy dunyoqarashini kengaytiradi, talabalarning o'zlashtirgan bilim, ko'nikma va malakalarini mustahkamlaydi, talabalarning tafakkuri, mustaqil va ijodiy fikrlashini rivojlantiradi, amaliy muammolarni hal etishga o'rgatadi, mantiqiy fikr yuritishga yo'llaydi, talabalarning aqliy faoliyatini rivojlantirishga zamin yaratadi. Nostandart testlar o'zining mazmuni, tuzilishi va qo'llanish maqsadiga ko'ra muayyan darajada farq qiladi. Mazkur test topshiriqlari talabalarning o'zlashtirgan nafaqat bilimlarini, balki ob'ekt va uning qismlarini tanish, o'ziga xos xususiyatlarini aniqlash ko'nikmalarini nazorat va baholash qilish va baholash jarayonini haqqoniy va odilona amalga oshirish imkonini beradi.

Talabalarining fan modullari bo'yicha o'zlashtirgan bilim, ko'nikma, malaka, tayanch va fanga doir kompetensiyalarini nazorat qilish va baholash (joriy, oraliq, yakuniy) topshiriqlarining murakkablik darajalari haqida quyidagi tavsiyalarni aytish mumkin:

□ Talabalarining modullar bo'yicha o'zlashtirgan bilim, ko'nikma, malaka, tayanch va fanga doir kompetensiyalarini nazorat qilish va baholash turi bo'lgan joriy nazorat topshiriqlari B.Blum o'quv maqsadlari taksonomiyasiga muvofiq shakllantirish lozim;

□ Talaba joriy nazoratga ajratilgan ballarni to'plashi uchun tayyorlangan topshiriqlar majmuasining 60% i bilish tushunish, amalda qo'llashga doir murakkablik darajasi reproduktiv va produktiv bo'lgan topshiriqlar;

□ Talaba joriy nazoratga ajratilgan ballarni to'plashi uchun tayyorlangan topshiriqlar majmuasining 20% i tahlil va sintez o'quv maqsadlariga murakkablik darajasiga ko'ra qisman-izlanishli topshiriqlar bo'lishi lozim;

□ Talaba joriy nazoratga ajratilgan ballarni to'plashi uchun 20% i xulosa o'quv maqsadlariga murakkablik darajasiga ko'ra ijodiy kreativga mos kelishi lozim.

Oraliq va yakuniy nazorat uchun topshiriqlar majmuasini shakllantirish-da ham murakkablik darajalari nisbati yuqoridagi tavsiyaga mos kelishi, ya'ni 60% i bilish tushunish, amalda qo'llashga doir murakkablik darajasi reproduktiv va produktiv, 20%i tahlil va sintez o'quv maqsadlariga murakkablik darajasiga ko'ra qisman-izlanishli, 20%i xulosa o'quv maqsadiga mos murakkablik darajasiga ko'ra ijodiy kreativ bo'lishi lozim.

Umuman olganda ta'lim sifatini ta'minlashda talabalarining o'zlashtirgan bilim, ko'nikma, malaka, tayanch va fanga doir xususiy kompetensiyalarini zamon talablariga mos nazorat qilish va baholash quyidagi natijalarni beradi:

- Baholash natijalari o'qituvchiga o'z metodikasini qayta ko'rib chiqishga yordam beradi. Diagnostik baholash orqali o'qituvchi talabalarining kuchli va zaif tomonlarini aniqlaydi va shu asosda o'quv jarayonini moslashtiradi [1].

- Doimiy baholash o'qituvchining o'z faoliyatini tahlil qilishi va takomillashtirishiga xizmat qiladi. Bu o'zgarishlar ta'lim samaradorligini oshiradi.

- Formativ baholash (jarayon davomida) talabada o'z bilim darajasi haqida fikr yuritish va uni yaxshilashga undaydi. Bu esa ichki motivatsiyani oshiradi [2].

- Baholash natijalariga asoslangan fikrlar talabalarni bilimga nisbatan mas'uliyatliroq bo'lishga undaydi. Bu ayniqsa yuqori ta'lim tizimida muhimdir.

- Baholash uslublari noo'rin tanlansa, bu talabalarda stress, haddan ortiq raqobat, hatto o'quv jarayoniga nisbatan salbiy munosabat keltirib chiqarishi mumkin [3].

- Baholash shakllari (test, loyiha, esse) o'quv dasturi mazmunini belgilovchi omilga aylanishi mumkin. "Nimani baholaymiz?" degan savol "Nimani o'qitamiz?" savoliga ta'sir qiladi [4].

- Yaxshi tuzilgan baholash tizimi talabalardan faktlarni yod olish emas, balki tahlil, sintez va baholash kabi yuqori darajadagi kognitiv faoliyatlarni talab qiladi.

- Raqamli texnologiyalar asosidagi baholash tizimlari (Google Forms, LMS tizimlar) o'quv materialini interaktiv, multimodal va individuallashtirilgan holga keltirishga yordam beradi [5].

Qisqacha qilib aytganda talabalar bilimini baholash:

- O'qituvchini metodik faoliyatini takomillashtirishga,
- Talabani o'zini anglash, rivojlanish va mas'uliyatli o'rganishga,
- O'quv kontentini esa chuqur o'zlashtirish va innovatsion yondashuvlar bilan boyitishga xizmat qiladi.

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РОЛЬ ПОСЛОВИЦ В АРАБСКОМ ЯЗЫКЕ И КУЛЬТУРЕ

Аннотация: В статье рассматривается понятие «пословица» в арабском языке, её лексико-семантическое разнообразие и классификация, предложенная арабскими учёными. Анализируется содержательная направленность арабских пословиц, их связь с интеллектуальной деятельностью, нравственными ценностями и отношением к знаниям. Подчёркивается важность пословиц как отражения культурных и языковых особенностей арабского общества.

Ключевые слова: арабский язык, пословицы, паремиология, культура, обучение.

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THE ROLE OF PROVERBS IN THE ARAB LANGUAGE AND CULTURE

Abstract: The article examines the concept of “proverb” in the Arabic language, its lexical and semantic diversity, as well as the classification proposed by Arab scholars. The paper analyzes the thematic orientation of Arabic proverbs, their connection with intellectual activity, moral values, and the pursuit of knowledge. The importance of proverbs as a reflection of the cultural and linguistic features of Arab society is emphasized.

Keywords: Arabic language, proverbs, paremiology, culture, education.

Пословицы представляют собой один из наиболее выразительных и устойчивых элементов национальной культуры, а также значимый пласт языка. Согласно определению, данному в Литературной энциклопедии «пословица – изречение в виде грамматически законченного предложения, в котором выражена народная мудрость в поучительной форме»⁴⁷. Это определение подчеркивает важнейшую черту пословицы: сочетание простоты формы и глубины содержания. Они отражают обыденный опыт народа, мировоззрение, систему ценностей и особенности мышления. В арабском

⁴⁷ литературная энциклопедия. В 11 т. Том 9 / Гл. ред. А. В. Луначарский. — М.: Гос. ин-т «Советская энциклопедия», 1935. — Стб. 172—178

языке феномен пословицы занимает особое место, поскольку именно через пословицы сохраняется связь между литературным стандартом и устной традицией.

В арабской литературной и устной традиции для обозначения пословиц и афористических выражений используется целый ряд терминов, каждый из которых акцентирует внимание на определённой стороне жанра. Так, термин *ḥikma* (حكمة) — что в переводе означает «мудрость» — подчёркивает философское и поучительное содержание высказывания, его глубокий смысл и жизненную зрелость, нередко выражающую вековой опыт народа. Другой термин — *qawl* (قول), буквально означающий «речь», «высказывание» или «изречение», — более нейтрален и может использоваться в широком спектре значений, включая краткие фразы, устойчивые выражения и афоризмы. Иногда для обозначения пословиц применяется слово *nādira* (نادرة), которое чаще всего переводится как «редкость», «забавный случай» или «занимательная история» — это подчёркивает повествовательную форму или анекдотическую природу некоторых изречений. Также в этой категории встречается термин *waʿz* (وعظ), указывающий на «поучение» или «наставление», и имеющий религиозно-нравственную окраску, характерную для многих традиционных изречений.

Однако несмотря на это лексическое разнообразие, наиболее точным, устоявшимся и повсеместно употребляемым обозначением именно пословицы как жанра является слово *maṭḥal* (مثال, во множественном числе — *amṭāl* أمثال). Этот термин охватывает как форму, так и функцию пословицы — краткого, ёмкого, метафорического выражения, передающего жизненную мудрость, культурный опыт и моральные установки общества. Пословицы в арабской культуре испокон веков занимали важное место в речи, литературе и риторике, они используются как средство убеждения, украшения речи и передачи знаний от поколения к поколению. Именно поэтому слово *maṭḥal* со временем приобрело чёткую жанровую специфику и стало основным термином для обозначения этого важного элемента арабского фольклора и литературного наследия.

Арабская паремиология выделяет несколько типов пословиц. три основные категории:

1. Литературные пословицы — фиксированные изречения, в которых соблюдаются нормы грамматики, морфологии и стилистики. Эти пословицы нередко записывались книжниками и представляют собой образцы описательного стиля.

2. Народные пословицы — более свободные по форме. В них не всегда соблюдаются литературные нормы, однако они сохраняют ритмику и мелодику арабской речи. Такие пословицы часто создавались поэтами из народа, которые могли жертвовать правильностью ради гармонии звучания.

3. Басенные пословицы — основанные на сюжетах, где в роли действующих лиц выступают животные, символизирующие человеческие качества. Эти пословицы носят поучительный или сатирический характер.

Подобная классификация подчёркивает двойную природу арабских пословиц: с одной стороны, они являются частью литературной традиции, с другой — сохраняют живую народную основу.

Если классификация показывает внешнюю форму пословиц, то тематический анализ позволяет заглянуть в их внутренний мир — понять, какие идеи и ценности несёт народная мудрость. Пословицы можно рассматривать как своеобразные «кодексы поведения», где в нескольких словах заключены жизненные уроки, проверенные временем. В арабской культуре пословицы служат своеобразным инструментом воспитания: ими наставляют детей, ими объясняют поступки взрослых, ими подводят итог жизненного опыта. Благодаря этому они становятся не просто элементом языка, а частью нравственного пространства общества. Особенно важным является то, что пословицы фиксируют отношение арабского народа к ключевым категориям — разуму, знаниям, дружбе, скромности и справедливости. В них можно увидеть то, что считалось наиболее ценным в жизни, а также то, что осуждалось и воспринималось как порок. Сопоставление арабских изречений с русскими позволяет выявить универсальные представления о добре и зле, а также особенности национального мировосприятия. Таким образом, обращение к тематике пословиц открывает не только языковую, но и культурную перспективу: за лаконичными фразами скрывается целая философия повседневной жизни, а каждая пословица становится маленькой энциклопедией народной мудрости. Примеры пословиц с переводом и русскими аналогами: «Zīnatu l-mar' aqluhu» - Украшение человека — его ум, в русском языке встречается аналогичная мысль: «Не красна изба углами, а красна пирогами; не человек телом, а умом». «Uṭlubū l-'ilma mina l-mahdi ilā l-laḥdi» — стремись к знаниям от колыбели до могилы, русский аналог: «Век живи — век учись». «At-ta'limu fī ṣ-ṣighar ka-n-naqshi 'ala l-ḥajar» — учение в детстве — как резьба по камню, русская пословица: «Чему в молодости научишься, то на старости пригодится». «'Uṣfūr fī l-yad khayr min 'ashara 'alā ṣ-ṣajara» — птица в руке лучше десяти на дереве, аналог: «Лучше синица в руках, чем журавль в небе». «Khayru l-kalāmi mā qall wa dall» — Лучше кратко и по делу. «Краткость — сестра таланта». «Man jadda wajada» — кто старался, тот получил/достигнет, аналог в русском языке: «кто ищет, тот всегда найдёт».

«Nādhā l-shibl min dhāk l—asad» — этот львёнок от того льва, аналог: «Яблоко от яблони недалеко падает». «Lā tu'ajjil 'amal al-yawm ilā al-ghad» - не откладывай сегодняшнюю работу на завтра, аналог: «Не откладывай на завтра то, что можно сделать сегодня».

Заключение

Арабские пословицы — это не только устойчивые языковые выражения, но и важный культурный феномен. Они отражают богатство арабского языка, его поэтическую природу и тесную связь с жизнью народа. Анализируя арабские пословицы, можно выявить ключевые ценности культуры: уважение к знаниям, стремление к справедливости, признание ума и духовной зрелости.

Использование пословиц в процессе обучения арабскому языку позволяет не только расширять словарный запас, но и формировать у студентов межкультурную компетентность, воспитывать уважение к традициям и ценностям арабского общества.

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ҲОЗИРДА ЖАҲОН ВА ЎЗБЕКИСТОНДА ОЛМА, НОК ВА БЕҲИ ЕТИШТИРИШ, ИМПОРТ-ЭКСПОРТ ҲОЛАТИ

***Аннотация:** Мазкур мақолада жаҳон ва Ўзбекистонда олма, нок ҳамда беҳи етиштириш, уларнинг экспорт-импорт ҳажми ва бозор талаблари таҳлил қилинган. Ўзбекистон боғдорчилигида уруғли мевалар орасида олма етакчи ўрин эгаллаши, мамлакатда 100 дан ортиқ олма навлари етиштирилаётгани қайд этилган. Шунингдек, етиштириш жараёнида учраётган касалликлар, иқлим ўзгариши ва ҳосилдорликка таъсир этувчи омиллар ёритилган. ФАО ва бошқа статистик маълумотлар асосида Ўзбекистоннинг экспорт имкониятлари ва глобал бозордаги ўрни таҳлил қилинади.*

***Калим сўзлар:** Олма, нок, беҳи, боғдорчилик, экспорт, импорт, ФАО, Ўзбекистон, иқлим ўзгариши, ҳосилдорлик, касалликлар.*

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CURRENT STATE OF APPLE, PEAR, AND QUINCE PRODUCTION, IMPORT AND EXPORT IN THE WORLD AND UZBEKISTAN

***Annotation :** This article analyzes the cultivation of apples, pears, and quinces in the world and in Uzbekistan, as well as their export-import volumes and market demands. It highlights that among seed fruits in Uzbekistan's horticulture, apples hold the leading position, with more than 100 varieties cultivated in the country. The study discusses plant diseases, the impact of climate change, and other*

factors affecting productivity. Based on FAO and other statistical data, Uzbekistan's export potential and its position in the global market are examined.

Keywords: Apple, pear, quince, horticulture, export, import, FAO, Uzbekistan, climate change, yield, diseases.

Боғдорчилик Ўзбекистон қишлоқ хўжалигининг энг қадимги ва муҳим тармоқларидан бири ҳисобланиб, ҳукуматимиз томонидан мевачилик ва узумчиликни янада ривожлантириш, ишлаб чиқариш самарадорлиги ва сифатини ошириш, шунингдек, дунёнинг турли мамлакатларига мева экспортини кўпайтириш мақсадида мевачилик ва узумчилик соҳасида ислохотларни чуқурлаштириш бўйича кескин чора-тадбирлар амалга оширилмоқда. Жумладан, Президентнинг 2019-йил 11-декабрдаги “Мева-сабзавотчиликни ва узумчиликни янада ривожлантиришга саноат харажатларида қўшимча қиймат занжирини яратишга доир қўшимча чора-тадбирлар тўғрисида”ги ПҚ 4549-сон, Ўзбекистон Республикаси Президентининг 07.05.2020 йилдаги ПҚ-4707-сонли “Экспорт фаолиятини янада қўллаб-қувватлаш чора-тадбирлари тўғрисида” каби қарорларида мутахассислар олдидаги вазифалар кўрсатилган.

Ўзбекистонда етиштириладиган боғлар орасида уруғли мевали дарахтлар – олма, ундан кейин беҳи ва нок этакчи ўринни эгаллайди. “...Соҳадаги яна бир катта йўналиш боғдорчилик ва узумчилик бўлиб, мамлакатда 266 минг гектар боғ ва 132 минг гектар токзор бор...” дея хабар беради президент матбуот хизмати. Уруғли мевалилар янги ҳосилга қадар сақлаш учун мўлжалланган навларнинг мавжудлиги уларни деярли бутун йил давомида истеъмол қилиш имконини беради

Истеъмолчиларига юқори сифатли, экологик тоза маҳсулотлар ҳамёнбоп бозор нархлари зарурдир. Статистика маълумотларига кўра, ер юзида аҳоли жон бошига ўртача олма истеъмоли йилига 13 кг дан ошади. Туркия ва Италияда уларнинг аҳоли жон бошига истеъмоли бошқа мамлакатлардан кўп.

Европа Иттифоқи мамлакатлари орасида асосий ишлаб чиқарувчилар Польша, Италия, Франция ва Германиядир. Уларда 9,8 миллион тонна мева етиштирилади. Олма ишлаб чиқариш бўйича дунёда Европа Иттифоқига аъзо бўлмаган давлатлар орасида этакчи ўринни Хитой, АҚШ, Туркия, Бразилия, Россия, Аргентина, Украина эгаллайди.

Олманинг йиллик экспорти 5 миллион тоннани ташкил этади, бу бозорда энг йирик экспортчилар Франция, АҚШ ва Чили ҳисобланади. Энг йирик импортчилар Германия, Буюк Британия ва Россия бўлиб, уларнинг умумий улуши жаҳон экспортининг 33% ни ташкил қилади.

Нокнинг йирик экспортчилари Хитой, Аргентина ва Жанубий Африка бўлиб, уларнинг улуши тахминан 1,8 миллион тоннани ташкил этади. энг йирик концентранган олма шарбати ишлаб чиқарувчилари Хитой, АҚШ ва Польша бўлиб, жаҳон ишлаб чиқаришининг 40% дан ортигини қоплайди. АҚШ ва Германия шарбат концентратларининг икки йирик импортчиси

бўлиб, бу мамлакатларнинг ҳар бири йилига 0,2 миллион тоннадан ортиқ импорт қилади.

FAO (2020) маълумотларига кўра, дунё бўйича беҳи етиштириш ҳажми йилига тахминан 696 минг тоннага тенг. Умумий ишлаб чиқаришдаги асосий улуш қуйидагича тақсимланган: Осиё – 77,48%; Европа – 5,14%; Америка – 6,6%; Африка – 10,59%. Айни пайтда, беҳи етиштиришда етакчи давлатлар сифатида Туркия, Хитой ва Ўзбекистон қайд этилган. (Манба: FAO, 2020)

Ҳозирда мева ва сабзавотларимиз Германия, Ҳиндистон, Бирлашган Араб Амирликлари, АҚШ, Жанубий Корея, Туркия ва МДХ давлатларига экспорт қилинмоқда.

Расмий статистик маълумотларга кўра, 2022 йилнинг июнь-ноябрь ойларида Ўзбекистон рекорд ҳажмда сархил нок экспорт қилди: жами 5,2 минг тонна ва умумий қиймати 2,3 миллион долларлик. Таққослаш учун айтадиган бўлсак, ўтган йилларда ушбу маҳсулот экспорти ҳажми жисмоний жиҳатдан минг тоннадан ошмаган эди.

Бугунги кунда Ўзбекистонда олманинг 100 дан ортиқ навлари етиштирилмоқда. Дунё бўйлаб бу кўрсаткич 10 000 дан ортиқ навларни ташкил этади. Олма навлари меванинг пишиши, ташқи кўриниши, битта меванинг ўртача оғирлиги, катталиги, шунингдек, шакар, қуруқ моддалар ва кислоталилик кўрсаткичларининг ҳар хиллиги билан фарқланади.

Ўзбекистонда 261,8 минг гектар боғ майдонларидан 120,5 минг гектарини уруғлик мевазорлар ташкил этади. Шунинг 95 фоизи олмazor боғлардир. Бу дегани мамлакатдаги боғларнинг тахминан 44 фоизини олмazorлар ташкил этади (FAO, 2022).

Ўзбекистонда эртаги олманинг янги ҳосилини оммавий йиғиш мавсуми май ойи ўрталарида старт олади ва айнан шу даврда эртаги олманинг биринчи экспорт жўнатмалари бошланади. Шундай қилиб, 2022 йилнинг май ойи бошидан ноябрь ойи охиригача бўлган даврда Ўзбекистон 16,6 минг тонна ва қиймати 6,5 миллион долларлик сархил олма экспорт қилди.

Бироқ, бу боғларда зарарли организмлар билан зарарланиш ва уларни тарқалиш даражаси борлигини ҳосилнинг вазнини камайтиради, балки унинг сифатига ҳам салбий таъсир қилади. Яъни, режалаштирилган ҳосилни олиш зарарли организмлар томонидан чекланган.

Кўп йиллик уруғмевали боғларнинг нобуд бўлиши ва ҳосилининг пасайишига иқлим ўзгариши натижасида юзага келган ноқулай об-ҳаво шароити асосий сабаб бўлмоқда. Деярли барча мевали дарахтлар заифлашиб, касалликларга чалинувчанлиги ортди, айниқса микозлар зарар келтириб келмоқда.

Жаҳон боғдорчилигини илмий изланишларимиз шу фикрга олиб келдики, бу боғларда етиштирилаётган олма, нок ҳамда беҳи навлари парша (калмараз), ун шудринг, монилюоз ва бошқа бир қанча касалликлар билан зарарланмоқда.

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ФАКТОРЫ ВНЕШНЕЙ ТРУДОВОЙ МИГРАЦИИ

Аннотация: В статье анализируются сущность, основные направления, причины и последствия внешней трудовой миграции в Узбекистане. Рассматриваются также экономические, социальные и психологические проблемы, с которыми сталкиваются трудовые мигранты.

Ключевые слова: миграция, внешняя трудовая миграция, безработица, заработная плата, узбекские мечты, различные церемонии, квалифицированные специалисты, коррупция.

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THE MAIN FACTORS OF EXTERNAL LABOR MIGRATION

Abstract: The article analyzes the essence, main directions, causes and consequences of external labor migration in Uzbekistan. The economic, social and psychological problems faced by migrant workers are also considered.

Keywords: migration, external labor migration, unemployment, wages, Uzbek dreams, various ceremonies, qualified specialists, corruption.

В эпоху глобализации международные связи в различных областях становятся всё более крепкими. Особенно в современном мире наблюдается большой поток внешней трудовой миграции, направленной на поиск работы в различных регионах. Поэтому проблема внешней трудовой миграции стала актуальной во всем мире. В нашей стране, где большинство населения составляет молодежь, а трудоустройство является острой социальной проблемой, многие наши соотечественники вынуждены искать работу за рубежом. Сегодня регулирование внешней трудовой миграции, правовая и социальная поддержка наших соотечественников за рубежом возведены в ранг государственной политики. Поэтому научно-философское исследование сущности, основных направлений, причин и последствий трудовой миграции в Узбекистане является актуальной задачей.

Обзор литературы по теме.

За последние полвека сложный процесс миграции, особенно внешней трудовой, привлек внимание многих специалистов. В связи с этим за рубежом и в Узбекистане проведен ряд значимых научных исследований, результаты которых нашли отражение в различных монографиях и статьях. В частности,

опубликованные за рубежом научные труды С. Каслса, К. Козера, М. Миллера, М. К. Наттера, М. Флахо раскрывают глобальный характер миграции и основные тенденции международной миграции [1,2]. Такие специалисты, как В. А. Ионсев, Д. К. Шелестов, пытаются анализировать историю миграции в гармонии с историей человечества [3,4]. Данная проблема также широко исследовалась в Узбекистане. В работах С. Алимова и Д. Исроиловой миграционные процессы рассматриваются как фактор, регулирующий рынок труда и влияющий на темпы экономического развития[5,6]. В статье Дж. Гойибова рассматриваются правовые проблемы миграции [7:315-1321]. М. Насирова изучает проблемы, связанные с адаптацией мигрантов к новым социальным условиям [8:71-76].

Методология исследования.

В ходе исследования были использованы научно-философские методы, такие как системный анализ, анализ и синтез, сравнительный анализ.

Анализ и результаты.

Трудовая миграция, то есть перемещение людей из одного региона в другой в поисках более удобной и приемлемой работы, – общемировой тренд. Поэтому в Узбекистане она очевидна, как и во всех странах – этого невозможно не признать. Конечно, в более ранние периоды исторического развития люди перемещались с места на место в поисках работы. Однако к концу прошлого века, и особенно в новом столетии, этот процесс стал приобретать гораздо более значительные масштабы. Современная трудовая миграция в Узбекистане – сложный процесс, протекающий в разных направлениях, и существуют факторы, способствующие возникновению каждого из них. Анализ статистических данных свидетельствует о том, что основным направлением трудовой миграции в стране является внешняя трудовая миграция. Число людей, временно и сезонно выезжающих за рубеж на заработки в нашу страну, остаётся высоким. На протяжении десятилетий узбекские мигранты выезжают на заработки в различные страны мира. Ведущую позицию среди них занимает Россия. По данным Агентства по вопросам внешней трудовой миграции Министерства занятости и трудовых отношений Республики Узбекистан, численность мигрантов, выехавших из Узбекистана на заработки в зарубежные страны в 2022 году, составила 2 миллиона 346 тысяч человек[9]. Из них более 1,5 млн. отправились на заработки в Россию, 350 тыс. – в Казахстан, более 150 тыс. – в Турцию и более 50 тыс. – в Южную Корею[10]. Кроме того, по инициативе Агентства по вопросам внешней трудовой миграции Беларусь, ОАЭ, Болгария, Чехия, Латвия, Польша, Кувейт, Германия, Швейцария, Нидерланды, Израиль, Япония, Словакия, Саудовская Аравия, Литва, Бахрейн, Украина, Малайзия, Сербия, Азербайджан, Хорватия, Были заключены трудовые договоры с работодателями таких стран, как Финляндия, Оман, Великобритания, Канада, Венгрия, Румыния, и первые мигранты были отправлены в эти страны[11]. Из вышеизложенных фактов можно сделать вывод, что география трудовой миграции из Узбекистана постепенно расширяется на более чем десять новых

стран. Согласно анализу, 76 процентов трудовых мигрантов Узбекистана за рубежом составляют мужчины и 24 процента – женщины. Сегодня большинство из них работают в следующих отраслях: строительство – 51,6 процента, сельское хозяйство – 12,3 процента, промышленность – 9,2 процента и торговля – 8,5 процента[12]. В других секторах трудовых мигрантов относительно немного. Деятельность мигрантов, работающих в строительстве и сельском хозяйстве, носит сезонный характер: большая часть приходится на весну, лето и начало осени. Зимой значительная часть этих трудовых мигрантов возвращается в Узбекистан. Деятельность узбекских мигрантов в сфере торговли и промышленности можно охарактеризовать как временную миграцию: они обычно стремятся работать несколько лет подряд, пока не накопит определенную сумму денег. Число мигрантов, которые выезжают в разные страны в поисках работы и остаются там на постоянное место работы или получают гражданство этой страны, является абсолютной редкостью. Говоря о причинах внешней трудовой миграции, большинство экспертов в первую очередь называют нехватку рабочих мест. В этом мнении, конечно, есть доля истины. Однако безработица — не единственная причина внешней трудовой миграции. Обратим внимание на следующие факты. По официальным данным, уровень безработицы в Узбекистане в 2020 году составил 10,5 процента от экономически активного населения, в 2021 году – 9,6 процента, а в 2022 году – 8,9 процента[13]. Учитывая, что численность экономически активного населения страны составляет около 15 млн человек, известно, что число безработных составляет около 1 млн 300 тыс. Однако, несмотря на это, многие рабочие места в республике остаются вакантными. Например, в 2021 году будет создано 234 тыс. рабочих мест, в том числе в сфере услуг – 54,7 тыс., в образовании – 52,2 тыс., в промышленном производстве – 48,9 тыс., в здравоохранении – 21,9 тыс., в строительстве – 15,7 тыс., в сельском хозяйстве – 12,1 тыс., в сфере финансов и страхования – 5,7 тыс., в сфере связи и информационных технологий – 4,6 тыс., в других сферах – 18,3 тыс. вакансий[14]. Основная причина отсутствия вакансий – низкая заработная плата. Поэтому основными причинами внешней трудовой миграции являются не только нехватка рабочих мест, но и низкая заработная плата. Низкая заработная плата препятствует реализации некоторых узбекских мечтаний. Например, подавляющее большинство узбекской молодёжи мечтает о собственном автомобиле. Молодым узбекистанцам со средней месячной зарплатой пришлось бы работать несколько лет, чтобы купить простенький автомобиль марки «Дамас», одновременно копя на другие нужды. Поэтому определённое количество молодых людей уезжает за границу, чтобы накопить на машину. Высокая стоимость различных общественных мероприятий также является фактором внешней трудовой миграции. Свадьбы, семейные торжества, праздники и церемонии всё чаще требуют от граждан всё больших затрат. «Большинство владельцев свадебных залов несправедливо взимают с граждан, желающих провести компактную и недорогую свадьбу, плату в два-три раза превышающую расходы на ее проведение, что противоречит

установленным правилам проведения свадеб, семейных торжеств, марачов и церемоний. «Артисты запрашивают непомерные цены за свадьбы, семейные торжества и церемонии». Не все эти расходы может покрыть средняя зарплата по стране. Поэтому молодые люди, планирующие создать семью, граждане, намеревающиеся содержать своего ребенка, а также определенная часть людей, намеревающихся провести другие семейные церемонии, вынуждены работать за границей и собирать средства. Высокие цены на жилье, высокая стоимость строительных материалов, необходимых для возведения индивидуальных домов, и высокие процентные ставки по ипотечным кредитам также подталкивают некоторых членов общества к трудовой миграции. Пока эти и подобные им факторы сохраняются в стране, масштабы трудовой миграции за рубеж будут оставаться значительными, а её география будет расширяться, охватывая всё новые страны. Перечисленные факторы являются основной причиной третьего направления трудовой миграции – миграции из республики за рубеж.

Другим направлением внешней трудовой миграции является трудовая миграция квалифицированных специалистов в развитые страны. На протяжении многих лет наука в стране не получала должного финансирования. «В настоящее время, — подчеркивается в «Концепции развития науки до 2030 года», утвержденной Указом Президента Республики Узбекистан от 29 октября 2020 года, — средства, выделяемые на науку и научную деятельность в стране, составляет всего 0,2% валового внутреннего продукта, и этот показатель мал по сравнению со средствами, выделяемыми на науку рядом развитых и развивающихся стран» [15]. В результате определенная часть молодежи, которая могла бы послужить повышению научного потенциала республики, предпочла работать в зарубежных научных центрах, на предприятиях и в организациях, позволяющих им проявить свои научные таланты. В Узбекистане ни одна компетентная организация не ведёт статистическую отчётность о квалифицированных специалистах, решивших продолжить работу за рубежом. Поэтому определить их точное число сложно. Однако очевидно, что число таких специалистов немало. В последние годы по инициативе главы государства принимаются меры по возвращению в Узбекистан квалифицированных специалистов, работающих за рубежом. В ходе своих зарубежных поездок Президент страны регулярно встречается с узбекистанцами, проживающими за рубежом, и призывает их вернуться на Родину. Принят ряд законодательных документов, придающих работе в этом направлении системный характер. Однако говорить о кардинальном сдвиге в этом направлении пока рано. Большинство квалифицированных специалистов, покинувших республику, не планируют возвращаться на родину. В этой связи Ш. Эралиев, ведущий научные исследования в Хельсинкском университете Финляндии, пишет: «Многие узбеки уехали за границу на постоянное место жительства, тратя все свое время и силы на то, чтобы обосноваться в чужой стране и обосноваться там. Они не собираются когда-либо возвращаться в Узбекистан» [16]. Существуют причины,

замедляющие возвращение на родину квалифицированных узбекских специалистов, работавших за рубежом. «...неспособность отказаться от старой административно-командной системы, широкое распространение коррупции в обществе, отсутствие экономических и политических реформ. Видно, что замедление темпов роста (в том числе реформ государственного управления) и низкий уровень жизни (зарботные платы, качество образования и здравоохранения для детей) мешают многим соотечественникам вернуться в Узбекистан. Они надеются на проведение правительством реальных экономических и политических реформ, а также на снижение уровня административной бюрократии»[16]. Следовательно, недостаток средств, направляемых в науку, низкий уровень жизни населения, неликвидированность административно-командной системы являются причинами миграции квалифицированных специалистов в развитые страны.

Выводы и предложения.

Подводя итог, можно сказать, что современная трудовая миграция в Узбекистане по своей сути является сложным процессом, и ее возникновению способствуют различные факторы. Особенно высокий уровень иностранной трудовой миграции из нашей страны обусловлен безработицей и низкой заработной платой, малым финансированием науки и низким уровнем жизни. Её последствия также проявляются в разных формах. С одной стороны, трудовая миграция из страны за рубеж увеличила валютные поступления, несколько ослабила напряжённость на рынке труда, способствовала проникновению в страну международного опыта и инноваций, Удовлетворяла потребительские потребности многих граждан, способствовала обогащению национальной культуры. Миграция квалифицированных специалистов в развитые страны создавала основу для повышения их потенциала и профессионального мастерства. Вместе с тем, трудовая миграция влечет и ряд негативных последствий. Трудовая миграция из страны за рубеж привела к растрате трудовых ресурсов, увеличила риск попасть под влияние экстремистских группировок и стать жертвами торговли людьми, а также создала определенные проблемы в семейном воспитании. Миграция квалифицированных специалистов в развитые страны стала тормозить технологическое развитие страны. Для оптимизации масштабной трудовой миграции и в дальнейшем нам необходимо сделать все возможное, прежде всего, постараться повысить уровень жизни в стране. Для достижения этой цели необходимо будет вывести на новый уровень усилия по повышению уровня жизни населения, созданию новых рабочих мест и улучшению условий труда, увеличению ежемесячной заработной платы, кардинальному реформированию системы социальной защиты.

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ПАРАДИГМА ДЕЯТЕЛЬНОСТИ ШКОЛЬНОГО УЧИТЕЛЯ ФИЗКУЛЬТУРЫ, ВЛИЯЮЩАЯ НА ПОВСЕДНЕВНУЮ АКТИВНОСТЬ ДЕТЕЙ

***Аннотация.** В статье приведены результаты многолетних теоретических и экспериментальных исследований, которые касаются особенностей деятельности педагогов по физическому воспитанию, именно они оказывают положительное влияние на всестороннее гармоничное развитие школьников.*

***Ключевые слова:** учитель физической культуры, мотивация к физической активности, педагогическая деятельность, дисциплина, педагогическое мастерство, педагогическая технология*

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PARADIGM OF ACTIVITIES OF A SCHOOL PHYSICAL EDUCATION TEACHER INFLUENCING THE DAILY ACTIVITIES OF CHILDREN

***Abstract.** The article presents the results of many years of theoretical and experimental research that relate to the characteristics of the activities of physical education teachers, which have a positive impact on the comprehensive harmonious development of schoolchildren.*

***Key words:** physical education teacher, motivation for physical activity, pedagogical activity, discipline, pedagogical skill, pedagogical technology*

Актуальность исследуемой проблемы.

Главной переменной в обществе, которая влияет на ситуацию в сфере школьного образования, является ускорение темпов развития общества, обилие разнообразной информации. С научно-техническим прогрессом в нашей жизни появилось множество технических изобретений, которые повлияли на состояние нашей физической активности. Поэтому в нашей стране последовательно создаются условия для получения качественных знаний для молодёжи: обновляются учебные программы, внедряются передовые технологии. Планируются Центры «Келажак», которые организуют

совместные и целевые мероприятия со школами, привлекая учащихся в клубы по инженерии, науке, культуре, искусству, чтению, спорту и экологии.

При создании спортивных клубов, именно учитель физической культуры сможет оказать значительное влияние на уровень повседневной активности детей. Именно он может рассказать и доказать, что физические упражнения оказывают всестороннее воздействие на организм человека, что они влияют на все клетки и ткани организма человека, что большинство внутренних органов – сердце, почки, лёгкие, желудок, печень сформировались в течении миллиона лет именно под влиянием движения. Наши древние предки трудились, охотились, выживали. Но с прогрессом в нашей жизни появилось множество технических изобретений, которые повлияли на состояние нашей физической активности. За последние десятилетия она резко сократилась. Люди используют меньше энергии, что может привести к уменьшению двигательных возможностей, нарушить работу некоторых органов, и, даже, привести к определённым заболеваниям.

Для того, чтобы предотвратить все эти неблагоприятные явления, мы должны включить в распорядок дня школьника обязательные занятия физической культурой.

Теоретическая часть.

Среди духовных способностей современного специалиста есть такая, которая на протяжении многих столетий была предметом пристального внимания ученых и которая вместе с тем до сих пор является труднейшим и загадочным предметом науки. Это — способность мыслить. Мы постоянно сталкиваемся с ней в практике физкультурно-спортивной деятельности. Основанием способности мыслить было, есть и будет рефлексивно-критическое отношение к своим и чужим умениям осознавать мир, свое место в нем, свои и общие способы и средства его понимающего преобразования и тем самым — его присвоения, его окультуривания собой [1].

В настоящее время учитель физической культуры оказывает значительное влияние на уровень повседневной активности детей. Его роль не ограничивается только уроками физкультуры в школе — именно он мотивирует школьников быть активными и вне школьных занятий, что помогает формировать здоровые привычки на протяжении всей жизни детей.

Учитель физической культуры может создавать у учеников мотивацию к физической активности, объясняя, почему это важно и как занятия спортом могут улучшить качество их жизни. Это включает в себя личный пример учителя, который сам активно занимается спортом, а также использование игровых и интересных форм обучения, которые делают занятия увлекательными и вызывают желание заниматься спортом не только на уроках, но и дома [2].

Учитель физической культуры может рекомендовать ученикам различные формы физической активности, которые они могут выполнять вне школы. Это могут быть прогулки, катание на велосипеде, участие в спортивных секциях, игры с друзьями на свежем воздухе. Учитель также

может давать задания на дом, связанные с физической активностью, такие как выполнение простых упражнений или ведение дневника активности, что способствует повышению уровня активности учеников [3].

Учитель физической культуры может организовывать внеклассные мероприятия, направленные на повышение уровня физической активности детей. Это могут быть спортивные соревнования, марафоны, походы, велосипедные прогулки. Такие мероприятия не только увеличивают уровень активности детей, но и способствуют их социализации, развитию командных навыков и укреплению связей с одноклассниками [4].

Также учитель физической культуры может оказывать влияние и на формирование семейных традиций, связанных с физической активностью. Он может проводить консультации с родителями, объяснять важность физической активности для детей и предлагать различные формы семейного досуга, такие как совместные прогулки, активные игры, посещение спортивных мероприятий. Это помогает вовлечь родителей в процесс поддержания активности ребёнка и сделать физическую культуру частью семейной жизни [5].

Учитель должен информировать учеников о различных видах активности, которые могут быть полезными для их здоровья. Это могут быть виды спорта, требующие выносливости (бег, плавание), силы (тренировки с собственным весом), координации (танцы, гимнастика). Учитель должен стремиться к тому, чтобы каждый ученик нашёл тот вид активности, который ему нравится и приносит удовольствие, что помогает поддерживать высокий уровень активности на протяжении всей жизни [6].

Особое внимание учитель должен уделять тем ученикам, которые имеют низкий уровень физической активности или не проявляют интереса к занятиям спортом. Важно найти индивидуальный подход к таким детям, чтобы понять причины их пассивности и предложить формы активности, которые могли бы их заинтересовать. Учитель должен поддерживать таких учеников, помогать им преодолевать страхи и сомнения и постепенно увеличивать их уровень физической активности [7].

Полученные результаты.

Деятельность учителя физической культуры, направленная на мотивацию учащихся к занятиям физической культурой как в школе, так и вне школы, позволила развить многие морально волевые качества учащихся, а частности поддержание дисциплины и спортивного духа. Эффективное управление дисциплиной помогает создать на уроках такую атмосферу, которая способствует обучению, развитию физических возможностей учеников.

Учитель физической культуры с самого начала устанавливает чёткие правила поведения на уроках, чтобы создать безопасную и организованную среду. Это включает в себя правила использования спортивного инвентаря, соблюдение техники безопасности, уважение к товарищам и выполнение

указаний учителя. Чётко сформулированные правила помогают избежать травм и конфликтов, а также поддерживают высокий уровень дисциплины.

Дисциплина является основой для развития спортивного духа, который включает в себя такие качества, как уважение к соперникам, честная борьба, стремление к победе и способность достойно принимать поражение. Учитель должен воспитывать эти качества у учеников, объясняя важность честной игры и показывая, что спорт — это не только победы, но и процесс самосовершенствования. Поддержание дисциплины помогает создавать условия для развития спортивного духа у детей.

Эффективное поддержание дисциплины требует использования поощрений и наказаний. Учитель должен поощрять учеников за соблюдение правил, успехи и старания, что помогает мотивировать их к дальнейшему улучшению. Наказания за нарушение дисциплины должны быть справедливыми и объясняемыми, чтобы ученики понимали их необходимость и видели последствия своих действий. Важно, чтобы наказания не унижали учеников, а были направлены на улучшение их поведения.

Учитель физической культуры должен стремиться к созданию на уроках положительного эмоционального климата, который способствует поддержанию дисциплины. Когда ученики чувствуют себя комфортно, уверены в том, что их успехи будут замечены, и не боятся сделать ошибку, они более охотно соблюдают правила и работают на достижение общих целей. Позитивный климат помогает снизить уровень стресса и увеличить вовлечённость детей в учебный процесс.

Спортивные игры являются важным инструментом для поддержания дисциплины. Они требуют от учеников соблюдения правил, следования указаниям учителя и уважения к партнёрам и соперникам. Учитель должен использовать спортивные игры для развития у детей чувства ответственности, способности работать в команде и дисциплины. Это помогает детям переносить приобретённые навыки на другие сферы своей жизни, такие как учёба и личные отношения.

Учитель физической культуры должен также помогать ученикам развивать самоконтроль и самодисциплину. Это включает в себя обучение детей управлению своими эмоциями, планированию тренировок, постановке личных целей и работе над их достижением. Самодисциплина помогает детям становиться более самостоятельными, уверенными в своих силах и способными принимать ответственные решения, что является важной частью их личностного развития.

Выводы

Создание позитивной учебной среды на уроках физической культуры является важным аспектом работы учителя, который способствует повышению мотивации учеников, улучшению их настроения и активному участию в занятиях. Позитивная учебная среда также снижает уровень стресса у детей, особенно у тех, кто может испытывать трудности с физической активностью.

Учитель физической культуры должен разрабатывать и внедрять позитивные правила, которые способствуют развитию уважения и сотрудничества среди учеников. Эти правила могут касаться как физической безопасности, так и поведения на уроках. Например, правила могут включать обязательное поощрение товарищей, помощь тем, кто испытывает трудности, и уважительное отношение ко всем участникам. Такие правила помогают создать атмосферу, в которой каждый ученик чувствует себя частью команды и поддерживается своими сверстниками.

Позитивное подкрепление является мощным инструментом для создания благоприятной учебной среды. Учитель должен поощрять учеников за их усилия и достижения, независимо от их уровня физической подготовки. Это может быть вербальная похвала, символические награды или даже общественное признание успехов ученика перед всем классом. Исследования показывают, что использование позитивного подкрепления способствует повышению самооценки учеников и их мотивации к дальнейшим занятиям.

Безопасность является одним из ключевых факторов при проведении уроков физической культуры. Учитель должен обеспечивать физическую и эмоциональную безопасность всех учеников, чтобы каждый мог свободно участвовать в занятиях, не испытывая страха перед травмами или насмешками. Для этого учитель должен внимательно следить за выполнением упражнений, корректировать ошибки учеников и активно предотвращать любые формы недовольства среди школьников.

Для создания позитивной учебной среды важно использовать разнообразные формы занятий, которые делают уроки физической культуры интересными и увлекательными. Это могут быть игры, командные соревнования, танцевальные упражнения или занятия на свежем воздухе. Включение различных видов активности помогает поддерживать интерес учеников к занятиям и способствует развитию широкого спектра физических навыков.

Учитель физической культуры должен устанавливать доверительные отношения с учениками, чтобы они чувствовали себя комфортно и уверенно на уроках. Это включает проявление эмпатии, интереса к успехам и трудностям каждого ученика, а также готовность выслушать и поддержать в случае необходимости. Доверительные отношения способствуют формированию у детей чувства принадлежности и уверенности в себе, что положительно сказывается на их участии в занятиях.

Учитель физической культуры должен стремиться к тому, чтобы каждый ученик принимал активное участие в уроках, независимо от его физических способностей. Это требует умения адаптировать упражнения и создавать условия, при которых каждый ребенок чувствует себя вовлечённым и полезным. Поддержка участия каждого ученика способствует развитию чувства принадлежности к коллективу и способствует созданию позитивной учебной среды.

Учитель физической культуры должен выступать в роли наставника и мотиватора для своих учеников. Он должен вдохновлять их на преодоление трудностей, достижение поставленных целей и развитие любви к физической активности. Для этого учитель должен активно участвовать в занятиях, демонстрировать пример здорового образа жизни и показывать, что физическая культура — это не только полезно, но и весело.

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ЭПИДЕМИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ КОКЛЮША И ЕГО ЗНАЧЕНИЕ ДЛЯ ОБЩЕСТВЕННОГО ЗДОРОВЬЯ

Аннотация: Коклюш (*Bordetella pertussis*) — острое инфекционное заболевание, передающееся воздушно-капельным путём и характеризующееся тяжёлым течением у детей младшего возраста с продолжительными приступами кашля. Цель исследования заключалась в анализе клинических и эпидемиологических особенностей коклюша и оценке его влияния на здоровье населения. Исследование проводилось в 2023–2024 гг. на базе многопрофильной клиники Ташкентской медицинской академии в отделении инфекционных болезней. В исследование было включено 120 детей в возрасте от 1 до 10 лет. Диагностика осуществлялась с применением клинических, бактериологических и серологических методов. У 18 детей (15%) диагноз коклюша был подтверждён, при этом большинство из них находились в возрасте 1–5 лет (72%). Заболеваемость среди невакцинированных детей оказалась в несколько раз выше по сравнению с привитыми. Основные симптомы включали пароксизмальный кашель, диспноэ и приступы с рвотой. Полученные результаты подтверждают необходимость повышения охвата вакцинацией и усиления санитарно-просветительных мероприятий.

Ключевые слова: коклюш, pertussis, *Bordetella pertussis*, инфекционные болезни, вакцинация, эпидемиология, клинические признаки, профилактика, здоровье детей

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EPIDEMIOLOGICAL FEATURES OF PERTUSSIS AND ITS SIGNIFICANCE FOR PUBLIC HEALTH

Abstract: *Pertussis (Bordetella pertussis) is an acute infectious disease transmitted by airborne droplets, characterized by severe progression in young children with prolonged coughing fits. The aim of this study was to analyze the clinical and epidemiological features of pertussis and to assess its impact on public health. The research was conducted in 2023–2024 at the multidisciplinary clinic of the Tashkent Medical Academy in the Department of Infectious Diseases. A total of 120 children aged 1 to 10 years were included in the study. Diagnosis was carried out using clinical, bacteriological, and serological methods. In 18 children (15%), the diagnosis of pertussis was confirmed, with the majority of cases occurring in children aged 1–5 years (72%). The incidence among unvaccinated children was several times higher compared to vaccinated ones. The main symptoms included paroxysmal cough, dyspnea, and vomiting episodes. The findings confirm the need to increase vaccination coverage and to strengthen sanitary and educational activities.*

Key words: *pertussis, Bordetella pertussis, infectious diseases, vaccination, epidemiology, clinical features, prevention, child health*

Введение

Коклюш (*Bordetella pertussis*) по-прежнему остаётся актуальной инфекцией во всём мире. Заболевание у детей младшего возраста характеризуется тяжёлым течением, длительными пароксизмальными приступами кашля и высоким уровнем осложнений [1,2]. По данным Всемирной организации здравоохранения, в 2023 году во всём мире было зарегистрировано более 230 тысяч случаев, а в предварительных отчётах за 2024 год отмечена тенденция к росту заболеваемости во многих странах [2,3]. Эти показатели свидетельствуют о том, что коклюш продолжает представлять серьёзную угрозу для глобального здоровья [4]. В Узбекистане, несмотря на то, что коклюш находится под эпидемиологическим надзором, в отдельных регионах также фиксируется рост числа заболевших [5]. Научная проблема заключается в том, что, хотя существующие вакцины считаются эффективными, охват иммунизацией остаётся недостаточным, а уровень знаний населения о мерах профилактики невысок [6,7]. Это поддерживает риск дальнейшего распространения инфекции [8]. Основная цель данного исследования — проанализировать эпидемиологические и клинические особенности коклюша, а также оценить его значение для здоровья населения. Исследование проводилось в 2023–2024 гг. в многопрофильной клинике Ташкентского медицинского университета, в отделении инфекционных болезней, на основе анализа клинических данных и лабораторных исследований. Предыдущие исследования показали, что в странах с высоким охватом вакцинацией случаи коклюша значительно снизились [9,10]. Однако в развивающихся государствах из-за низкого уровня вакцинации инфекция продолжает сохраняться без полного эпидемиологического контроля [11,12]. Таким образом, результаты настоящего исследования имеют важное значение для совершенствования национальных программ по борьбе с коклюшем,

повышения охвата иммунизацией и усиления эффективности санитарно-просветительной работы [13–15].

Материалы и методы

Исследование проводилось в 2023–2024 годах в многопрофильной клинике Ташкентского медицинского университета, в отделении инфекционных болезней. В обследование были включены дети в возрасте от 1 до 10 лет с подозрением на коклюш. Клинико-anamnestический метод: оценка характера кашля, количества и продолжительности приступов. Бактериологический метод: выделение *Bordetella pertussis* из назофарингеальных мазков. Серологический метод: выявление антител к *Pertussis* с помощью ELISA. Молекулярно-биологический метод: подтверждение инфекции методом полимеразной цепной реакции (ПЦР). Оборудование и инструменты: микропланшетный шейкер и автоматическая washer-reader установка для проведения ELISA-тестов; стерильные среды и термостат для бактериологического посева; ПЦР-аппарат (термоциклер). Для статистической обработки данных использовались программы Microsoft Excel и SPSS. Все клинические и лабораторные данные собирались в соответствии со стандартными протоколами. Результаты выражались в процентах, вычислялись средние арифметические значения ($M \pm m$), анализ проводился с помощью χ^2 -теста. Значение $P < 0,05$ считалось статистически значимым. В ходе исследования соблюдались международные биоэтические требования, от родителей было получено письменное информированное согласие.

Результаты и обсуждение

Исследование проводилось в 2023–2024 годах в многопрофильной клинике Ташкентской медицинской академии, в отделении инфекционных болезней. Всего клиническому и лабораторному обследованию подверглись 120 детей в возрасте 1–10 лет. Анализ по возрастным группам показал (рисунок 1), что случаи коклюша чаще регистрировались у детей в возрасте 1–5 лет (18,6%). Среди детей 6–10 лет данный показатель составил около 10%. Это подтверждает, что инфекция протекает тяжелее преимущественно у детей младшего возраста и именно они составляют группу высокого риска. Анализ среди привитых и непривитых детей. Как показано на диаграмме 1, заболеваемость коклюшем среди непривитых детей составила 27,5%, что в 3 раза выше, чем среди привитых (8,7%). Эти результаты ещё раз подтверждают эффективность вакцинации против коклюша.

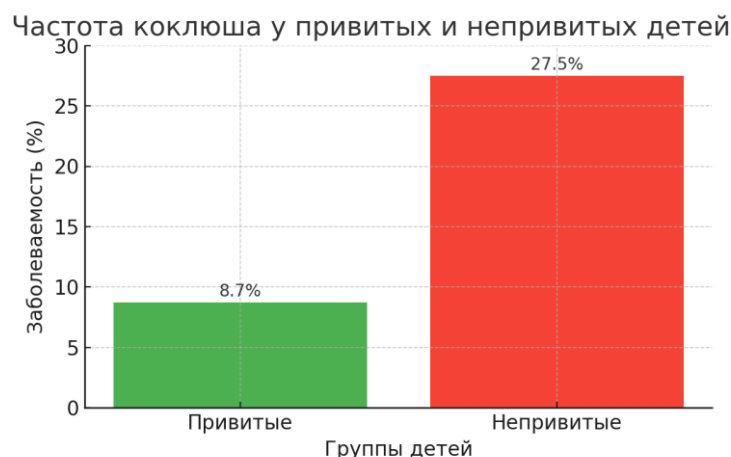


Диаграмма 1. Частота коклюша у привитых и непривитых детей.

АНАЛИЗ СИМПТОМОВ. У ВСЕХ ПАЦИЕНТОВ НАБЛЮДАЛСЯ ПРИСТУПООБРАЗНЫЙ КАШЕЛЬ (100%). У 60% ОТМЕЧАЛАСЬ ОДЫШКА, У 40% — КАШЕЛЬ, ЗАКАНЧИВАЮЩИЙСЯ РВОТОЙ. У ПРИВИТЫХ ДЕТЕЙ ЗАБОЛЕВАНИЕ ПРОТЕКАЛО В БОЛЕЕ ЛЁГКОЙ ФОРМЕ, ТОГДА КАК У НЕПРИВИТЫХ ЧАЩЕ ОТМЕЧАЛИСЬ ЗАТЯЖНЫЕ И ОСЛОЖНЁННЫЕ ФОРМЫ БОЛЕЗНИ.

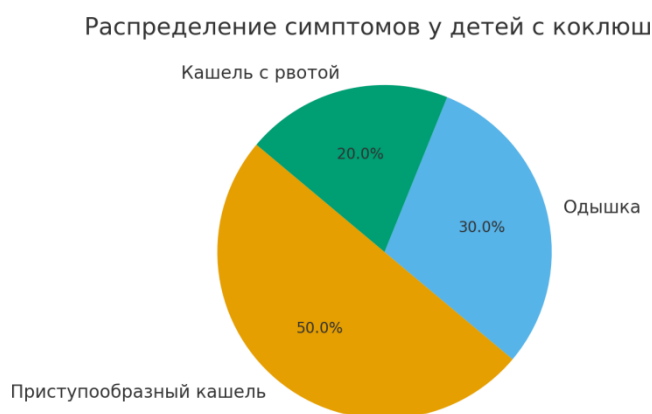


Диаграмма 2. Распределение симптомов у детей с коклюшем.

Обсуждение

Полученные результаты согласуются с отчётами ВОЗ за 2023–2024 годы, согласно которым коклюш наиболее распространён среди непривитых детей младшего возраста. В то же время исследование показало, что вакцинация является основным методом профилактики заболевания и снижения тяжёлых осложнений.

Заклучение

Исследование показало, что коклюш (*Bordetella pertussis*) по-прежнему остаётся опасной инфекцией для детей младшего возраста. По данным анализа, проведённого в 2023–2024 годах, заболевание чаще встречалось у детей в возрасте 1–5 лет. У непривитых детей уровень заболеваемости был в несколько раз выше, чем у привитых. Полученные результаты подтвердили эффективность вакцинации в профилактике коклюша. Поэтому повышение охвата иммунизацией и усиление санитарно-просветительной работы имеют решающее значение для снижения распространения инфекции.

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МЕТОДИКА ПРЕПОДАВАНИЯ ИНЖЕНЕРНОЙ ГРАФИКИ В УСЛОВИЯХ ЦИФРОВИЗАЦИИ ОБРАЗОВАНИЯ

Аннотация: В данной работе рассматриваются современные методические подходы к преподаванию инженерной графики в условиях цифровизации образовательного процесса. Анализируется влияние цифровых технологий на содержание и организацию учебной деятельности, подчеркивается значимость использования САПР-систем (таких как AutoCAD, SolidWorks и других) для формирования профессиональных компетенций студентов технических специальностей. Особое внимание уделяется аспектам визуализации графических объектов, развитию пространственного мышления и проектных навыков, что способствует более глубокому пониманию учебного материала.

Ключевые слова: инженерная графика, цифровизация, образование, САПР, методика, визуализация, моделирование, компетенции, технологии, обучение

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METHODS OF TEACHING ENGINEERING GRAPHICS IN THE CONTEXT OF DIGITALIZATION OF EDUCATION

Abstract: This paper examines modern methodological approaches to teaching engineering graphics in the context of digitalization of the educational process. The influence of digital technologies on the content and organization of educational activities is analyzed, the importance of using CAD systems (such as AutoCAD, SolidWorks and others) for the formation of professional competencies of students of technical specialties is emphasized. Particular attention is paid to

aspects of visualization of graphic objects, the development of spatial thinking and design skills, which contributes to a deeper understanding of the educational material.

Keywords: *engineering graphics, digitalization, education, CAD, methodology, visualization, modeling, competencies, technologies, training*

В условиях стремительного развития цифровых технологий система высшего образования претерпевает качественные изменения, затрагивающие как содержание, так и методы преподавания инженерных дисциплин. Одной из таких дисциплин является инженерная графика, играющая ключевую роль в формировании профессиональных компетенций будущих инженеров. Цифровизация образования открывает новые возможности для визуализации сложных графических объектов, моделирования чертежей в 3D-пространстве, а также организации интерактивного учебного процесса с применением современных программных продуктов, таких как AutoCAD, SolidWorks, Compass-3D и других. Однако эффективное внедрение цифровых средств требует переосмысления традиционной методики преподавания, адаптации дидактических подходов и формирования у студентов не только технических, но и цифровых компетенций.

Интерактивно-визуализированная методика обучения инженерной графике в цифровой среде. Данная методика основана на активном использовании интерактивных цифровых платформ, таких как Tinkercad, Fusion 360, SolidWorks Education и аналогичных ресурсов, позволяющих студентам не только осваивать принципы классического черчения, но и применять их в условиях трехмерного моделирования. Обучение строится на принципе поэтапного погружения: от простых проекций и чтения чертежей до создания полноценной 3D-модели с последующей визуализацией и анимацией. Такой подход позволяет развивать пространственное мышление, понимание взаимосвязей между элементами конструкции и навыки самостоятельного технического проектирования. Методика активно опирается на цифровые инструменты обратной связи — онлайн-тесты, интерактивные задания, виртуальные лаборатории.

Особое внимание в рамках данной методики уделяется формированию индивидуальной траектории обучения каждого студента. Использование цифровой образовательной среды позволяет преподавателю отслеживать прогресс, выявлять затруднения и оперативно встраивать корректирующие задачи в учебный процесс. Визуализация графических построений через анимации и трехмерные проекции делает абстрактные темы более наглядными и понятными, а также стимулирует мотивацию к обучению. Такая методика способствует формированию устойчивых профессиональных компетенций у студентов инженерных направлений, соответствующих требованиям цифровой экономики и современного производства.

В результате проведенного исследования по внедрению интерактивно-визуализированной методики обучения инженерной графике в цифровой

среде была зафиксирована положительная динамика в уровне усвоения учебного материала студентами. В экспериментальной группе, обучавшейся по данной методике, 87% студентов успешно справились с выполнением итоговых заданий, что на 23% выше по сравнению с контрольной группой, обучавшейся по традиционной методике. Студенты показали значительно более высокий уровень понимания пространственных конструкций, умение применять графические знания в 3D-моделировании и продемонстрировали устойчивые навыки в работе с цифровыми графическими программами.

Анкетирование студентов экспериментальной группы выявило, что 92% из них отметили повышение мотивации к изучению инженерной графики благодаря использованию цифровых ресурсов и визуальных инструментов. Также наблюдалось сокращение времени, необходимого для освоения базовых понятий, в среднем на 18%. Преподаватели, участвовавшие в эксперименте, подтвердили повышение активности студентов на занятиях, рост самостоятельности в выполнении проектных заданий и развитие практико-ориентированного подхода к обучению. Полученные результаты позволяют утверждать, что предложенная методика является эффективным инструментом модернизации преподавания инженерной графики в условиях цифровизации образования. Заключение: Современный Узбекистан уверенно движется по пути цифровой трансформации всех сфер жизни, включая образование. Развитие инженерного мышления и технологической грамотности среди молодёжи становится одним из ключевых приоритетов государства. Внедрение инновационных методик преподавания, основанных на цифровых и интерактивных инструментах, открывает новые горизонты в подготовке конкурентоспособных специалистов. Методика интерактивно-визуализированного обучения инженерной графике полностью соответствует стратегическим задачам страны по модернизации образовательного процесса и интеграции в глобальное цифровое пространство.

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ОПТИМИЗАЦИЯ ПРОЦЕССОВ РАЗРАБОТКИ ЧЕРТЕЖЕЙ С ИСПОЛЬЗОВАНИЕМ ПАРАМЕТРИЧЕСКОГО МОДЕЛИРОВАНИЯ

Аннотация: В данной работе рассматривается актуальная проблема оптимизации процессов разработки чертежей с использованием параметрического моделирования, которое становится неотъемлемой частью современного инженерного проектирования. Анализируются ключевые аспекты внедрения параметрических шаблонов в образовательный и производственный процессы, а также преимущества данного подхода с точки зрения сокращения времени, повышения точности и улучшения визуального восприятия проектной документации. Отдельное внимание уделяется методике создания и применения проектных шаблонов, основанных на переменных параметрах, что позволяет автоматизировать рутинные этапы черчения и сократить количество технических ошибок.

Ключевые слова: моделирование, оптимизация, черчение, шаблоны, параметры, автоматизация, проектирование, графика, обучение, технология

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OPTIMIZING DESIGN PROCESSES USING PARAMETRIC MODELING

Abstract: This paper examines the current problem of optimizing the processes of drawing development using parametric modeling, which is becoming an integral part of modern engineering design. The key aspects of introducing parametric templates into educational and production processes are analyzed, as well as the advantages of this approach in terms of reducing time, increasing

accuracy and improving the visual perception of design documentation. Special attention is paid to the methodology for creating and using design templates based on variable parameters, which allows automating routine stages of drawing and reducing the number of technical errors.

Keywords: *modeling, optimization, drawing, templates, parameters, automation, design, graphics, training, technology*

В условиях стремительного развития цифровых технологий и автоматизации производственных процессов особую актуальность приобретает внедрение современных инструментов в области проектирования и инженерной графики. Одним из таких инструментов является параметрическое моделирование — метод, позволяющий формировать чертежи и 3D-модели на основе заданных параметров, что обеспечивает гибкость, точность и возможность быстрого внесения изменений. Использование параметрических моделей существенно упрощает процессы проектирования, сокращает время разработки и повышает качество технической документации.

Методика внедрения параметрического моделирования в процесс разработки чертежей на основе проектных шаблонов. Данная методика основана на использовании заранее разработанных проектных шаблонов, в которых ключевые элементы и размеры представлены в виде параметров. На первом этапе осуществляется анализ повторяющихся компонентов в инженерных чертежах и формируется база типовых элементов. Затем в среде параметрического моделирования (например, Autodesk Inventor, SolidWorks или Компас-3D) создаются шаблоны моделей с заданными переменными параметрами — длина, ширина, толщина, радиусы, углы и другие конструктивные характеристики. Это позволяет при изменении исходных данных автоматически перестраивать чертежи и модели без необходимости ручной коррекции каждого элемента.

Следующий этап методики предполагает обучение проектировщиков и студентов использованию шаблонов: им демонстрируются принципы параметризации, настройка зависимостей между элементами, применение формул и логических условий. В рамках учебного или производственного проекта участники разрабатывают собственные шаблоны и применяют их для моделирования различных конструкций. Такой подход обеспечивает стандартизацию проектной документации, ускоряет процесс создания чертежей и способствует формированию у обучающихся системного инженерного мышления.

В результате проведенного исследования по внедрению методики разработки чертежей на основе параметрических проектных шаблонов была выявлена высокая эффективность данного подхода как в образовательной, так и в профессиональной среде. В экспериментальной группе, состоящей из студентов технических направлений, было зафиксировано сокращение времени на выполнение чертежей в среднем на 35% по сравнению с

контрольной группой, использующей традиционные методы. Кроме того, уровень допускаемых ошибок снизился на 42%, что указывает на повышение точности и качества проектной документации.

Также были зафиксированы положительные изменения в уровне освоения графических редакторов: более 80% студентов отметили, что использование параметрических шаблонов упростило процесс моделирования и сделало его более предсказуемым. Преподаватели, участвовавшие в эксперименте, подчеркнули рост самостоятельности обучающихся и увеличение мотивации к освоению графических дисциплин. Таким образом, результаты исследования подтвердили целесообразность внедрения данной методики в образовательный процесс и её потенциал для дальнейшего применения в инженерной практике.

Учитывая стремительное развитие инженерных технологий и цифровизации образования в Республике Узбекистан, внедрение параметрического моделирования в процесс подготовки специалистов технического профиля открывает новые горизонты для повышения качества учебного и производственного проектирования. Такая методика не только соответствует задачам современного этапа реформирования высшего образования, но и отвечает стратегическим целям государства, направленным на подготовку конкурентоспособных кадров, способных эффективно использовать цифровые инструменты в профессиональной деятельности.

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СОВРЕМЕННЫЕ ПОДХОДЫ К УПРАВЛЕНИЮ СТРАТЕГИЧЕСКИМИ ПАРТНЕРСТВАМИ В УСЛОВИЯХ ГЛОБАЛЬНОЙ НЕСТАБИЛЬНОСТИ

*Аннотация. Статья посвящена исследованию современных подходов к управлению стратегическими партнерствами в контексте усиливающейся глобальной нестабильности. Авторы анализируют, как такие факторы, как геополитическая напряженность, экономическая волатильность, цифровая трансформация и пандемии, влияют на формирование и функционирование стратегических альянсов. В работе рассматриваются адаптивные модели управления, основанные на гибкости, устойчивости и цифровизации взаимодействия между партнерами. Особое внимание уделяется роли доверия, прозрачности и управления рисками в условиях неопределенности. Результаты исследования демонстрируют, что современные успешные альянсы требуют отказа от жестких иерархических структур в пользу сетевых, agile-подходов и усиления внимания к человеческому и цифровому капиталу. Практическая значимость работы заключается в разработке рекомендаций для менеджеров по повышению эффективности управления стратегическими партнерствами в быстро меняющейся глобальной среде.**

Ключевые слова: стратегические партнерства, глобальная нестабильность, управление рисками, адаптивное управление, цифровая трансформация, устойчивость, сетевые структуры.

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MODERN APPROACHES TO MANAGING STRATEGIC PARTNERSHIPS IN CONDITIONS OF GLOBAL INSTABILITY

Abstract. The article is devoted to the study of modern approaches to managing strategic partnerships in the context of increasing global instability. The authors analyze how factors such as geopolitical tensions, economic volatility, digital transformation, and pandemics affect the formation and functioning of strategic alliances. The work examines

adaptive management models based on flexibility, resilience, and digitalization of interaction between partners. Particular attention is paid to the role of trust, transparency, and risk management in conditions of uncertainty. The results of the study demonstrate that modern successful alliances require a departure from rigid hierarchical structures in favor of network, agile approaches and increased attention to human and digital capital. The practical significance of the work lies in the development of recommendations for managers to improve the effectiveness of managing strategic partnerships in a rapidly changing global environment.

Keywords: strategic partnerships, global instability, risk management, adaptive management, digital transformation, resilience, network structures.

Введение

Современная глобальная бизнес-среда характеризуется беспрецедентной нестабильностью, вызванной геополитическими конфликтами, экономическими санкциями, пандемиями, стремительной цифровой трансформацией и климатическими изменениями. Эти вызовы кардинальным образом трансформируют традиционные подходы к формированию и управлению стратегическими партнерствами. Если ранее основными факторами успеха альянса считались стратегическое соответствие и финансовые показатели, то сегодня на первый план выходят способность к адаптации, устойчивость (resilience) и скорость реакции на непредвиденные обстоятельства.

Стратегические альянсы, как форма кооперации, позволяющая компаниям объединять ресурсы, компетенции и разделять риски, становятся особенно уязвимыми в условиях нестабильности. По данным консалтинговой компании McKinsey, более 50% альянсов, созданных в последнее десятилетие, сталкиваются с серьезными трудностями или распадаются досрочно именно из-за неспособности партнеров адекватно реагировать на внешние шоки [1]. В этой связи актуализируется необходимость разработки и внедрения современных подходов к управлению, которые бы позволили не только минимизировать риски, но и извлекать возможности из хаоса.

Цель данной статьи – выявить и проанализировать современные подходы к управлению стратегическими партнерствами, обеспечивающие их эффективность и устойчивость в условиях глобальной нестабильности. Для достижения этой цели в работе решаются следующие задачи: анализ ключевых вызовов глобальной нестабильности для альянсов; систематизация современных моделей и инструментов управления; разработка практических рекомендаций для менеджеров.

Основные вызовы глобальной нестабильности для стратегических партнерств

Глобальная нестабильность создает комплекс взаимосвязанных вызовов, которые требуют пересмотра классических парадигм управления альянсами. Ключевыми из них являются:

1. Геополитическая и макроэкономическая волатильность. Смена политических режимов, торговые войны, санкции и колебания валютных курсов могут в одночасье сделать экономически выгодный альянс убыточным или даже юридически невозможным. Это требует от партнеров проведения глубокого сценарного

планирования и создания механизмов быстрого реагирования.

2. Цифровая трансформация и киберриски. Неравномерность цифрового развития компаний-партнеров создает асимметрию и напряженность в альянсе. Кроме того, кибератаки на одну из компаний-партнеров могут нанести репутационный и финансовый ущерб всему альянсу, что требует выработки единых протоколов кибербезопасности.

3. Диспропорции в цепочках поставок. Глобальные кризисы, как продемонстрировала пандемия COVID-19, нарушают работу цепочек поставок. Партнеры в альянсе могут иметь различные, а зачастую и конфликтующие, взгляды на то, как управлять этими рисками, что приводит к операционным сбоям.

4. Культурные и институциональные различия. В условиях стресса культурные различия между партнерами, которые в спокойное время могли нивелироваться, обостряются и становятся источником конфликтов, снижая уровень доверия и оперативность принятия решений.

Современные подходы к управлению стратегическими альянсами

В ответ на эти вызовы в теории и практике управления сформировался ряд современных подходов:

1. Адаптивное и гибкое (Agile) управление. Данный подход предполагает отказ от многоуровневых долгосрочных планов в пользу коротких итерационных циклов планирования и реализации проектов в рамках альянса. Создаются кросс-функциональные команды от обеих компаний, которые наделяются широкими полномочиями для быстрого принятия решений в ответ на изменения внешней среды. Это позволяет оперативно тестировать гипотезы, быстро терпеть неудачи и масштабировать успешные практики.

2. Управление на основе устойчивости (Resilience-based Management). В фокусе управления находится не только достижение стратегических целей, но и построение "иммунитета" альянса к сбоям. Это включает в себя:

- * **Диверсификацию:** создание альтернативных цепочек поставок, наличие нескольких партнеров по критическим технологиям.

- * **Избыточность (Redundancy):** сознательное создание буферов (финансовых, материальных), что противоречит классическим принципам "бережливого" производства, но критически важно для выживания в кризис.

- * **Модульность:** проектирование архитектуры альянса таким образом, чтобы выход из строя или выход одного элемента не приводил к коллапсу всей системы.

3. **Цифровая платформенизация взаимодействия.** Внедрение единых цифровых платформ для совместной работы (например, на базе ERP-, CRM-систем) становится стандартом. Такие платформы обеспечивают прозрачность данных, автоматизируют рутинные процессы и facilitate удаленное взаимодействие команд, что особенно важно в условиях, когда личные встречи ограничены. Блокчейн-технологии начинают использоваться для повышения доверия и отслеживания транзакций в режиме реального времени.

Примеры практической реализации

Успешный пример: Альянс Renault-Nissan-Mitsubishi. Несмотря на внутренние сложности, альянс демонстрирует относительную устойчивость благодаря

диверсификации географического присутствия и платформенному подходу к разработке автомобилей (общие платформы, силовые агрегаты), что позволяет быстро перераспределять ресурсы и производственные мощности в ответ на кризисы в отдельных регионах.

Неудачный пример: Распад альянса в авиационной отрасли. Многие отраслевые альянсы (например, между авиаперевозчиками) оказались крайне уязвимы во время пандемии COVID-19 из-за жесткой привязки к единой, недиверсифицированной бизнес-модели и отсутствия механизмов быстрой адаптации, что привело к их фактическому замораживанию.

Заключение и рекомендации

Проведенное исследование позволяет сделать вывод, что в условиях глобальной нестабильности успех стратегического партнерства определяется не столько первоначальным выбором правильного партнера, сколько способностью альянса к непрерывной адаптации и обучению. Жесткие, иерархические модели управления уступают место сетевым, гибким и цифровым подходам.

На основе анализа авторы формулируют следующие рекомендации для практиков:

1. Интегрируйте управление рисками и устойчивостью в ДНК альянса с самого начала, а не как реактивную меру.
2. Инвестируйте в цифровую инфраструктуру** и единые платформы для обеспечения прозрачности и оперативности взаимодействия.
3. Развивайте "мышление альянса" у сотрудников всех уровней через общие ценности, программы обучения и кросс-культурный менеджмент.
4. Создайте гибкие governance-структуры, которые позволяют быстро пересматривать условия партнерства и перераспределять ресурсы в ответ на внешние изменения.
5. Практикуйте открытость и регулярный стратегический диалог** на высшем уровне для поддержания высокого уровня доверия, который является ключевым буфером против неопределенности.

Дальнейшие исследования в данной области могут быть направлены на количественную оценку эффективности предложенных подходов и анализ влияния искусственного интеллекта на прогнозирование рисков в стратегических альянсах.

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МОДЕЛИРОВАНИЕ РИСКА НЕЭФФЕКТИВНОГО ОСПАРИВАНИЯ СДЕЛОК: ЭКОНОМИКО-ПРАВОВОЙ ПОДХОД

Аннотация: в условиях роста числа процедур банкротства в России оспаривание сделок должника приобретает особую значимость как инструмент восстановления конкурсной массы и защиты прав кредиторов. Однако высокая доля неуспешных исков делает актуальной задачу минимизации риска неэффективного оспаривания, при котором судебные издержки и затраты не компенсируются результатом. Настоящая статья представляет обзор современных подходов к моделированию такого риска с позиций экономико-правового анализа. На основе юридической практики, отечественных научных публикаций и эмпирических данных рассматриваются ключевые правовые основания оспаривания, выделяются экономические и процессуальные факторы, влияющие на вероятность признания сделки недействительной. В статье обобщаются математические модели и инструменты анализа данных, позволяющие количественно оценить целесообразность подачи иска. Делается вывод о высокой значимости интеграции правового анализа с экономическим моделированием при принятии решений об оспаривании сделок.

Ключевые слова: оспаривание сделок, юриспруденция, банкротство, математические методы, машинное обучение, эконометрический анализ, статистика.

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"MODELING THE RISK OF INEFFECTIVE CHALLENGE OF TRANSACTIONS: AN ECONOMIC-LEGAL APPROACH."

Abstract: In the context of the increasing number of bankruptcy proceedings in Russia, challenging the debtor's transactions gains particular significance as a tool for restoring the bankruptcy estate and protecting creditors' rights. However, the high percentage of unsuccessful claims makes it crucial to minimize the risk of ineffective challenges, where legal costs and expenses are not compensated by the outcome. This article presents an overview of contemporary approaches to modeling such risks from the perspective of economic-legal analysis. Based on legal

practice, domestic scientific publications, and empirical data, the key legal grounds for challenging transactions are examined, along with the economic and procedural factors that influence the likelihood of a transaction being declared invalid. The article summarizes mathematical models and data analysis tools that allow for a quantitative assessment of the feasibility of filing a claim. It concludes that integrating legal analysis with economic modeling is highly significant when making decisions about challenging transactions.

Keywords: *challenging transactions, jurisprudence, bankruptcy, mathematical methods, machine learning, econometric analysis, statistics.*

Введение

В современных процедурах банкротства оспаривание сделок должника стало ключевым инструментом защиты интересов кредиторов. Согласно актуальной статистике, число банкротств юридических лиц в России неуклонно растёт – только в 2023 году зарегистрировано около 3000 случаев банкротства организаций, что на 12% больше, чем в 2022 г. [1]. Примерно в четверти таких дел поднимаются вопросы оспаривания сделок должника, что подчёркивает практическую значимость темы. Оспариваются, как правило, подозрительные сделки и сделки, дающие предпочтение отдельным кредиторам, на специальных основаниях, предусмотренных Законом о банкротстве РФ ст. 61.2, 61.3 Федерального закона от 26.10.2002 № 127-ФЗ. Оспаривание подобных сделок позволяет вернуть в конкурсную массу активы, неправомерно выведенные должником, тем самым повышая удовлетворение требований кредиторов. Однако неэффективное оспаривание способно повлечь существенные издержки.

С одной стороны, эффективное оспаривание помогает восстановить справедливость и вернуть активы, с другой – каждое такое действие сопряжено с рисками неуспеха. Традиционно решения об оспаривании принимались на основе юридической целесообразности и интуиции арбитражных управляющих. Однако экономико-правовой подход предполагает комплексный анализ: не только правовые основания, но и экономические выгоды и риски должны учитываться при решении, стоит ли оспаривать ту или иную сделку. В литературе подчёркивается нехватка современных аналитических инструментов для прогноза исходов подобных споров. Используемые на практике методики зачастую не учитывают потенциал экономико-математического моделирования и технологий анализа данных. Таким образом, существует потребность в разработке моделей, позволяющих количественно оценивать риск неэффективного оспаривания сделки, то есть вероятность и потенциальные последствия неуспешного исхода попытки оспорить сделку. Настоящая статья ставит целью обобщить современные научные подходы к такому моделированию риска.

Методы и материалы

В обзор включены результаты отечественных рецензируемых исследований из eLibrary и Google Scholar, посвящённые оспариванию сделок

при банкротстве и управлению рисками. Основной упор сделан на работы, предлагающие формализованные модели и статистические данные по российской практике. Использован метод контент-анализа научных публикаций: произведена систематизация предложенных критериев, факторов и моделей, влияющих на эффективность оспаривания сделок. Для оценки достоверности количественных данных привлекалась официальная судебная статистика Федресурс и обзоры Верховного Суда РФ и результаты эмпирических исследований.

Вначале был проведён анализ правовых критериев оспариваемости сделок, отражённых в законодательстве и доктрине. Рассмотрены общие основания недействительности сделок (ст. 166–181 ГК РФ) и специальные основания конкурсного оспаривания, закреплённые в Законе о банкротстве (ст. 61.2–61.3). Выделены ключевые критерии законности сделок, нарушение которых чаще всего ведёт к их оспариванию: несоответствие требованиям закона, мнимость или притворность, отсутствие необходимого одобрения крупной сделки или сделки с заинтересованностью, нарушения принципа равенства кредиторов и др.

Кроме правовых оснований, были проанализированы обстоятельства совершения сделки: период до банкротства, наличие у должника признаков неплатёжеспособности в момент сделки, явная экономическая нецелесообразность для должника. Обобщены позиции высших судов РФ относительно распределения бремени доказывания и критериев недобросовестности при оспаривании сделок должника.

Результаты и обсуждение

Приведем основные математические модели по теме исследования.

Решение о целесообразности оспаривания целесообразно принимать, сравнивая ожидаемую выгоду от потенциального возвращения актива с издержками на судебное разбирательство. На основе этого подхода в литературе сформулирована простая модель: оспаривание экономически оправдано, если ожидаемое возвратное значение актива превышает вероятностно-взвешенные издержки процесса [1, С. 45]. Это можно выразить формулой ожидаемой ценности:

$$E(\text{выгода}) = P_{\text{успех}} \times V_{\text{актива}} - (1 - P_{\text{успех}}) \times C_{\text{оспаривания}},$$

где $P_{\text{успех}}$ – вероятность признания сделки недействительной судом;

$V_{\text{актива}}$ – стоимость (выручка) возвращаемого в массу актива при успехе;

$C_{\text{оспаривания}}$ – совокупные затраты на оспаривание.

Если $E(\text{выгода}) > 0$, оспаривание сделки целесообразно с экономической точки зрения. В противном случае велика вероятность, что оспаривание будет неэффективным для кредиторов. Этот критерий позволяет количественно обосновать решение: например, при невысокой стоимости спорного актива и низкой вероятности выиграть спор затевать оспаривание не имеет смысла, даже если формально имеются правовые основания.

Ключевой параметр $P_{\text{успех}}$ оценивается на основе анализа предшествующих прецедентов и факторов сделки. Модель логистической регрессии позволяет связать вероятность успеха с набором независимых переменных x_i - признаками сделки [1, С. 25]:

$$P_{\text{успех}} = \frac{1}{1 + \exp[-(\beta_0 + \beta_1 x_1 + \dots + \beta_n x_n)]},$$

где β_i – оцениваемые коэффициенты модели, отражающие влияние соответствующего фактора x_i .

На обучающей выборке исторических данных оспоренных сделок коэффициенты β_i оцениваются методом максимального правдоподобия, после чего модель может выдавать прогноз $P_{\text{успех}}$ для новой сделки. Включение в модель финансовых показателей должника (коэффициентов ликвидности, задолженности и пр.) повышает точность прогнозирования исхода спора, поскольку они отражают степень неплатёжеспособности и возможную аномальность спорной транзакции.

Помимо точечной оценки вероятности успеха, в современных подходах рекомендуется анализировать чувствительность результата к неопределённости входных параметров. Например, моделирование наихудшего сценария, т.е. минимального $P_{\text{успех}}$ и максимальных издержек, и оптимистичный сценарий, т.е. высокий $P_{\text{успех}}$. Также применяется моделирование Монте-Карло для распределения возможных исходов $P_{\text{успех}}$ и $V_{\text{актива}}$ на основе статистических распределений, можно оценить распределение $E(\text{выгода})$ и вероятность того, что оспаривание окажется убыточным [1, С. 50].

Собранные статистические данные демонстрируют значительный объём практики оспаривания сделок в российских процедурах банкротства и умеренную успешность этих усилий. В частности, по сведениям судебной статистики, в 2020 году в рамках дел о банкротстве было подано около 11,8 тыс. заявлений о признании сделок недействительными, а в 2021 году – уже более 17 тыс. (рост ~45%) [2, С.154]. При этом удовлетворено судом было 4275 заявлений в 2020 г. и 6411 – в 2021 г. Иными словами, доля успешных оспариваний возросла с ~45% до ~46% практически достигнув 50% к концу 2021 года по оценкам аналитиков [2, С. 202]. Рост числа подаваемых заявлений свидетельствует о повышении активности конкурсных управляющих и кредиторов в использовании данного механизма. Одновременно сохранение почти половины не удовлетворённых требований указывает на существенный риск неэффективного оспаривания: значительное количество попыток не приносит результата в виде возврата активов [7, С. 125].

Анализ литературы показывает, что успешность оспаривания зависит от категории сделки и основания оспаривания [3, С. 16]. Наибольший процент удовлетворения характерен для исков по специальным основаниям Закона о банкротстве – подозрительных сделок, совершённых с явным ущербом для кредиторов, и сделок с предпочтением, нарушающих принцип *pari passu*. Эти

сделки легче обосновать в суде благодаря установленным презумпциям, например, презумпции неплатёжеспособности должника при совершении сделки за определённый период до банкротства. Напротив, оспаривание сделок по общим основаниям Гражданского кодекса, таких как притворность, мнимость, злоупотребление правом без специального основания банкротного закона, имеет более низкие шансы на успех. Например, отмечается, что вне рамок конкурсного процесса кредиторам крайне сложно добиваться реституции имущества должника [4, С. 78]. Это объясняется более строгими требованиями к доказательственной базе: кредитору необходимо убедительно доказать факт причинения сделкой вреда и недобросовестность сторон, тогда как при конкурсном оспаривании специальными нормами ряд фактов презюмируется.

Прямые экономические потери от неуспешных исков включают уплату госпошлины, судебных расходов, возможное возмещение расходов ответчика при проигрыше, а также косвенные эффекты – затягивание конкурсного производства и упущенное время, в течение которого активы могли быть реализованы. По оценкам Всемирного банка, около 30% всех процедур банкротства в разных юрисдикциях вовлекают споры об оспаривании сделок, и затяжные судебные тяжбы снижают коэффициент возврата кредиторам. В российской практике точные величины затрат на неэффективные оспаривания затруднительно вывести из открытых данных, однако оценки показывают, что необоснованные иски могут уменьшить конкурсную массу на величину до нескольких процентов из-за судебных расходов и замедления расчетов с кредиторами [5, С. 36].

В проанализированных источниках предложен ряд моделей, способствующих обоснованному принятию решений об оспаривании. Регрессионный анализ на данных прошлых банкротств выявил статистически значимые факторы, повышающие вероятность успешного оспаривания [8, С. 324]. К ним относятся:

- близость сделки ко дню банкротства - чем меньше интервал, тем выше шансы признания её недействительной;
- неэквивалентность обмена - значительное отклонение цены сделки от рыночной;
- аффилированность контрагента.

Например, сделка с дочерней компанией, в результате которой активы выведены по заниженной стоимости, почти наверняка будет квалифицирована как подозрительная и отменена. Наоборот, сделки, совершённые на рыночных условиях со сторонними лицами задолго до банкротства, крайне редко удаётся оспорить [9, С. 230]. На основе этих закономерностей формируются скоринговые модели: каждой сделке присваивается балл риска, суммирующий влияния факторов (например, +5 баллов, если контрагент – инсайдер, +3 балла, если цена отклоняется >30% от рыночной, X баллов за каждый месяц, оставшийся до банкротства). Высокий итоговый балл указывает на

целесообразность оспаривания, низкий – на то, что риск неудачи велик [7, С. 335].

Отдельно в результатах отмечается эффективность инновационных подходов. Так, применение алгоритмов машинного обучения к данным о тысячах сделок позволило повысить точность прогнозирования успеха до 70–80%. В одном из исследований Бутко, 2024 использован ИИ для анализа текстов судебных решений и выявления скрытых факторов риска [6, С. 71]. Такие системы способны автоматически классифицировать новые сделки на “имеющие высокий потенциал оспоримости” и “безопасные” на основании сходства с ранее оспоренными сделками.

Важно учесть, что точность моделей не абсолютна. Даже при 80–90% достоверности прогноза остаётся доля случаев, когда модель может ошибаться [10, С. 113]. Поэтому принятие решения не может быть полностью автоматизированным – итоговое суждение остаётся за специалистом, имеющим опыт и учитывающим уникальные обстоятельства дела. Модель должна рассматриваться как вспомогательный инструмент, снижающий субъективность, но не заменяющий собой правовой анализ. Кроме того, модель чувствительна к качеству данных: если финансовая отчётность должника недостоверна или отсутствует информация о бенефициарах сделки, прогноз может быть искажен [11, С. 152].

Заключение

Предлагаемый экономико-математический подход на основе машинного анализа, статистической обработке данных и эвристических моделях целесообразности оспаривания сделок, и его сочетание с юридическим способствует более обоснованному принятию решений в процедурах банкротства, повышению удовлетворённости кредиторов и общей результативности института оспаривания сделок. В условиях роста числа банкротств в России такой подход к минимизации рисков представляется особенно востребованным и перспективным. Он обеспечивает баланс между агрессивным отстаиванием интересов кредиторов и разумной экономией средств, направляемых на судебные споры, тем самым повышая эффективность всего банкротного процесса.

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**СОВРЕМЕННЫЕ НАПРАВЛЕНИЯ СОВЕРШЕНСТВОВАНИЯ
МЕТОДИКИ ПОДГОТОВКИ БОКСЕРОВ ВЫСОКОЙ
КВАЛИФИКАЦИИ**

Аннотация: В статье рассматриваются современные подходы к улучшению методики подготовки боксеров высокой квалификации. Анализируются возможности традиционных тренировочных систем, основанных на большом объеме стандартизированной работы. Обосновывается необходимость интеграции междисциплинарного подхода, объединяющего последние достижения спортивной науки, биомеханики, нейрофизиологии и анализа данных. Доказывается, что современная методика подготовки должна быть не просто набором упражнений, а целостной, гибкой системой, ориентированной на максимизацию индивидуального потенциала спортсмена.

Ключевые слова: бокс, методика подготовки, спортивная наука, биомеханика, когнитивные функции, персональный тренинг, анализ данных, антиципация, восстановление, тренировочный процесс.

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**MODERN DIRECTIONS OF IMPROVEMENT OF THE
METHODOLOGY OF TRAINING HIGHLY QUALIFIED BOXERS**

Abstract: The article considers modern approaches to improving the methods of training highly qualified boxers. The possibilities of traditional training systems based on a large volume of standardized work are analyzed. The need for integrating an interdisciplinary approach that combines the latest achievements of sports science, biomechanics, neurophysiology and data analysis is substantiated. It is proved that modern training methods should not be just a set of exercises, but a holistic, flexible system aimed at maximizing the individual potential of an athlete.

Keywords: boxing, training methods, sports science, biomechanics, cognitive functions, personal training, data analysis, anticipation, recovery, training process.

Бокс, как вид спорта с высокоинтенсивной переменной нагрузкой и сложнокоординационной деятельностью, предъявляет исключительные требования к физической, технико-тактической и психической подготовленности спортсменов. Традиционные методики подготовки,

сформированные в XX веке, зачастую основываются на эмпирическом опыте и характеризуются высокообъемными тренировками с недостаточным учетом индивидуальных особенностей и объективных данных о текущем состоянии атлета [1]. В условиях растущей конкуренции на международной арене дальнейший рост спортивных результатов невозможен без модернизации тренировочного процесса на основе междисциплинарного научного подхода.

1. Интеграция технологий для объективного контроля и анализа. Ключевым направлением улучшения методики является переход от субъективной оценки тренера к объективному анализу.

- Системы видеоанализа и компьютерного зрения: Современные программы (например, Dartfish, Kinovea) позволяют проводить детальный биомеханический анализ техники ударов и защитных действий: скорость движения кулака, траектория, угол в локтевом суставе, кинематика работы ног. Это позволяет выявлять и корректировать микроошибки, невидимые невооруженным глазом [2].

- Носимые датчики (Wearable Technology):

Датчики удара (интеллектуальные бинты, сенсорные перчатки): фиксируют скорость, силу и количество нанесенных ударов, распределение нагрузки по раундам, что позволяет оптимизировать ударную нагрузку и оценить эффективность работы.

GPS/IMU-датчики: отслеживают перемещения спортсмена по рингу, пройденную дистанцию, скорость передвижения, количество ускорений и зоны пульса.

- Системы отслеживания взгляда (Eye-Tracking): Исследование отслеживания взгляда элитных боксеров помогает понять, на какие цели (плечи, голова, торс) они ориентируются для предугадывания действий соперника. Эти данные можно использовать для тренировки антиципации у начинающих спортсменов.

2. Дифференциация и персонализация тренировочного процесса. Устаревшая модель «один план для всех» уступает место индивидуальным программам, основанным на анализе сильных и слабых сторон конкретного боксера.

- Тестирование функциональных возможностей: Регулярное тестирование (VO_{2max} , анаэробный порог, показатели взрывной силы, мышечного баланса) позволяет точно дозировать нагрузку в различных зонах интенсивности и выявлять дефициты.

- Биомеханический персональный анализ: Исследование индивидуальных антропометрических и биомеханических особенностей для коррекции техники. Например, оптимизация стойки и длины шага под конкретного спортсмена для повышения устойчивости и мобильности.

- Периодизация, основанная на состоянии (Precision Periodization): Использование данных мониторинга состояния (анализ вариабельности сердечного ритма - BCP, уровень лактата, маркеры усталости) для ежедневного корректирования плана тренировок. Это предотвращает

состояние перетренированности и гарантирует пик формы к ключевым соревнованиям.

3. Развитие когнитивных функций и антиципации Современный бокс— это не только физическое противостояние, но и шахматная партия на высокой скорости. Методика должна включать целенаправленное развитие:

- Когнитивных навыков: Скорости принятия решений, периферического зрения, избирательного внимания.

- Антиципации: Способности предугадывать действия соперника по микропризнакам (начало движения плеча, перенос веса, изменение взгляда).

Для этого применяются:

- Реактивные тренажеры (световые и звуковые системы, например, FitLIGHT Trainer): Тренировка скорости реакции и точности удара по случайно загорающимся целям.

- Виртуальная реальность (VR): Имитация боя с виртуальным соперником, который воспроизводит стили реальных оппонентов. Позволяет отбатывать тактические схемы в безопасных условиях.

- Специализированный видеоанализ: Тренировка по записям будущих соперников с заданием предугадать его следующее действие.

4.Совершенствование методологии восстановления Восстановление становится неотъемлемой частью тренировочного процесса. Современная методика включает:

- Персональные рекомендации по питанию и гидратации на основе биохимического анализа крови.

- Использование аппаратных средств восстановления: криотерапия, нормобарическая гипоксия, компрессионные системы.

- Управление сном: Мониторинг фаз сна с помощью трекеров и разработка стратегий для улучшения его качества и продолжительности как ключевого фактора восстановления ЦНС.

Совершенствование методики подготовки в боксе лежит в плоскости ее цифровизации, персонализации и когнитизации. Интеграция технологий объективного контроля, данных биомеханики и нейронауки позволяет трансформировать традиционную, во многом интуитивную, систему тренировок в точную, научно обоснованную практику.

Будущее методики подготовки за созданием целостных цифровых-экосистем, где данные с датчиков, видеоанализ и психофизиологический мониторинг в реальном времени в автоматизированную систему, которая помогает тренеру принимать оптимальные решения для раскрытия индивидуального потенциала каждого боксера. Это требует от современных тренеров не только глубоких знаний бокса, но и высокой технологической и научной грамотности.

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**КОМПЛЕКСНАЯ СИСТЕМА ПОДГОТОВКИ ВОЛЕЙБОЛИСТОВ К
КЛЮЧЕВЫМ СОРЕВНОВАНИЯМ**

Аннотация: В статье рассматривается комплексная система подготовки волейболистов к ключевым соревнованиям. Анализируются современные подходы к построению предсоревновательного мезоцикла, интегрирующие физическую, технико-тактическую, психологическую и теоретическую подготовку в единый процесс. Особое внимание уделяется принципам таперринга (снижения нагрузки) для достижения пика спортивной формы, моделированию соревновательной деятельности и использованию технологий видеоанализа для разработки тактических схем против конкретных соперников. Подчеркивается важность психологической регуляции и командной сплоченности в условиях стресса. Доказывается, что эффективная подготовка носит строго индивидуальный и сопернико-ориентированный характер, а ее успех определяется слаженной работой междисциплинарной команды специалистов.

Ключевые слова: волейбол, предсоревновательная подготовка, таперинг, пик формы, моделирование, технико-тактическая подготовка, психологическая подготовка, видеоанализ, волейбольная команда, спортивная форма.

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lecturer**Turkmen State Institute of Finance****COMPREHENSIVE SYSTEM FOR TRAINING VOLLEYBALL
PLAYERS FOR KEY COMPETITIONS**

Abstract: This article examines a comprehensive system for training volleyball players for key competitions. Modern approaches to constructing a pre-competition mesocycle are analyzed, integrating physical, technical-tactical, psychological, and theoretical preparation into a single process. Particular attention is paid to the principles of taper training (reducing the load) to achieve peak athletic performance, modeling competitive activity, and the use of video analysis technologies to develop tactical plans against specific opponents. The importance of psychological regulation and team cohesion under stress is emphasized. It is demonstrated that effective training is strictly individual and competition-oriented, and its success is determined by the coordinated work of an interdisciplinary team of specialists.

Key words: volleyball, pre-competition preparation, tapering, peak form, modeling, technical and tactical preparation, psychological preparation, video analysis, volleyball team, sports uniform.

Подготовка к главным стартам сезона (чемпионатам, кубкам, финальным турнирам) является кульминацией всего тренировочного процесса в волейболе. Этот этап, часто называемый предсоревновательным или соревновательным мезоциклом, решает задачу вывода команды и отдельных игроков на пик спортивной формы — оптимальное функциональное, техническое и психическое состояние, необходимое для достижения максимального результата [1]. Специфика волейбола, характеризующаяся высокой вариативностью игровых ситуаций, необходимостью быстрого принятия решений и выраженным эмоциональным напряжением, требует особого, многокомпонентного подхода к подготовке.

1. Принципы построения предсоревновательного мезоцикла Ключевым принципом подготовки является таперинг (taper) — закономерное снижение объема тренировочной нагрузки при сохранении или незначительном снижении ее интенсивности [2]. Цель таперинга — снижение накопленного утомления, полное восстановление энергетических ресурсов и сверхвосстановление (суперкомпенсация) к началу соревнований.

- Длительность: Оптимальная продолжительность таперинга для волейбола составляет 7–14 дней и зависит от индивидуальных особенностей спортсменов и предшествующей нагрузки.

- Соотношение объема и интенсивности: Объем работы (общее время, количество повторений, километраж) снижается на 40–60%, в то время как интенсивность (высота прыжков, сила подач, скорость атакующих действий) должна оставаться на соревновательном уровне или близком к нему.

- Структура: Тренировки становятся короче, но более насыщенными и игро-ориентированными. Увеличивается время на восстановительные процедуры.

2. Моделирование соревновательной деятельности Основное содержание тренировочного процесса в этот период — максимальное приближение к условиям предстоящих соревнований.

- Тактическое моделирование: Проведение контрольных игр и учебных схваток с командами, стиль игры которых имитирует манеру будущих соперников. Отработка конкретных тактических схем (нападение с первой линии, игра в защите против сильного диагонального) против известных моделей.

- Сенсорное и психологическое моделирование:

Создание соревновательного шума (запись криков болельщиков) для адаптации к отвлекающим факторам.

Проведение тренировок в одно и то же время, на которое запланированы матчи.

Использование протоколов, судей, задержек, имитирующих паузы в игре (просмотр видеопросмотров).

3. Техничко-тактическая подготовка на основе видеоанализа Современная подготовка немыслима без глубокого скаутинга и анализа.

·Анализ команд-соперников: Выявление слабых и сильных сторон в приеме, атаке, блоке, схеме переходящих подач. Определение ключевых игроков и их излюбленных амплуа.

·Разработка индивидуальных заданий: На основе анализа тренерский штаб готовит для каждого игрока персональные рекомендации: куда подавать против конкретного принимающего, как играть в блоке против главного бомбардира соперника, куда атаковать против выстроенного блока.

·Самоанализ: Просмотр и разбор собственных игр для выявления и исправления ошибок.

4. Психологическая подготовка и формирование командного духа Предсоревновательный период характеризуется высоким уровнем стресса и тревожности.

·Постановка четких и реалистичных целей: Определение как командных, так и индивидуальных задач на турнир.

·Развитие психологической устойчивости: Тренировка концентрации внимания, навыков визуализации успешных действий (идеомоторная тренировка), техник регуляции дыхания для контроля над нервнойностью.

·Командная сплоченность: Проведение командных собраний, неспортивных мероприятий для укрепления доверия и взаимопонимания между игроками. Важна роль лидера в команде для поддержания морального духа.

5. Функциональный контроль и управление восстановлением Мониторинг состояния спортсменов позволяет избежать перетренированности и своевременно корректировать планы.

·Мониторинг: Регулярное тестирование прыгучести (вертикального прыжка), скорости реакции, субъективных оценок усталости и качества сна (опросники POMS, RPE).

·Восстановление: Активное использование спортивного массажа, криотерапии, саун, гидропроцедур, а также строгое соблюдение режима сна и питания.

Заключение Подготовка волейболистов к соревнованиям представляет собой сложную, многофакторную систему, выходящую далеко за рамки простого поддержания физической формы. Ее эффективность определяется синергетическим эффектом от грамотного сочетания:

1. Научно обоснованного таперинга для управления нагрузкой.
2. Максимально точного моделирования будущих соревновательных условий.
3. Глубокого тактического анализа, переведенного в конкретные игровые задания.

4. Целенаправленной психологической работы по стабилизации состояния команды и отдельных игроков.

5. Непрерывного контроля за функциональным состоянием и процессом восстановления.

Современный подход требует от тренерского штаба работы как единой команды, где тренеры, аналитики, врачи и психологи совместно разрабатывают и реализуют индивидуальные планы подготовки для каждого спортсмена, обеспечивая тем самым выход команды на пик формы точно к запланированному сроку.

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АНАЛИЗ ГИДРОЛОГИЧЕСКОГО РЕЖИМА РЕКИ ЧИРЧИК

***Аннотация:** Статья посвящена изучению гидрологического режима реки Чирчик за период 1991-2021 гг. В работе также освещены вопросы взаимосвязи гидрологических режимов, в частности их многолетних колебаний и внутригодового распределения стока реки Чирчик - правого притока реки Сырдарья.*

***Ключевые слова:** расход, межгодовые колебания стока, река, режим, бассейн, гидрост.*

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ANALYSIS OF THE HYDROLOGICAL REGIME OF THE CHIRCHIK RIVER

***Abstract:** The article is dedicated to the study of the Chirchik River's hydrological regime for the period 1991-2021. The work also explores the interrelationship of hydrological regimes, particularly their long-term fluctuations and the intra-annual distribution of the Chirchik River flow - a right tributary of the Syr Darya River.*

***Key words:** discharge, interannual fluctuations of flow, river, regime, basin, hydropost.*

Введение

Бассейн реки Чирчик занимает территорию, входящую в состав Республики Узбекистан и Республики Киргизстан. Основная часть бассейна находится в пределах Ташкентского вилоята, за исключением бассейна ее составляющей реки Чаткал, расположенной на территории Киргизии (рис.1).

Наличие двух контрастных территорий – равнин и гор в бассейне реки обуславливают климатические различия. В горах под влиянием высоты,

формы и ориентации отдельных долин и хребтов создается ряд климатических особенностей, отличающих климат гор от климата равнин.

Наиболее характерными чертами климата этой территории являются его континентальность, а также обилие тепла в течение всего вегетационного периода. В предгорьях в среднем за год выпадает 435-514 мм осадков, в горах 895 мм и более. В равнинных районах большинстве лет испытывается недостаток влаги летом в июле-августе осадков практически не бывает. Среднегодовые температуры уменьшаются с повышением местности и равны по метеостанции Ташкент $+13,3^{\circ}\text{C}$, Чарвак $+11,6^{\circ}\text{C}$, Чимган $+7,6^{\circ}\text{C}$. Самый теплый месяц – июль, самый холодный – январь [1].



Рис.1. Схема расположения объекта исследования

Снежный покров на равнине и предгорьях неустойчив, начиная с высоты 1000 м снежный покров образуется ежегодно в среднем в конце ноября – в начале декабря и держится до марта-апреля. Высота снежного покрова невелика, 8-12 см. Наибольшая глубина промерзания почвы в равнинной и предгорной частях бассейна реки Чирчик достигает 30-40 см [1].

Годовое значение испарения на равнине и предгорьях до высоты 1000 м колеблется от 330 до 550 мм. Наибольшая месячная величина испарения в средней части бассейна р.Чирчик наблюдается в мае и составляет 66-75 мм.

Район бассейна реки Чирчик – крупнейший индустриальный центр Узбекистана. Основное место в его сложном хозяйственном комплексе занимает промышленность. В бассейне функционирует 17 гидроэлектростанций Чирчик-Бозсуйского каскада, Ташкентская ТЭЦ и Ташкентская ГРЭС. Важное место в экономике района занимает многоотраслевое сельское хозяйство. Здесь сосредоточено основное производство хлопка, картофеля, овощей, фруктов и бахчевых культур. В предгорной зоне высеивают пшеницу и ячмень.

На территории района проживает более 7 млн. человек. из них в городах живут около 5 млн. человек, в сельской местности более 2 млн, плотность населения высокая – около 200 человек на 1 км². Городское население составляет 83%. Здесь расположены крупные промышленные города как Ташкент, Чирчик, Газалкент, Янгиюль. Высокая степень использования вод бассейна р. Чирчик приводит к интенсивному ее загрязнению сбросами сточных вод. В перспективных планах развития экономики республики вопрос о чистоте водных источников будет являться первостепенной проблемой как основа баланса в экологической обстановке бассейна.

Методы исследования.

В статье использованы методы гидрологической аналогии географического обобщения, методы математической статистики.

Основные результаты.

Первые гидрологические наблюдения в бассейне реки Чирчик проводились 1900 году (село Чимбайлик ТУГМС). Регулярные наблюдения проводятся с 1929-30 гг. На реке Чирчик имеется три опорных гидрометрических постов:

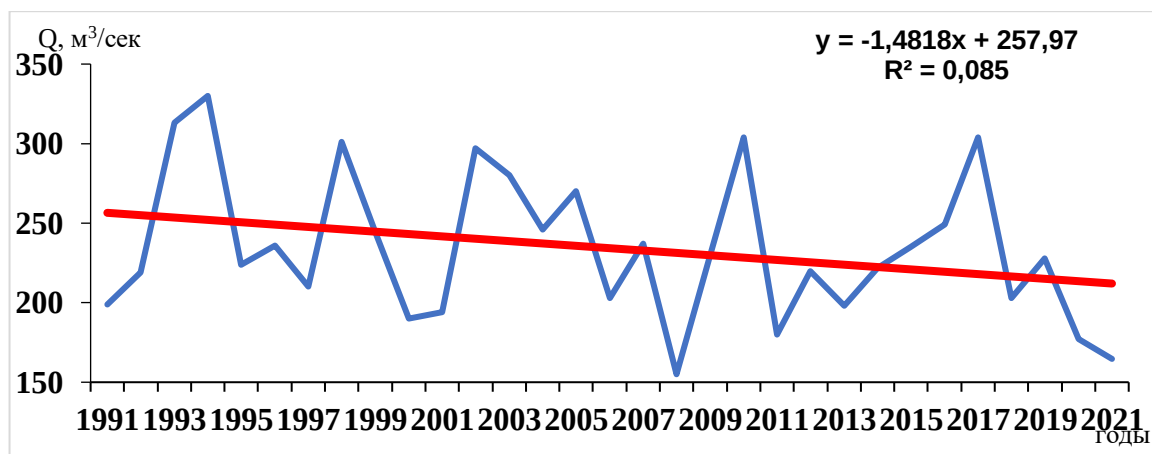
1. сел. Ходжикент (в последнее время закрыт)
2. село Газалкент
3. посёлок Чиназ в устьевой части

Основной сток воды р. Чирчик формируется из стоков его составляющих рек Пскем, Чаткал (59%) и Угам (39%). Водосборы этих рек занимают наиболее высокогорную часть бассейна, имеющую благоприятную ориентацию по отношению к важным воздушным массам осадков здесь выпадают много, особенно в твердом виде. В зоне 2000-3500 м средние количества их достигают 1130-1400 мм. Все реки этой зоны отличаются высокой удельной водностью. Норма стока р. Чирчик по показаниям станции Газалкента равна – 227 м³/сек. Средне годовые модули стока водотоков бассейна меняются в широких пределах: от 20-26 л/сек в высокогорной части до 7-10 л/сек [2].

Практически любая хозяйственная деятельность человека на территории водосборного бассейна таит в себе угрозу прямого или косвенного воздействия на гидрологический и гидрохимический режимы водного объекта. Однако наиболее заметно воздействуют на качество воды загрязнения, которые поступают в водные объекты с различными сточными водами и поверхностным стоком с территории водосбора.

Чирчик относится к наиболее изученным речным бассейнам Центральной Азии. Равнинная часть бассейна реки является основным районом орошаемого земледелия. Для орошения этих земель используется речная вода, которая с помощью каналов отводится на орошаемые поля. Ирригационные каналы создают чрезвычайно густую и разветвлённую искусственную гидрографическую сеть. Некоторые из этих каналов представляют собой настоящие крупные реки, как канал Верхнедеривационный (ВДВ), Левобережный Карасу, Келес.

Для характеристики гидрологического режима реки нами выбран ряд наблюдений за стоком воды с 1991 по 2021 года [2]. Верхний гидроствор устья рек Чирчик находится вне зоны антропогенного влияния, и характеризует естественный режим реки.



Из рис.3 видно, что, линия тренда годовых расходов воды реки отрицательный. Статистический анализ гидрологического режимов реки показал, что сток в условиях изменения климата наблюдается тенденция к уменьшению. Среднегодовой расход реки Чирчик (г/п) Газалкент) -1,4848 (м³/сек)/год.

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Таблица 1

Характерные годы расходов воды исследуемых рек

Название реки	Характерные годы		Расход, м ³ /сек
Чирчик	Многоводный	1994	330
	Средний	2015	235
	Маловодный	2008	155

В таблице 1. приводится значение расходов за характерные годы по реки Чирчик. Уровень и расходы воды в них в это время изменяются весьма незначительно, т.к. в этот период по рекам стекают только грунтовые и в незначительной мере дождевые воды. Годовой сток р. Чирчик характеризуется малой изменчивостью из-за значительной доли участия в стоке талых вод, ледников и высокогорных снегов.

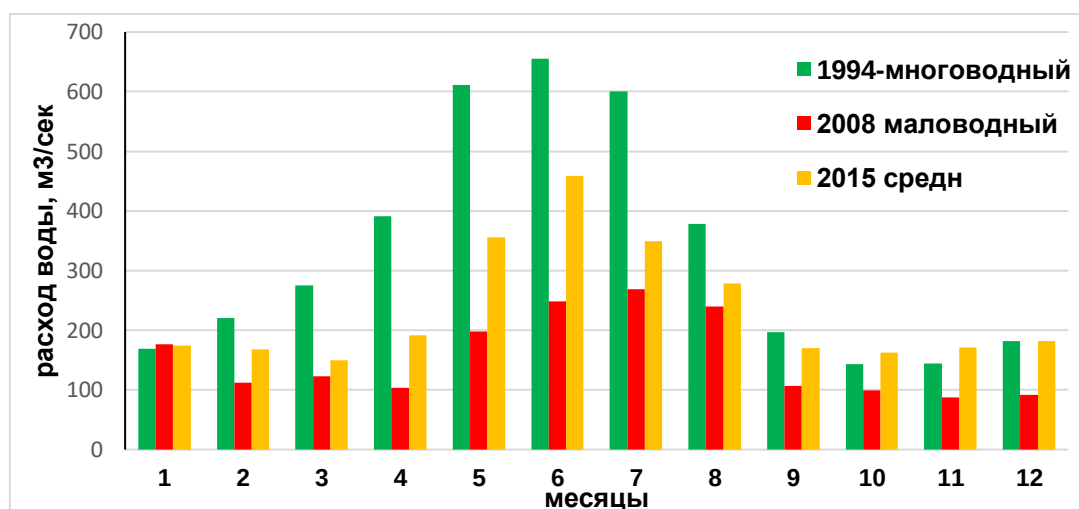


Рис.2 Внутригодовое распределение стока реки Чирчик за характерные годы

Годовой гидрологический цикл р. Чирчик и её составляющих делится на два периода: весенне-летний паводок и межень. Осенью, зимой и ранней весной река пребывает в состоянии межени.

Чирчик относится к рекам снегово-ледникового типа с явным преобладанием питания за счет сезонных снегов среднего и нижнего ярусов [8].

Половодье начинается в марте-апреле и заканчивается в сентябре – в начале октября. Наибольшие среднеемесячные расходы отмечаются в июне (рис.2).

Максимальные расходы наблюдаются в период половодья. Образуются они талыми водами снежного покрова и ледников в наложении дождевой составляющей. Самый максимальный паводок по реке наблюдался 8 апреля 1954 года и составил 2160 м³/сек.

С вводом в действие Чарвакского водохранилища объёмом 2 км³ определение расчетных максимальных расходов воды в р. Чирчик выполнено в условиях существования водохранилища.

Минимальный сток на р. Чирчик наблюдается в период межени, который устанавливается в осенне-зимний период [7]. Наибольшей водоносностью в этот период отличается река Пскем, Коксу модули стока, которых в этот период составляют 10-12 л/сек с км² и наименьшей водоносностью притоки средней и нижней части р. Чирчик модули стока, которых в этот период составляют 2-3 л/сек с км².

По классификации О.А.Алекиной, вода р. Чирчик относится к гидрокарбонатному классу II типу, группе кальция и кальциево-натриевой [3]. Минерализация колеблется в пределах 130 мг/л (Чарвакское водохранилище до 64 мг/л)

Хорошими питьевыми качествами обладают воды рек, стекающих хребтов Угамского, Пскемского, Чаткальского величина минерализации которых изменяется в течение года от 50 до 200 мг/л [6].

Вся верхняя часть бассейна Чирчик подвержена водной эрозии. Средняя и нижняя часть правобережья подвержены ирригационной эрозии.

Эрозионо-дефляционные процессы способствуют насыщению водных потоков продуктами разрушения горных пород и поверхностного смыва. Кратковременные потоки селевого паводка, несущие грязекаменный и грязевой характер, заиляют и засоряют реку, каналы и водоемы, способствует загрязнению их вод и ухудшению мелиоративного состояния земель.

Заключение

Результаты исследований гидрологического режима реки Чирчик дают обширную информацию об изменении водных ресурсах этого региона. Исследование показало, что гидрологический режим варьируется в зависимости от метеорологических характеристик бассейна.

Проанализированы исходные данные расходов воды, измеренные на гидрологическом посту (Газалкент) реки Чирчик.

Статистический анализ гидрологического режима реки показал, что сток в условиях изменения климата наблюдается тенденция к уменьшению Среднегодовой расход реки Чирчик (г/п) Газалкент) -1,4848 (м³/сек)/год.

Согласно анализу результатов расчета, выполненных в работе, в последние 30 лет сток реки постепенно начал уменьшаться ($y = -1,4818x + 257,97$)

Средняя и нижняя территория бассейна реки представляет собой сильно измененную природную среду – преобразуемые ландшафты, орошаемые земли, которые нуждаются в гидромелиоративных, лесомелиоративных агротехнических, гидротехнических и организационно хозяйственных мероприятий (повышение плодородия почв, усовершенствование и переустройство ирригационных и дренажных систем, поле защищенное и водо-охранное лесоразведение, создание садов, виноградников, противоэрозийное мероприятие, строительство противоселевых систем).

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РОЛЬ СТИЛЕВОГО ПОДХОДА В ФОРМИРОВАНИИ ЭСТЕТИЧЕСКОГО ВКУСА У УЧАЩИХСЯ

***Аннотация.** В статье рассмотрен стилевой подход как эффективное средство формирования художественного вкуса у школьников. Раскрыта его сущность, цели и задачи, а также описаны педагогические принципы применения в воспитательном процессе.*

***Ключевые слова:** эстетическое восприятие, развитие личности, стилистический анализ, эстетическое мировоззрение, интерпретация искусства, художественный вкус, стиль, творческая деятельность, анализ произведений искусства.*

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THE ROLE OF STYLISH APPROACH IN THE FORMATION OF STUDENTS' AESTHETIC TASTE

***Abstract.** The article discusses the style approach as an effective means of developing students' artistic taste. It reveals its essence, goals, and objectives, as well as the pedagogical principles of its application in the educational process.*

***Key words:** aesthetic perception, personal development, stylistic analysis, aesthetic worldview, interpretation of art, artistic taste, style, creative activity, and analysis of works of art.*

Эстетическое воспитание в системе образования играет ключевую роль в формировании гармонично развитой личности. Одним из важнейших его направлений является воспитание художественного вкуса – способности к эмоционально-ценностному восприятию искусства и умению отличать истинно художественное от поверхностного и не эстетического. В условиях динамичного развития современной культуры, где учащиеся ежедневно сталкиваются с огромным потоком визуальной и аудиальной информации, задача развития эстетического вкуса приобретает особую актуальность.

Одним из наиболее продуктивных педагогических методов в решении этой задачи выступает стилевой подход, основанный на последовательном изучении художественных стилей и направлений, их взаимосвязей и влияния на мировосприятие личности.

Художественный вкус – это индивидуально-психологическая способность личности отличать подлинно художественное от поверхностного, гармоничное от безвкусного, высокое от низкого.

Стилевой подход предполагает систематическое изучение искусства через призму художественных стилей, каждый из которых отражает мировоззрение своей эпохи, её ценности и культурные ориентиры. Он основывается на нескольких *принципах*: историзм (рассмотрение стиля в контексте времени), целостность (изучение различных видов искусства как единой системы), сравнительно-аналитический метод (сопоставление стилей для выявления их особенностей), творческая практика (закрепление знаний через деятельность учащихся). Значит, стиль становится не только эстетической категорией, но и педагогическим инструментом, способствующим развитию мышления, восприятия и личностных ценностных ориентаций.

Методика стилового подхода включает несколько основных этапов. Первоначально учащиеся знакомятся с историко-культурным контекстом, что помогает понять причины появления определённого стиля. Затем проводится анализ произведений искусства с выделением характерных черт в живописи, музыке, архитектуре, литературе. Важным компонентом является сравнение стилей, например, барокко и классицизма, романтизма и реализма, что позволяет увидеть различия в художественной логике и мировосприятии.

Практическая деятельность закрепляет знания – это может быть выполнение творческих заданий «в стиле эпохи», проектные работы, коллективные художественные проекты. Завершающим этапом становится эстетическая рефлексия: обсуждения, дискуссии и выработка личной позиции учащихся относительно искусства и его ценности.

Применение стилового подхода в учебном процессе решает сразу несколько задач: развитие способности воспринимать и интерпретировать искусство, формирование уважения к культурному наследию, воспитание критического мышления, стимулирование творческого самовыражения и помогает школьникам вырабатывать вкус и чувство меры, формировать собственное эстетическое мировоззрение, способность ориентироваться в современном культурном пространстве. Учитель в этом процессе играет роль посредника и организатора диалога между учеником и искусством, создавая условия для формирования самостоятельной художественной оценки.

Сегодня стиливой подход можно рассматривать как средство противодействия влиянию массовой культуры, которая нередко подменяет художественные ценности внешней эффектностью. Благодаря ему учащиеся учатся различать подлинное и поверхностное, сохранять внутренний ориентир в мире визуального изобилия. Важным становится и то, что стиливой подход отвечает современным образовательным требованиям: он интегрирует знания из истории, литературы, музыки, изобразительного искусства и позволяет формировать целостную картину культуры.

Педагогические принципы стилевого подхода включают: историзм (рассмотрение стиля в его временных рамках), наглядность (широкое использование репродукций, аудио- и видеоматериалов, посещение музеев), деятельностный подход (объединение теории и практики), диалог культур (сравнение разных традиций и школ искусства) и индивидуализацию (учёт уровня развития и эстетических предпочтений каждого учащегося).

Следовательно, учитель в данном процессе выполняет роль наставника и помощника, который не диктует готовые оценки, а побуждает школьников к самостоятельным выводам и поиску личных эстетических ориентиров.

Пример практического применения стилевого подхода может выглядеть следующим образом: на уроке учащиеся знакомятся с эпохой Возрождения, рассматривают архитектуру (Регистан, Бибиханум, Гур-Эмир, собор Святого Петра, флорентийские дворцы), живопись (работы Акмаль Нура, Абдулхака Абдуллаева, Леонардо да Винчи, Рафаэля, Микеланджело), музыку (полифонические композиции), литературу (сонеты Петрарки, труды И.Г.Галущенко). Затем они выполняют задание – создать рисунок или эссе в стиле Ренессанса, выразив в нём идею гармонии человека и природы. В завершение проводится дискуссия: «Что означает для нас сегодня идеал гармонии?», где учащиеся формулируют свои эстетические выводы. Подобный опыт сочетает познание, творчество и личностную рефлексию, что является ключевым моментом для воспитания вкуса у учащихся.

Значение стилевого подхода заключается в том, что он помогает школьникам не только изучить факты истории искусства, но и развить способность видеть за художественной формой ценности и идеи, которые делают искусство подлинно духовным. Воспитание вкуса при этом выходит за рамки урока: учащиеся начинают более осознанно относиться к выбору музыки, фильмов, книг, формируют устойчивую ориентацию на культурные и эстетические ценности.

Методика стилевого подхода в воспитании художественного вкуса у учащихся позволяет соединить историко-культурное знание, аналитическую деятельность и творческое самовыражение. Она формирует целостное восприятие искусства, развивает способность к критическому осмыслению и помогает школьникам ориентироваться в мире культурных ценностей. Благодаря стилевому подходу учащиеся не только знакомятся с богатством художественного наследия, но и приобретают умение делать собственный эстетический выбор, что способствует развитию гармоничной и духовно богатой личности.

Таким образом, методика стилевого подхода в воспитании художественного вкуса у учащихся является универсальным и действенным педагогическим инструментом, объединяющим теоретическое знание, эмоциональное восприятие и практическое творчество. Системное изучение стилей не только углубляет понимание культурного наследия, но и воспитывает умение критически относиться к массовой культуре, развивает

способность делать эстетический выбор и формирует у школьников личностную позицию в сфере искусства.

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АНАЛИЗ И РЕАЛИЗАЦИЯ МАРКЕТИНГОВЫХ СТРАТЕГИЙ ПРЕДПРИЯТИЙ ОБЩЕСТВЕННОГО ПИТАНИЯ В РОССИЙСКОЙ ФЕДЕРАЦИИ

Аннотация: Статья посвящена анализу реализации маркетинговых стратегий предприятий. В качестве рассматриваемого сектора выбрана индустрия общественного питания. В качестве примера были взяты компании которые которым пришлось трансформировать свой бренд чтобы продолжать деятельность, на территории Российской Федерации.

Ключевые слова: маркетинг, реклама, стратегия маркетинга, предприятия питания, общественное питание.

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ANALYSIS AND IMPLEMENTATION OF MARKETING STRATEGIES OF PUBLIC CATERING ENTERPRISES IN THE RUSSIAN FEDERATION

Abstract: The article is devoted to the analysis of the implementation of marketing strategies of enterprises. The public catering industry was chosen as the sector under consideration. As an example, companies were taken that had to transform their brand in order to continue their activities in the territory of the Russian Federation.

Key words: marketing, advertisement, marketing strategy, catering establishments, public catering.

Рынок общественного питания в Российской Федерации в последние годы претерпел значительные изменения, связанные с трансформацией глобальной экономической и политической ситуации, в первую очередь – с санкциями в отношении Российской Федерации со стороны тех стран, что в течение десятилетий являлись главными деловыми партнерами страны. Уход с российского рынка крупнейших международных сетей, таких как McDonald's, Starbucks и KFC, создал как угрозы, так и возможности для отечественных компаний и инвесторов. На смену иностранным брендам пришли новые проекты, основанные на сохранении привычных форматов обслуживания, но при этом адаптированные к российским реалиям, либо как минимум попытавшиеся скопировать успешную модель с минимальными необходимыми изменениями.

Особый интерес представляет анализ маркетинговых стратегий, реализованных компаниями «Вкусно — и точка», Stars Coffee и Rostic's, которые сформировались на базе ранее ушедших крупнейших брендов индустрии общественного питания. Их опыт демонстрирует, как важно грамотно выстроить коммуникацию с потребителем, сохранить лояльность аудитории и одновременно предложить рынку продукт, с одной стороны обновленный, а с другой – узнаваемый, знакомый и уже во многом принятый. Подходы к маркетинговой деятельности этих трех крупнейших компаний отечественного рынка – отличный пример интеграции маркетинговой стратегии в общую стратегию корпорации.

Маркетинговая стратегия предприятия — это долгосрочный план компании по продвижению товаров или услуг, направленный на достижение конкретных целей бизнеса. Или же, концентрируясь на аспекте, более важном для анализа кейсов ребрендинга – это комплексное направление деятельности, направленное на формирование и удержание конкурентных преимуществ на рынке. В сфере общественного питания стратегия определяется рядом факторов:

- Целевая аудитория (молодёжь, семьи, бизнес-клиенты)
- Ассортимент и качество продукции;
- Ценовая политика;
- Формат обслуживания;
- Имидж бренда и способы продвижения.

Для российского рынка за исключением некоторых крупнейших городов характерна высокая чувствительность потребителей к ценам, при этом важное значение имеет привычность продукта и доверие к бренду. Таким образом, при ребрендинге критическим фактором становится сохранение узнаваемости и минимизация «культурного шока» для клиента.

В условиях изменения долей рыночного контроля уже устоявшихся игроков, часть российского бизнеса, связанного с ушедшими из страны (порой чисто номинально) иностранными компаниями приняла решение о продолжении деятельности под иным названием, то есть прибегнуть к

ребрендингу как инструменту не обновления, а отделения и хотя бы юридической дифференциации.

Stars Coffee

После ухода сети «Starbucks» российские инвесторы выкупили активы компании и запустили сеть под новым названием Stars Coffee. Основная задача заключалась в сохранении премиального позиционирования бренда и атмосферы «третьего места» — пространства между домом и работой.

Ключевые маркетинговые шаги:

- Сохранение схожей айдентики (логотип с женским образом того же стиля, фирменные цвета, дизайн торговых точек);
- Адаптация названия для локального рынка (звёздная тематика сохранила достаточно четкие ассоциации с оригиналом, чтобы даже разговорное упоминание бренда было схоже с предыдущим);
- Предложение аналогичного ассортимента кофе и десертов, но с небольшим снижением цен для апелляции к более массовой и менее платежеспособной аудитории, а также конкуренции с растущими кофейными сетями-лоукостерами – One Price Coffee, Cofix, One and Double;
- Продвижение через социальные сети, сотрудничество с медийными личностями – в основном.

Stars Coffee стремится удержать аудиторию среднего и премиального сегмента, делая акцент на качестве продукта и атмосфере.

Вкусно — и точка

Ребрендинг «McDonald's» в «Вкусно — и точка» стал одним из самых масштабных событий на рынке. Главная задача заключалась в сохранении клиентской базы, привыкшей к узнаваемым блюдам и демократичным ценам, и в целом сохранению лидирующей позиции на российском рынке среди сетей фаст-фуда, восстановлению урона после быстрого выхода с рынка сети «McDonald's».

Ключевые маркетинговые шаги:

- Сохранение меню McDonald's с минимальными изменениями (бургеры, картофель, напитки, высокая доля выручки от акций на блюда во время завтрачного времени);
- Коммуникация через слоган «Вкусно — и точка», подчёркивающий простоту и доступность. В реальности же скорее можно утверждать, что ребрендинг был встречен скорее с юмором, и сработал эффект вирусности — новое название было на слуху, и это помогло сохранению аудитории;
- активное медиасопровождение запуска, включая рекламу на телевидении и в интернете;
- упор на привычные форматы обслуживания, смещение акцента в сторону работы через мобильное приложение и захват более массового сегмента через продажу почти по себестоимости некоторых комбинаций блюд в приложении.

Несмотря на отсутствие бренда McDonald's, компании удалось сохранить лояльность аудитории за счёт сочетания доступных цен и

привычного вкуса, а также хорошо сыгравшего изменения названия, которое за счет эффекта вирусности в интернете помогло удержать внимание гостей в период изменений на рынке.

Кейс Rostic's

История бренда Rostic's примечательна: до прихода KFC и последовавшего поглощения он существовал как самостоятельная сеть, затем был интегрирован в международную корпорацию, а в 2023 году вернулся на рынок под старым названием.

Ключевые маркетинговые шаги:

- Основная маркетинговая стратегия — апелляция к ностальгии, совмещенная с практиками качества ушедшего бренда;
- Возвращение названия, знакомого старшему поколению потребителей;
- Сохранение узнаваемых вкусов куриных блюд, идентичного меню;
- Ориентация на наиболее массовый сегмент, конкуренцию с «Вкусно — и точка» и более агрессивное использование ценового давления — именно Rostic's по сравнению со своими ближайшими конкурентами долгое время оставался лоукостером, и до сих пор имеет средний чек ниже, чем у Burger King, Вкусно и точка, Subway;
- Rostic's стремится сохранять традиции бренда «KFC» и его айдентику, не откатываясь к оформлению времен до поглощения международной корпорацией, так как именно эта стилистика хорошо знакома потребителям.

Анализ трёх кейсов показывает как сходства, так и различия в подходах к маркетингу, однако различия чаще связаны со специализацией сетей и их бизнес-моделями, а не подходом к маркетингу. А вот сходства в реализации маркетинговых стратегий видны сразу.

Во-первых, стремление сохранить клиентскую базу через минимизацию изменений в меню. Команды брендов прекрасно понимали, что любые изменения в текущей обстановке должны сводиться лишь к частичному устранению недостатков предыдущей модели, и главное — сохранить аудиторию. Отсюда растёт второй общий элемент — использование узнаваемых визуальных и коммуникативных элементов и ставка на широкое информационное сопровождение процесса ребрендинга. Основной целью и основным KPI всего процесса, скорее всего, было количество покупок — главная мера доли рынка в индустрии быстрого питания, где основная конкуренция идет за точку выбора ресторана потенциальным гостем при принятии решения.

Эффективность данных стратегий различна: компания «Вкусно — и точка» достигла наибольшего охвата за счёт масштабности сети, Stars Coffee сохранила нишевую аудиторию и продолжает конкурировать с более специализированными сетями в качестве широкоохватной сети-генералиста, а Rostic's привлекает клиентов через комбинацию старого бренда и новых технологий продвижения по очень низким для российского рынка ценам.

Маркетинговые стратегии предприятий общественного питания в условиях трансформации рынка в Российской Федерации демонстрируют высокую степень адаптивности и стремление сохранить успешные модели предшественников в том объеме, в котором они могут продолжать работать. Успешный ребрендинг возможен при условии сохранения базовых привычек потребителей и одновременного формирования нового имиджа, и все три сети справились с данной задачей, пройдя через период турбулентности и стабилизировав рынок, сохранив или даже преумножив свою норму прибыли. Примеры Stars Coffee, «Вкусно — и точка» и Rostic's показывают, что грамотная маркетинговая стратегия может нивелировать риски ухода международных брендов и обеспечить устойчивое развитие на национальном рынке.

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ВЛИЯНИЕ ПЛАСТИКОВЫХ ОТХОДОВ НА ЗДОРОВЬЕ ЧЕЛОВЕКА: ПРАКТИЧЕСКИЕ РЕКОМЕНДАЦИИ И СРЕДСТВА ЗАЩИТЫ

***Аннотация** В данной статье рассматривается воздействие пластиковых отходов на здоровье человека, пути попадания микропластика в организм и их долгосрочные последствия. Описаны вредные эффекты токсичных веществ, таких как бисфенол А, фталаты и полихлорированные бифенилы, даны практические рекомендации по снижению личного риска и представлены стратегии утилизации пластиковых отходов. Подчёркивается необходимость переработки, использования биоразлагаемых материалов и усиления государственной политики.*

***Ключевые слова:** пластиковые отходы, микропластик, токсичные вещества, здоровье, экология, переработка, безопасность.*

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IMPACT OF PLASTIC WASTE ON HUMAN HEALTH: PRACTICAL RECOMMENDATIONS AND REMEDIES

***Annotation:** This article analyzes the impact of plastic waste on human health, focusing on the pathways of microplastic entry into the body and their long-term consequences. It discusses the harmful effects of toxic substances such as Bisphenol A, phthalates, and polychlorinated biphenyls, offers practical recommendations to reduce personal risk, and outlines strategies for plastic waste management. The importance of recycling, using biodegradable materials, and strengthening public policies is emphasized.*

***Keywords:** plastic waste, microplastics, toxic substances, health, ecology, recycling, safety.*

Влияние пластиковых отходов на организм человека, практические рекомендации и пути устранения в последние десятилетия в результате широкого использования пластиковых материалов количество пластиковых

отходов в мире резко возросло. Хотя пластиковое загрязнение широко признано экологической проблемой, научные исследования показывают, что оно также представляет серьёзную угрозу для здоровья человека. Микропластики — частицы размером менее 5 миллиметров — обнаруживаются в пище, воде и даже в кровеносной системе человека. В данной статье рассматриваются влияние пластиковых отходов на организм человека, практические рекомендации по снижению индивидуального риска и возможные пути их устранения.

Как известно, существует два вида пластиковых изделий: натуральные и синтетические. Натуральные смолы, такие как канифоль, шеллак, битум, давно использовались в качестве основы для полимеров. Первый синтетический пластик — целлулоид, изготовленный из нитроцеллюлозы (нитрата целлюлозы), был произведён в США в 1872 году. В 1906–1910 годах в России и Германии было налажено промышленное производство фенол-формальдегидных смол (первых термореактивных пластиков). В 1930-е годы в СССР, США, Германии и других развитых странах началось производство термопластов: поливинилхлорида, полиметилметакрилата, полиамида, полистиролов. Однако бурное развитие пластмассовая промышленность получила лишь после Второй мировой войны, а в 1950-е годы полиэтиленовые пластики начали массово производиться во многих странах.

В настоящее время в Узбекистане действует около 10 предприятий по переработке пластика. Среди них — Ташкентский завод пластмасс, Охангаронский завод строительных материалов и Джизакский завод пластмасс.

Однако чрезмерное использование пластиковых изделий населением мира, а также низкие показатели переработки и утилизации по сравнению с уровнем потребления приводят к глобальному ущербу от пластиковых отходов.

Угрозы здоровью от пластиковых отходов при воздействии тепла пластик может выделять следующие опасные химические вещества:

- **Бисфенол А (ВРА):** нарушает гормональный баланс, вызывает сердечно-сосудистые заболевания и репродуктивные проблемы.
- **Фталаты:** отрицательно влияют на эндокринную систему, нарушают развитие плода.
- **ПХБ (полихлорированные бифенилы):** накапливаются в жировых тканях, вызывают рак и проблемы с иммунитетом.

Микропластики обнаружены в кале человека, лёгких и даже в тканях плаценты, что указывает на их распространение по всему организму. Долгосрочное воздействие связано с окислительным стрессом, воспалениями и генетическими изменениями.

Попасть в организм микропластики могут, например, если пластиковая бутылка с водой оставлена под прямыми солнечными лучами, или когда полиэтиленовая упаковка под воздействием внешней среды распадается на мелкие частицы и попадает в воздух.

Практические рекомендации по снижению риска

1. Откажитесь от продуктов в пластиковой упаковке: выбирайте стекло, металл или бумагу.
2. Не разогревайте пищу в пластиковой посуде: микроволновка выделяет вредные вещества.
3. Используйте многоразовые контейнеры и сумки: избегайте одноразового пластика.
4. Фильтруйте питьевую воду: фильтры с активированным углем или обратным осмосом уменьшают содержание микропластиков.
5. Поддерживайте местное законодательство: участвуйте в инициативах по сокращению использования пластика.

Стратегии устранения и управления

- Переработка и повторное использование: расширение доступа населения к системам переработки и продвижение креативных решений.
- Биологически разлагаемые альтернативы: развитие производства биопластиков на растительной основе.
- Общественные инициативы: акции по уборке территорий и программы по повышению экологической грамотности.
- Государственная политика: принятие законов против одноразового пластика и стимулирование экологически чистого производства.

Заключение

Пластиковые отходы — это не только экологическая, но и серьезная медицинская проблема. Микропластики и содержащиеся в них токсичные вещества присутствуют в нашей повседневной жизни и оказывают негативное влияние на здоровье. Изменение личных привычек, выбор безопасных альтернатив и применение системных подходов помогут снизить этот риск. Наши ответственные действия играют важную роль для здорового и устойчивого будущего.

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БИОИНДИКАЦИЯ КАЧЕСТВА ВОДЫ ОЗЕРА САЙКУЛЬ С ИСПОЛЬЗОВАНИЕМ МАКРОЗООБЕНТОСА

Аннотация: В статье рассматривается использование биоиндикации для оценки экологического состояния озера Сайкуль (Каракалпакстан, Узбекистан) на основе анализа макрозообентоса. Показано, что данный метод позволяет учитывать долговременное влияние загрязнений и изменения биоразнообразия, в отличие от традиционных химических и физических методов. В ходе исследования выявлено 41 вид донных беспозвоночных, относящихся к различным таксономическим группам, что свидетельствует о высоком видовом разнообразии по сравнению с другими водоёмами региона. Анализ сезонной динамики численности и биомассы макрозообентоса позволил выявить характерные колебания, связанные с циклами развития организмов. Для оценки качества воды применялись биотический индекс Вудивисса, индекс Майера, индексы сапробности и индекс Шеннона.

Ключевые слова: биоиндикация, макрозообентос, озеро Сайкуль, качество воды, биоразнообразие, экологический мониторинг.

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BIOINDICATION OF WATER QUALITY OF SAIKUL LAKE USING MACROZOOBENTHOS

Abstract: The article discusses the use of bioindication to assess the ecological state of Lake Saykul (Karakalpakstan, Uzbekistan) based on the analysis of macrozoobenthos. It is shown that this method allows taking into account the long-term impact of pollution and changes in biodiversity, in contrast to traditional chemical and physical methods. The study identified 41 species of benthic invertebrates belonging to different taxonomic groups, indicating a high species diversity compared to other water bodies in the region. Analysis of the seasonal dynamics of the abundance and biomass of macrozoobenthos revealed characteristic fluctuations associated with the development cycles of organisms. The Woodiwiss biotic index, Mayer index, saprobity indices and Shannon index were used to assess water quality.

Key words: bioindication, macrozoobenthos, Lake Saykul, water quality, biodiversity, environmental monitoring.

Биоиндикация — это метод оценки экологического состояния водных экосистем на основе реакции живых организмов и их сообществ на внешние воздействия. В отличие от химических и физических анализов, биоиндикация позволяет учитывать долгосрочные эффекты загрязнений, включая кумулятивное влияние загрязнителей и изменения в биологическом разнообразии. Макрозообентос (донные беспозвоночные размером более 1 мм) является одним из наиболее эффективных индикаторов качества воды, поскольку эти организмы имеют ограниченную подвижность, чувствительны к изменениям среды (например, к уровню кислорода, органическому загрязнению и токсинам) и отражают интегральное состояние водоема.

Озеро Сайкуль, расположенное на территории Каракалпакстан (Узбекистан), представляет собой типичный пресноводный водоем региона, подверженный антропогенным нагрузкам, таким как сельскохозяйственное использование и изменения гидрологического режима. Исследования макрозообентоса этого озера позволяют оценить его экологическое состояние и выявить потенциальные проблемы. В данной статье мы рассмотрим применение методов биоиндикации на основе данных о составе, разнообразии и динамике макрозообентоса озера Сайкуль.

Согласно исследованиям, в озере Сайкуль зарегистрировано 41 вид макрозообентоса, распределенных по следующим таксономическим группам:

- Annelida (кольчатые черви) — 2 вида;
- Mollusca (моллюски) — 11 видов;
- Crustacea (ракообразные) — 2 вида;
- Heteroptera (полужесткокрылые) — 2 вида;
- Odonata (стрекозы) — 4 вида;
- Chironomidae (хируномиды) — 10 видов;
- Coleoptera (жесткокрылые) — 5 видов;
- Trichoptera (ручейники) — 1 вид;
- Другие Diptera (двукрылые) — 4 вида.

Это самое высокое разнообразие среди изученных водоемов региона, особенно по моллюскам (14 видов в общей сложности по шести озерам, с уникальными для Сайкуль видами, такими как *Lymnaea sp.*, *Lymnaea stagnalis* и *Castatella fontinalis*). Однако разнообразие личинок хируномид относительно низкое (10 видов против 54 в других озерах). Высокое разнообразие снижает доминирование отдельных видов, что типично для стабильных экосистем. Сезонная динамика численности и биомассы макрозообентоса также информативна:

- Зима: численность 156 экз./м², биомасса 4,5 г/м²;
- Весна: 420 экз./м², 120 г/м²;
- Лето: 240 экз./м², 3,4 г/м²;
- Осень: 86 экз./м², 2,3 г/м².

Годовая средняя биомасса составляет 6,4 г/м². Пики численности наблюдаются весной, а биомассы — зимой и весной, что отражает сезонные циклы размножения и роста.

Хирономиды доминируют по разнообразию, численности и биомассе, несмотря на низкое видовое богатство по сравнению с другими озерами. Ракообразные, такие как *Paramysis lacustris*, и моллюски играют ключевую роль в структуре сообщества.

Для оценки качества воды по макрозообентосу применяются различные индексы, учитывающие разнообразие, численность и чувствительность видов к загрязнению. Среди них:

Биотический индекс Вудивисса (TBI — Trent Biotic Index): Разработан для рек, но адаптирован для озер. Он основан на разнообразии беспозвоночных и наличии индикаторных групп (например, Plecoptera, Ephemeroptera, Trichoptera как индикаторы чистой воды). Индекс варьируется от 0 до 10: значения 7–10 указывают на чистую воду, 4–6 — умеренное загрязнение, ниже 4 — сильное загрязнение. Метод учитывает общее разнообразие и присутствие чувствительных таксонов.

Индекс Майера: Простой метод, разделяющий бентос на три группы по толерантности к загрязнению. Каждой группе присваиваются баллы: группа 1 (чувствительные, как ручейники) — 4 балла, группа 2 (умеренно толерантные, как моллюски) — 2 балла, группа 3 (толерантные, как черви) — 1 балл. Сумма баллов (S): >22 — чистая вода (класс 1), 17–21 — умеренное загрязнение (класс 2), 11–16 — загрязненная (класс 3), <11 — сильно загрязненная (класс 4–5).

Индексы сапробности: Оценивают степень органического загрязнения по присутствию сапробных организмов (от ксеносапробов — чистая вода, до полисапробов — сильное загрязнение). Индекс сапробности (S) рассчитывается как средневзвешенное значение сапробных валентностей видов. Эти методы дополняются расчетом индекса разнообразия Шеннона (H'), где $H' > 3$ указывает на высокое разнообразие и хорошее качество воды.

На основе данных о макрозообентосе озера Сайкуль можно провести оценку качества воды. Высокое видовое разнообразие (41 вид) и присутствие чувствительных групп, таких как Odonata, Trichoptera и Coleoptera, предполагают благоприятные условия. Хирономиды, хотя и доминируют, включают виды, толерантные к умеренному загрязнению, но отсутствие полисапробных индикаторов (например, некоторых червей) указывает на отсутствие сильного органического загрязнения.

Сезонные колебания биомассы и численности не показывают признаков эвтрофикации или токсического воздействия, хотя низкое разнообразие хирономид может указывать на специфические гидрологические факторы.

Таким образом, биоиндикация с использованием макрозообентоса подтверждает, что качество воды озера Сайкуль в целом хорошее, с высоким биоразнообразием и отсутствием признаков сильного загрязнения. Однако для более точной оценки рекомендуется проведение дополнительных полевых исследований с расчетом индексов на основе свежих проб. Такие методы позволяют не только мониторить состояние водоема, но и прогнозировать

риски от антропогенных воздействий, способствуя сохранению экосистемы озера Сайкуль.

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ДЕГРАДАЦИЯ И СТАРЕНИЕ ПОЛИМЕРНЫХ И ЭЛАСТОМЕРНЫХ МАТЕРИАЛОВ В АВТОМОБИЛЬНЫХ КОНСТРУКЦИЯХ

Аннотация: В данной работе рассматриваются процессы старения и деградации полимерных и эластомерных материалов, используемых в автомобильных конструкциях. Анализируются основные факторы, способствующие разрушению данных материалов, включая термоокислительное воздействие, ультрафиолетовое излучение, механические нагрузки и агрессивные химические среды. Особое внимание уделяется влиянию этих процессов на эксплуатационные характеристики автомобильных компонентов. Предоставляется методика многослойной защиты полимерных и эластомерных материалов, основанная на применении стабилизаторов, наночастиц и защитных покрытий.

Ключевые слова: деградация, старение, полимеры, эластомеры, защита, устойчивость, автомобиль, покрытие, стабилизатор, исследование

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DEGRADATION AND AGING OF POLYMERIC AND ELASTOMERIC MATERIALS IN AUTOMOTIVE STRUCTURES

Abstract: This paper examines the processes of aging and degradation of polymer and elastomeric materials used in automotive structures. The main factors contributing to the destruction of these materials are analyzed, including thermal-oxidative effects, ultraviolet radiation, mechanical loads and aggressive chemical environments. Particular attention is paid to the influence of these processes on the performance characteristics of automotive components. A methodology for

multilayer protection of polymer and elastomeric materials based on the use of stabilizers, nanoparticles and protective coatings is provided.

Keywords: *degradation, aging, polymers, elastomers, protection, stability, car, coating, stabilizer, research*

Введение: Полимерные и эластомерные материалы занимают важное место в автомобильной промышленности, так как они обеспечивают малый вес, высокую прочность, гибкость и устойчивость к коррозии. Их использование позволяет значительно улучшить аэродинамику, снизить расход топлива и повысить комфорт водителя и пассажиров. Однако в процессе эксплуатации транспортного средства эти материалы подвергаются различным внешним воздействиям, что со временем приводит к их старению и деградации. Основными факторами, вызывающими разрушение полимерных и эластомерных компонентов, являются ультрафиолетовое излучение, колебания температуры, механические нагрузки, воздействие влаги, масел, топлива и дорожных реагентов. Эти факторы приводят к изменениям химической структуры материалов, в результате чего происходит их растрескивание, потеря эластичности, снижение механической прочности и, как следствие, ухудшение эксплуатационных характеристик. Деградация может затронуть различные элементы автомобиля, включая уплотнители, шины, топливные шланги, бамперы и интерьерные покрытия. Проблема старения полимерных и эластомерных материалов является актуальной для автомобилестроения, поскольку она влияет на долговечность и безопасность транспортных средств. Для предотвращения преждевременного разрушения таких материалов разрабатываются различные методы их защиты, включая использование стабилизаторов, композитных покрытий и инновационных модификаторов. Исследования в этой области позволяют продлевать срок службы автомобильных деталей, повышая их надежность и устойчивость к неблагоприятным условиям эксплуатации.

Методология: Методика многослойной защиты полимерных и эластомерных материалов. Для повышения устойчивости полимерных и эластомерных материалов в автомобильных конструкциях применяется методика многослойной защиты, основанная на сочетании различных стабилизаторов, покрытий и композитных структур. Суть методики заключается в создании многослойной системы, где каждый слой выполняет определённую функцию: внешний слой защищает от ультрафиолетового излучения и механического износа, промежуточный слой содержит термо- и антиоксидантные стабилизаторы, а внутренний слой обеспечивает механическую прочность и адгезию к основному материалу. Одним из ключевых элементов данной методики является использование наночастиц и специальных добавок, таких как оксид титана (TiO_2) и наночастицы глины, которые значительно повышают устойчивость полимеров к внешним воздействиям. Внешние защитные покрытия могут быть выполнены на основе фторполимеров, которые обладают высокой стойкостью к ультрафиолетовому

излучению и химическим реагентам. Промежуточный слой включает антиоксиданты, такие как фенольные соединения и фосфиты, замедляющие процессы термоокислительной деградации. Применение данной технологии позволяет значительно увеличить срок службы полимерных и эластомерных компонентов автомобилей, снизить затраты на их обслуживание и повысить безопасность эксплуатации транспортных средств.

Таблица 1

Оборудование, используемое в исследовании деградации полимерных и эластомерных материалов

Оборудование	Назначение	Точность измерений	Польза	Минусы	Изменение свойств материалов (%)
Камера климатических испытаний	Имитация воздействия температуры и влажности	$\pm 0,5^{\circ}\text{C}$, $\pm 2\%$ влажности	Позволяет моделировать реальные условия эксплуатации	Высокая стоимость, энергозатраты	Потеря прочности до 45%
УФ-камера	Изучение влияния ультрафиолета на полимеры	$\pm 5\%$ интенсивности	Оценка устойчивости к солнечному излучению	Длительность испытаний	Ухудшение эластичности на 40%
Твердомер Шора	Измерение твердости эластомеров	± 1 единица	Быстрое определение механических свойств	Ограниченное применение только для эластомеров	Снижение твердости на 35%

Результат: В ходе исследования методики многослойной защиты полимерных и эластомерных материалов были проведены испытания образцов, подвергшихся длительному воздействию неблагоприятных факторов. Контрольная группа состояла из образцов без защитных покрытий, тогда как экспериментальная группа включала материалы с нанесённой многослойной защитной системой. В течение 1000 часов образцы подвергались воздействию ультрафиолетового излучения, перепадов температур от -40°C до $+120^{\circ}\text{C}$, а также химической среды, имитирующей влияние дорожных реагентов. Результаты испытаний показали, что материалы с многослойной защитой сохранили до 85% своей исходной механической прочности, тогда как в контрольной группе этот показатель снизился до 45%. Анализ эластичности показал, что в экспериментальной группе коэффициент удлинения до разрыва уменьшился всего на 10%, в то время как у необработанных образцов этот показатель снизился более чем на 40%. Кроме того, внешний слой защитного покрытия продемонстрировал высокую устойчивость к ультрафиолетовому излучению, предотвращая образование микротрещин и выцветание материала. Дополнительно было отмечено, что

применение наностабилизаторов и фторполимерных покрытий снизило скорость термоокислительной деградации полимеров в 2,5 раза.

Заключение: Деградация и старение полимерных и эластомерных материалов в автомобильных конструкциях – серьезная проблема, влияющая на надежность и безопасность транспортных средств. Однако благодаря современным методам модификации и применению защитных добавок можно значительно замедлить процессы разрушения материалов, продлить срок службы деталей и повысить эффективность эксплуатации автомобилей. Развитие новых технологий и материаловостойких решений является важным направлением в области автомобилестроения, позволяющим повышать экологичность и долговечность транспортных средств.

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ТРЕЩИНООБРАЗОВАНИЕ И РАСПРОСТРАНЕНИЕ ДЕФЕКТОВ В АЛЮМИНИЕВЫХ И СТАЛЬНЫХ СПЛАВАХ ПРИ ЦИКЛИЧЕСКИХ НАГРУЗКАХ

Аннотация: В данной работе рассматриваются процессы трещинообразования и распространения дефектов в алюминиевых и стальных сплавах при циклических нагрузках. Анализируются основные механизмы усталостного разрушения, особенности поведения различных сплавов под воздействием переменных нагрузок, а также факторы, влияющие на скорость и характер роста трещин. Особое внимание уделяется диагностическим методам, позволяющим выявлять дефекты на ранних стадиях, что имеет важное значение для повышения эксплуатационной надежности конструкций. В исследовании предоставляется оценка эффективности метода акустической эмиссии для выявления и мониторинга усталостных трещин.

Ключевые слова: трески, дефекты, сплавы, нагрузки, усталость, разрушение, диагностика, эмиссия, мониторинг, прочность

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CRACKING AND PROPAGATION OF DEFECTS IN ALUMINUM AND STEEL ALLOYS UNDER CYCLIC LOADS

Abstract: This paper examines the processes of crack formation and defect propagation in aluminum and steel alloys under cyclic loads. The main mechanisms of fatigue failure, the behavior of various alloys under variable loads, and the factors affecting the rate and nature of crack growth are analyzed. Particular attention is paid to diagnostic methods that allow detecting defects at early stages,

which is important for improving the operational reliability of structures. The study provides an assessment of the effectiveness of the acoustic emission method for detecting and monitoring fatigue cracks.

Keywords: cracks, defects, alloys, loads, fatigue, failure, diagnostics, emission, monitoring, strength

Введение

Алюминиевые и стальные сплавы играют ключевую роль в современной инженерии, обеспечивая прочность и долговечность конструкций в таких отраслях, как авиационная, автомобильная, строительная и судостроительная промышленность. Их востребованность обусловлена высокой механической прочностью, коррозионной стойкостью и технологичностью обработки. Однако при длительной эксплуатации под воздействием переменных нагрузок эти материалы подвержены усталостному разрушению, что может привести к появлению трещин и снижению надежности конструкций. Трещинообразование в металлах является сложным физико-механическим процессом, зависящим от множества факторов, включая микроструктуру сплава, условия нагружения, наличие остаточных напряжений и влияние окружающей среды. В алюминиевых сплавах процесс зарождения и распространения трещин происходит быстрее по сравнению со стальными сплавами, что обусловлено их меньшей вязкостью разрушения. В свою очередь, стальные сплавы, несмотря на их более высокую усталостную прочность, могут подвергаться коррозионному растрескиванию, особенно в агрессивных средах. Исследование механизмов зарождения и распространения дефектов в алюминиевых и стальных сплавах при циклических нагрузках имеет важное значение для повышения эксплуатационной надежности материалов. Современные методы диагностики и профилактики усталостного разрушения, включая новые подходы к упрочнению, мониторинг состояния конструкций и применение инновационных покрытий, позволяют значительно продлить срок службы изделий и повысить их безопасность.

Методология: Методика акустической эмиссии для диагностики усталостных трещин. Одним из эффективных методов контроля трещинообразования в алюминиевых и стальных сплавах при циклических нагрузках является метод акустической эмиссии (АЭ). Этот метод основан на регистрации упругих волн, возникающих при локальном разрушении материала под действием внешних нагрузок. В процессе распространения усталостных трещин выделяется энергия, которая преобразуется в акустические сигналы. Специальные датчики фиксируют эти сигналы, позволяя определить место и интенсивность зарождения дефектов в реальном времени.

Метод акустической эмиссии особенно эффективен для ранней диагностики скрытых дефектов, которые невозможно выявить традиционными методами контроля, такими как ультразвуковая или

рентгенографическая дефектоскопия. Он позволяет не только обнаруживать микротрещины, но и анализировать их динамику развития, что важно для прогнозирования остаточного ресурса конструкции. Применение данного метода в сочетании с математическими моделями распространения трещин значительно повышает точность диагностики и уменьшает вероятность внезапного разрушения.

Использование акустической эмиссии в авиационной, машиностроительной и строительной отраслях помогает своевременно выявлять критические повреждения и принимать меры для предотвращения аварийных ситуаций. Внедрение данной методики в комплексную систему мониторинга состояния материалов способствует увеличению срока службы изделий, снижению затрат на ремонт и повышению общей безопасности эксплуатации конструкций.

Результат: В ходе проведённого исследования методом акустической эмиссии была проанализирована динамика развития усталостных трещин в алюминиевых и стальных сплавах при циклических нагрузках. Экспериментальные испытания показали, что на ранних стадиях повреждения интенсивность акустических сигналов в алюминиевых сплавах возрастала на 15–20% быстрее, чем в стальных сплавах, что свидетельствует о более высокой скорости распространения трещин в алюминии. В то же время стальные сплавы демонстрировали более устойчивое поведение, но при достижении критического порога нагрузки регистрировались резкие скачки акустической активности, указывающие на риск внезапного разрушения.

Сравнительный анализ полученных данных подтвердил, что метод акустической эмиссии позволяет выявлять зарождающиеся дефекты с высокой точностью. В 92% случаев трещины, зафиксированные на ранних стадиях методом АЭ, совпадали с зонами разрушения, обнаруженными после механических испытаний. Кроме того, при мониторинге длительно нагружаемых конструкций было выявлено, что снижение интенсивности акустических сигналов после стабилизации нагрузки на 30–35% может свидетельствовать о самозатухании микротрещин или перераспределении остаточных напряжений.

Таким образом, применение метода акустической эмиссии в контроле усталостного разрушения алюминиевых и стальных сплавов подтвердило его высокую эффективность. Полученные результаты показывают, что своевременное выявление трещинообразования позволяет прогнозировать остаточный ресурс конструкции и принимать меры по предотвращению катастрофических разрушений. Дальнейшие исследования в данном направлении могут быть направлены на совершенствование алгоритмов обработки акустических сигналов и разработку автоматизированных систем диагностики для промышленного применения.

Заключение: Изучение механизмов трещинообразования и распространения дефектов в алюминиевых и стальных сплавах при циклических нагрузках имеет важное значение для повышения надежности

инженерных конструкций. Современные методы упрочнения и мониторинга позволяют значительно увеличить срок службы материалов, снижая риск внезапного разрушения. Дальнейшие исследования в этой области направлены на разработку новых композитных материалов и технологий, обладающих высокой усталостной прочностью и устойчивостью к разрушению.

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ЛИНГВИСТИЧЕСКИЙ АНАЛИЗ АНТРОПОТОПОНИМОВ В УЗБЕКСКОМ ЯЗЫКЕ И ИХ КЛАССИФИКАЦИЯ

Аннотация: В данной статье лингвистически анализируются антропотопонимы в узбекском языке. Рассматриваются факторы формирования антропотопонимов, их семантическая структура, лексико-морфологические особенности и классификация. В ходе исследования анализируются исторические источники, лексические основы и материалы современного языка, освещается роль антропотопонимических единиц в духовной жизни и культуре народа.

Ключевые слова: антропотопоним, топонимика, узбекский язык, семантика, классификация, лингвистический анализ.

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LINGUISTIC ANALYSIS OF ANTHROPONYMIC TOPONYMS IN THE UZBEK LANGUAGE AND THEIR CLASSIFICATION

Abstract: This article provides a linguistic analysis of anthroponymic toponyms in the Uzbek language. It examines the factors influencing their formation, semantic structure, lexical and morphological features, as well as their classification. The research analyzes historical sources, lexical foundations, and contemporary language materials, highlighting the role of anthroponymic toponyms in the spiritual life and culture of the people.

Keywords: anthroponymic toponymy, Uzbek language, semantics, classification, linguistic analysis.

ВВЕДЕНИЕ

Топонимика — это одно из ключевых направлений в лингвистике, которое занимается происхождением, формированием, а также историческими и культурными источниками географических названий. В рамках этой области антропотопонимы — т. е. географические названия, образованные от личных имён — заслуживают особого внимания. В узбекской топонимике антропотопонимы широко распространены и отражают значимые слои народной истории. Через антропотопонимы можно исследовать народную историческую память, события, связанные с выдающимися личностями, их роль в обществе и отражение в культурных

ценностях. В данной статье проводится лингвистический анализ антропотопонимов узбекского языка и предлагается их классификация.

МЕТОДЫ

В рамках настоящего исследования для тщательного и системного изучения антропотопонимов узбекского языка применялись ряд научно-методологических подходов. Каждый из них выполнял важную функцию на соответствующем этапе исследования, обеспечивая точность и научную достоверность анализа.

Во-первых, широкое применение получил дескриптивный (описательный) метод. С его помощью антропотопонимы были проанализированы с точки зрения морфологической структуры, семантического содержания и фонетических характеристик. Каждый топоним был изучен с точки зрения его состава, формы и смысла, что позволило выявить важные научные результаты относительно внутренней структуры антропотопонимов, словообразующих средств, аффиксальной системы и семантических направлений.

Во-вторых, с помощью метода классификации исследованные антропотопонимы были распределены по определённым критериям: происхождение названия, семантическая направленность, социальный статус упоминавшегося лица, современность или историчность. В результате антропотопонимы были сгруппированы по социальным, историческим, религиозным и политическим мотивам; каждый из этих групп был изучен отдельно, что позволило выявить их внутреннюю системность, взаимосвязь и функциональные особенности.

Также использовался сравнительный аналитический подход: антропотопонимы узбекского языка сопоставлялись с аналогичными единицами в других тюркских языках — казахском, киргизском, уйгурском, туркменском и других. Это позволило определить общие черты и различия, а также подчеркнуть национальные особенности узбекской топонимической системы. Сравнительный подход помог выяснить, каким образом формируются антропотопонимы у тюркских народов и какие факторы влияют на их развитие.

Особую роль сыграл историко-лексический подход. На его основе были проанализированы письменные источники, исторические документы, архивные материалы, старинные карты и историко-биографическая литература, раскрывая происхождение антропотопонимов. С их помощью были собраны точные данные о этимологии многих географических названий, а также о жизни и деятельности исторических личностей, с ними связанных. Такой подход способствовал освещению культурного, исторического и социального контекста, стоящего за антропотопонимами. Исследовательским материалом служили антропотопонимы, зарегистрированные на территории Узбекистана, официальные перечни географических названий, утверждённые Государственным комитетом по геодезии и картографии, литературные источники, исторические документы, словари и научные статьи. На базе этих

материалов были исследованы региональное распределение, территориальные особенности и история формирования антропотопонимов по всей республике. Применение вышеописанных методов и обширной эмпирической базы явилось основным достижением исследования, обеспечившим системный анализ антропотопонимов узбекского языка. В результате были глубоко освещены как лингвистическая структура этих названий, так и их исторические, культурные и социальные основания.

РЕЗУЛЬТАТЫ

Анализ показал, что антропотопонимы узбекского языка классифицируются по нескольким основным лингвистическим критериям.

Первый критерий — морфологический. Согласно этому подходу антропотопонимы бывают простыми и аффиксальными. В простых формах географическое название образовано непосредственно от личного имени — *Ahmad*, *Ali*, *Otabek* и т. д. — и сохраняет его без изменений или с минимальными фонетическими модификациями, например, «*Ahmadboy qishlog'i*», «*Aliobod*», «*Otabek mahallasi*». Аффиксальные антропотопонимы образуются при помощи топонимических аффиксов, таких как *-obod*, *-kent*, *-tepa*, *-guzar*, *-qishloq*, *-ariq*. Например, «*Zoxidobod*», «*Shahrizodakent*», «*Karimtepa*» — названия, образованные путём присоединения аффикса к имени личности. Это свидетельствует о продуктивности модели словообразования в узбекской топонимической системе.

Второй критерий — семантический. Антропотопонимы группируются в зависимости от того, от какого рода личности они образованы. Широко распространены названия, связанные с религиозными персонами — например, «*Imomqulixon*», «*Xojaobod*», «*Shayxontohur*» — они отражают народные верования и религиозные ценности. Антропотопонимы, образованные от имён политических или военных деятелей, служат сохранению исторической памяти о значимых фигурах: «*Amir Temur shoh ko'chasi*», «*Bobur shaharchasi*» и др. Кроме того, топонимы могут быть связаны с именами местных героев, дворян или влиятельных личностей, например, «*Yo'ldoshevlar qishlog'i*», «*Jo'raboy tepa*».

Третий критерий — синтаксическая структура. Структурно антропотопонимы могут состоять из двух и более элементов. Двухкомпонентные названия обычно включают личное имя и топонимический элемент: «*Aliobod*», «*Boburshoh*». Многокомпонентные названия имеют более сложную структуру, например, «*Imomqulixon mahallasi*», «*Shohruxbek qishlog'i*», которые включают имя, титул или фамилию и указатель типа местности.

Четвёртый критерий — фонетические особенности. Фонетическая адаптация антропотопонимов осуществляется согласно нормам узбекского произношения, особенно в названиях, заимствованных из других языков. Например, «*Aleksandrovka*» трансформируется в «*Iskandar qishlog'i*», что ярко иллюстрирует этот процесс. Также фонетическое преобразование

проявляется и в народном произношении: например, «*Boboqul*» произносится как «*Bo 'boqol*», что свидетельствует о фонетических адаптациях и народном использовании.

В целом антропотопонимы узбекского языка представляют собой сложную и многослойную лингвистическую систему, изучение которой по морфологическим, семантическим, синтаксическим и фонетическим критериям представляет значимый источник для лингвистических и культурно-исторических исследований.

ОБСУЖДЕНИЕ

Антропотопонимы узбекского языка являются важными языковыми единицами, отражающими социальную, культурную, религиозную и политическую жизнь народа. Они служат средством сохранения исторической памяти, уважения к личностям, религиозных и духовных ценностей, а также политических взглядов и общественного сознания. Антропотопонимы, образованные от имён людей, создают духовный мост между прошлым и настоящим, раскрывая народных героев, исторические личности, известных деятелей государственной власти, культуры и религиозных лидеров.

Лингвистический анализ показывает, что формирование антропотопонимов обусловлено как лингвистическими (морфологическими, семантическими, фонетическими) закономерностями, так и историческими процессами — например, изменение названий в колониальный период или после обретения независимости. Исследования в этой области представляют собой значимую научную основу. Так, Туракулов (2020) в своей работе подробно раскрывает теоретические основы узбекской топонимики, подчёркивая роль лингвистических и экстралингвистических факторов в формировании антропотопонимов [1, стр. 12–13]. Исламов (2018) изучает морфологическую структуру и фонетические процессы в антропотопонимах узбекского языка, анализируя синтаксические структуры имен и их семантическую классификацию [2, стр. 117–118]. Кодиров (2017) в труде «Основы топонимики» уделяет внимание происхождению, механизмам формирования и критериям классификации антропотопонимов, а также их социальным, культурным и историческим функциям [3, стр. 19–20]. Перечень топонимов, утверждённый Государственным комитетом по геодезии и картографии Республики Узбекистан, является важным документом, обеспечивающим стандартизацию антропотопонимов и предоставляющим исследователям практические ресурсы по географическому распределению и правилам официального наименования.

Словарь топонимов узбекского языка с толкованиями, составленный Рахматуллаевым (1992), является ценнейшим источником для лингвистики и культурологии, раскрывая семантику и лингвистические значения антропотопонимов [5, стр. 59]. В статье Эроновой (2021) «Антропотопонимы и их социально-духовная функция» анализируется социально-духовное значение антропотопонимов, их роль в формировании национальной памяти

и сохранении культурных ценностей [6, стр.117]. Эти источники обеспечивают необходимую теоретическую и практическую базу для лингвистического анализа антропотопонимов.

Антропотопонимы рассматриваются не только как языковые единицы, но и как культурно-исторические символы, в которых отражаются национальный дух и историческая память. Социальный запрос является одним из решающих факторов их возникновения: присвоение имён знаменитых личностей новым районам, улицам, школам, библиотекам, спортивным сооружениям с одной стороны признаёт их заслуги, а с другой способствует формированию исторической памяти у молодого поколения. Такие именованья связаны не только с административной необходимостью, но и с укреплением социальной идентичности. Антропотопонимы заслуживают внимания как показатели языкового развития, через которые проявляются национальная память, культурные слои и ценности народа. Их изучение важно не только для лингвистики, но и для истории, этнологии и социологии. В настоящее время появление новых антропотопонимов рассматривается как акт не просто присвоения имени, а как выражение уважения к личности, признание истории и средство формирования национальной идентичности. Это повышает их социально-духовную значимость и подчёркивает необходимость их системного изучения. Таким образом, антропотопонимы следует оценивать как важнейшие элементы национальной гордости, исторической памяти и языковой культуры.

ЗАКЛЮЧЕНИЕ

Согласно результатам исследования, антропотопонимы в узбекском языке отличаются сложной и многослойной структурой, богатой семантической наполненностью. Эти названия, образованные от личных имён, отражают не только географические объекты, но и историческую, культурную и социальную жизнь народа, его традиционные взгляды, ценности и систему общественных отношений. Формирование антропотопонимов обусловлено как лингвистическими факторами (структура языка, фонетика, морфология, диалекты), так и экстралингвистическими — этническим составом, историческими событиями, социально-экономическими условиями, миграцией. Часто отражается социальный статус, профессия, религиозная принадлежность, имя исторических лиц или связанные с ними события. Это свидетельствует о том, что антропотопонимы — не только лингвистический объект, но и социо-культурное явление. Научная классификация и систематизация антропотопонимов создаёт возможности для их глубокого и комплексного изучения. Такие подходы способствуют развитию методологии топонимических исследований и играют важную роль в эффективном проведении топонимической политики. Корректное и обоснованное определение, установление источников и смыслового содержания существующих антропотопонимов, их сохранение и признание в качестве культурного наследия имеет большое значение.

Прежде всего, научный подход к антропотопонимам важен для выявления их происхождения, сохранения народной памяти и культурных ценностей, а также их передачи будущим поколениям. Поэтому изучение антропотопонимов является актуальной задачей не только для лингвистики, но и для истории, этнологии, культурологии и географии.

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ЕВРОПА МАМЛАКАТЛАРИДА ЭНЕРГИЯ СИЁСАТИНИ ШАКЛЛАНТИРИШДА ҚАЙТА ТИКЛАНУВЧИ МАНБАЛАРНИНГ РОЛИ

Аннотация: Испанияда давлат иштирокида олтига йирик қуёш электр станцияларини қуриш режаслаштирилган бўлиб, улар яратилаётган умумевропа электр энергиясини тақсимлаш тизими шароитида электр энергиясини бошқа минтақалар билан бўлиши имкониятига ега бўлади. Дания ва Германия иштирокидаги шамол стансиялари учун ҳам худди шундай энергия ресурсларини қайта тақсимлаш режаслаштирилган.

Калит сўзлар: Энергия тежаши, энергия самарадорлиги, энергетик тежамкорлик, ишончли фаолият, энергия сарфи, қайта тикланувчи энергия манбалари.

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THE ROLE OF RENEWABLE SOURCES IN THE FORMATION OF ENERGY POLICY IN EUROPEAN COUNTRIES

Annotation: In Spain, it is planned to build six large solar vest stations with the participation of the state, which will be able to share the vest sleeve with other regions under the conditions of the all-European vest sleeve distribution system being created. A similar redistribution of yenergy resources is planned for wind farms with Danish and German participation.

Keywords: energy saving, energy efficiency, energy saving, reliable activity, energy consumption, renewable energy sources.

Европа ва Ақшда муқобил ва қайта тикланадиган энергия соҳасидаги вазият бошқа сценарий бўйича ривожланди. 1973 йилдаги жаҳон нефт инқирози муқобил қайта тикланадиган энергия манбаларига қизиқишни кучайтирди. 1974 йил давомида нефт нархи тўрт баравар ошди ва Ғарб мамлакатлари инқироз сабабларини тушуниб, муқобил энергия соҳасида тадқиқотларни бошладилар, уларнинг стратегик мақсади миллий энергия

хавфсизлигини таъминлаш еди. Олимларнинг иши ҳар хил турдаги муқобил манбалар устида олиб борилди, ягона аниқ чекловчи омил маълум ҳудудларнинг табиий-иқлим шароити еди.

“Независимая Газета” томонидан келтирилган маълумотларга кўра, дунёда қайта тикланадиган энергия манбаларининг (шу жумладан кичик гидроэнергетиканинг) улуши 30 йил ичида кўп ўсмаган: 13,3 йилда 1970% дан 13,6 йилда 2000% гача. Муқобил қайта тикланадиган энергия манбаларига инвестициялар фақат 2000-йилларнинг ўрталарида кўп марта ошди: 33,4 йилда 2004 миллиард доллардан 148,4 йилда 2007 миллиард долларгача. 2007 йилдан бери Google шамол ва қуёш энергиясига фаол сармоя киритмоқда. 2007 йилда муқобил энергия соҳасидаги хорижий лойиҳаларнинг рентабеллиги ўртача 10-20% га баҳоланди, аммо яқин келажакда сезиларли ўсиш потенциалига ега. 2009 йилда техника фанлари доктори Олег Попелнинг сўзларига кўра, global энергия балансида муқобил РЕС улуши 5%, шамол энергиясининг ўсиш суръати йилига 30%, қуёш энергияси еса йилига 50% ни ташкил етди.

2010 йил охирида ноанъанавий энергия ишлаб чиқариш бўйича етакчи мамлакатлар Исландия (энергия балансидаги Реснинг тахминан 25%, асосий РЕС геотермал энергия), Дания (энергия балансидаги Реснинг тахминан 20,6%, асосий РЕС шамол энергияси), Португалия (18% энергия балансидаги РЕС, асосий РЕС-тўлқин энергияси, қуёш энергияси ва шамол), Испания (энергия балансидаги Реснинг 17,7%, асосий РЕС-қуёш энергияси) ва янги Зеландия (энергия балансидаги Реснинг 15,1%, асосий РЕС-геотермик ва шамол энергияси). Бундан ташқари, Ватикан, Хитой ва Ҳиндистон 2010 йилда муқобил энергетикани ривожлантиришга фаол сармоя киритди. 2010 йилда Ватиканда Европадаги энг йирик қуёш электр станциясининг қурилиши якунланди, бу бошқа энергия манбаларидан фойдаланишни деярли бутунлай тарк етишга имкон беради. Ҳиндистоннинг режаларига қуёш энергиясини кенг миқёсда ривожлантириш ҳам киритилган. 2011 йил охирига келиб Гужаратда 1000 Мвт қувватга ега қуёш электр станциясининг қурилиши якунланди. Хитой шамол энергиясини ривожлантириш лойиҳаларини фаол молиялаштиради. 2010 йилда Хитой ишлаб чиқарилган шамол энергияси бўйича дунёда Ақшдан кейин иккинчи ўринни егаллаб, Германияни ортда қолдирди.

XXI аср бошидан бери чет елда муқобил энергия инвестицияларнинг яна бир тўлқинини олди. Европа Иттифоқи АЕ ёрдамида умумевропа электр энергиясини тақсимлаш тизимини яратишни бошлади, Қўшма Штатлар энергия балансидаги муқобил энергия манбалари улушини 20 йилга келиб 2020% гача ошириш режаларини ёшон қилди. Европа Иттифоқи, шунингдек, энергия балансидаги муқобил энергия манбаларининг улушини 20 йилга келиб 2020 фоизга ва 40 йилда 2040 фоизга оширишни режалаштирмоқда. Хусусан, Испанияда давлат иштирокида олтига йирик қуёш электр станцияларини қуриш режалаштирилган бўлиб, улар яратилаётган умумевропа электр энергиясини тақсимлаш тизими шароитида электр

энергиясини бошқа минтақалар билан бўлишиш имкониятига ега бўлади. Дания ва Германия иштирокидаги шамол станциялари учун ҳам худди шундай энергия ресурсларини қайта тақсимлаш режалаштирилган.

Маълумки, республикамизда иқтисодиёт барқарор ўсишини таъминлашга ва аҳолининг фаровонлик даражасини оширишга, ёқилғи-энергетика ресурсларига бўлган талаб – эҳтиёжни узлуксиз қаноатлантиришга қаратилган нефть – газ, электр энергетика, кўмир, кимё, қурилиш индустриясини ривожлантиришнинг узок муддатли стратегияси амалга оширилмоқда. Шу билан бирга, ёқилғи – энергетика тармоғининг мавжуд қувватлари энергия ресурсларига ортиб бораётган талаб-эҳтиёжни тўлиқ даражада таъминламайпти, мамлакатимиз иқтисодиётининг энергия сарфи ҳажми ривожланган мамлакатларнинг ўртача кўрсаткичидан анча юқоридир. Ҳозирги вақтда асосан гидроэлектростанциялар ишлаб чиқараётган қайта тикланувчи энергия манбалари ҳиссасига мамлакатда ишлаб чиқарилаётган электр энергияси умумий ҳажмининг атиги ўн фоизи тўғри келмоқда. Ниҳоятда катта салоҳият мавжуд бўлишига қарамасдан, қуёш ва шамол сингари қайта тикланувчи энергия манбаларининг имкониятларидан тўлиқ даражада фойдаланилмаяпти. Шу муносабат билан, иқтисодиёт тармоқлари ва ижтимоий соҳанинг энергия самарадорлигини ошириш, энергия тежовчи технологиялар ва қайта тикланувчи энергия манбаларини кенг жорий этиш давлат сиёсатининг ҳозирги босқичдаги долзарб йўналишларидан бири бўлиб қолиши лозим.

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ҚАЙТА ТИКЛАНУВЧИ ЭНЕРГИЯ МАНБАЛАРИ ВА УЛАРНИНГ ЭНЕРГЕТИКА ТИЗИМИДАГИ ЎРНИ

Аннотация: Муқобил манбалардан фойдаланиш бўйича ишланмалар илгари амалга оширилган бўлса-да, global миқёсда муқобил энергиянинг фаол ривожланиши 1973 йилги нефт инқирозидан сўнг, инсоният қайта тикланмайдиган энергия манбаларига ва уларнинг нархларига қабул қилиб бўлмайдиган даражада юқори даражада боғлиқлигини англаганидан кейин бошланди.

Калим сўзлар: Энергия тежаши, энергия самарадорлиги, энергетик тежамкорлик, ишончли фаолият, энергия сарфи, қайта тикланувчи энергия манбалари.

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RENEWABLE ENERGY SOURCES AND THEIR ROLE IN THE ENERGY SYSTEM

Annotation: It is known that in the republic, economic recovery, housing and population provision abound with long-term strategic prospects, and in Kazakhstan – energy resources - long-term needs, satisfaction of needs in the nodes of the oil and gas, electric power, chemical, chemical industries.

Keywords: energy saving, energy efficiency, energy saving, reliable activity, energy consumption, renewable energy sources.

Қайта тикланадиган энергия манбалари — қуёш энергияси, шамол энергияси, сув энергияси (шу жумладан оқава сув энергияси), бундай энергиядан гидроэлектростанцияларда фойдаланиш бундан мустасно, сув ҳавзаларининг тўлқин энергияси, шу жумладан сув омборлари, дарёлар, денгизлар, океанлар, табиий ер ости иссиқлик ташувчиларидан фойдаланган ҳолда геотермик энергия, паст потенциал ернинг иссиқлик энергияси, ҳаво, махсус иссиқлик ташувчилар, биомассада фойдаланган ҳолда сув, энергия ишлаб чиқариш учун махсус ўстирилган ўсимликлар, шу жумладан

дарахтлар, шунингдек ишлаб чиқариш ва истеъмол чиқиндилари киради, углеводород хом ашёси ва ёқилғидан фойдаланиш пайтида олинган чиқиндилар бундан мустасно, биогаз, бундай чиқиндиларнинг чиқиндихоналарида ишлаб чиқариш ва истеъмол чиқиндилари натижасида чиқарилган газ, кўмир конларида ҳосил бўлган газ."

Қайта тикланадиган энергия манбаларини яна иккита гуруҳга бўлиш мумкин — анъанавий ва ноанъанавий (муқобил) энергия манбалари. Гидроэнергетика ва ёғоч чиқиндиларини ёқилғи сифатида ишлатадиган биоэнергия бўлими анъанавий энергия манбалари ҳисобланади. Муқобил энергия манбаларига қуйидагилар киради: геотермик, қуёш, шамол ва тўлқин энергияси, шунингдек кичик гидроэнергетика ва биомасса энергиясининг анъанавий энергия манбаларига тегишли бўлмаган қисми.

Муқобил манбалардан фойдаланиш бўйича ишланмалар илгари амалга оширилган бўлса-да, global миқёсда муқобил энергиянинг фаол ривожланиши 1973 йилги нефт инқирозидан сўнг, инсоният қайта тикланмайдиган энергия манбаларига ва уларнинг нархларига қабул қилиб бўлмайдиган даражада юқори даражада боғлиқлигини англаганидан кейин бошланди. Нефт ва газ қабулхонасининг фаол қаршиликларига қарамай, замонавий дунёда муқобил энергия манбаларидан фойдаланиш ҳам иқтисодий, ҳам энергия самарадорлиги нуқтаи назаридан истиқболли ҳисобланади.

Сўнгги йилларда рўй берган, давлатлар ва минтақаларнинг энергия хавфсизлигига потенциал таъсир кўрсатадиган сиёсий, иқтисодий ва экологик инқирозлар муқобил энергетикани ривожлантириш учун қўшимча рағбат бўлиб хизмат қилди. Бундай инқироз Ақш террористик ҳужумлар ўз ичига олади (2001), Москва электр ҳодиса (2005), Европа Иттифоқи мамлакатлари учун Украина орқали газ транзит узилишлар (2009), Япония Fukushima—1 атом стансиясида ҳодиса (2011), шунингдек бошқа шунга ўхшаш воқеалар сифатида. Бундай ҳодисалардан сўнг, инсоният қайта тикланмайдиган энергия манбаларига қабул қилиб бўлмайдиган даражада юқори даражада қарамлигини, шунингдек, уларнинг баъзиларининг хавфлилигини тобора кўпроқ англамоқда.

Федерацияси Россия муқобил энергия соҳасида катта имкониятларга ега. Мамлакатимизнинг деярли ҳар бир минтақасида қайта тикланадиган энергия манбаларидан (РЕС) фойдаланиш имконияти мавжуд. Ва бу йўналишдаги баъзи тадқиқотлар ва ишланмалар 1950-1960 йилларда фаол олиб борилган бўлса-да, Россияда муқобил энергетиканинг фаол ривожланиши фақат 2000-йилларда бошланган.

Айни пайтда Россия қайта тикланадиган ва муқобил энергия манбаларининг деярли барча маълум турларидан фойдаланган ҳолда электр станцияларини яратиш бўйича муваффақиятли тажрибага ега. Асосий муаммо-2000-йилларнинг охирида бир қатор fundamental қарорлар қабул қилинганига қарамай, муқобил энергияни Реал давлат томонидан қўллаб-қувватлашнинг йўқлиги.

Ушбу қонун замонавий шароитларда электр энергетика тармоғида

рақобат муҳитини ривожлантириш ва инвестицияларни жалб қилиш электр энергиясини ишлаб чиқариш ва етказиб бериш соҳасидаги фаолиятнинг институционал ва ташкилий-ҳуқуқий асосларини тубдан такомиллаштириш, электр энергетика тармоғини ислоҳ қилиш бўйича вазифаларнинг амалий ижросини таъминлаш, шунингдек, 2017 — 2021 йилларда Ўзбекистон Республикасини ривожлантиришнинг бешта устувор йўналиши бўйича Ҳаракатлар стратегияси ва Ўзбекистон Республикаси Маъмурий ислохотлар концепциясида белгиланган вазифаларни бажариш мақсадларини белгилайди.

Маълумки, республикамізда иқтисодиёт барқарор ўсишини таъминлашга ва аҳолининг фаровонлик даражасини оширишга, ёқилғи-энергетика ресурсларига бўлган талаб – эҳтиёжни узлуксиз қаноатлантиришга қаратилган нефть – газ, электр энергетика, кўмир, кимё, қурилиш индустриясини ривожлантиришнинг узок муддатли стратегияси амалга оширилмоқда. Шу билан бирга, ёқилғи – энергетика тармоғининг мавжуд қувватлари энергия ресурсларига ортиб бораётган талаб-эҳтиёжни тўлиқ даражада таъминламаяпти, мамлакатимиз иқтисодиётининг энергия сарфи ҳажми ривожланган мамлакатларнинг ўртача кўрсаткичидан анча юқоридир. Ҳозирги вақтда асосан гидроэлектростанциялар ишлаб чиқараётган қайта тикланувчи энергия манбалари ҳиссасига мамлакатда ишлаб чиқарилаётган электр энергияси умумий ҳажмининг атиги ўн фоизи тўғри келмоқда. Ниҳоятда катта салоҳият мавжуд бўлишига қарамасдан, қуёш ва шамол сингари қайта тикланувчи энергия манбаларининг имкониятларидан тўлиқ даражада фойдаланилмаяпти. Шу муносабат билан, иқтисодиёт тармоқлари ва ижтимоий соҳанинг энергия самарадорлигини ошириш, энергия тежовчи технологиялар ва қайта тикланувчи энергия манбаларини кенг жорий этиш давлат сиёсатининг ҳозирги босқичдаги долзарб йўналишларидан бири бўлиб қолиши лозим.

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МУҚОБИЛ ЭНЕРГИЯ МАНБАЛАРИ ЁРДАМИДА ҚИШЛОҚ ЖОЙЛАРДА ЭЛЕКТР ТАЪМИНОТИНИ ЯХШИЛАШ

Аннотация: Дунёда энг кенг тарқалгани учта пичоқли ва горизонтал айланиш ўқига ега шамол турбиналарининг дизайни. Бундан ташқари, вертикал айланиш ўқи бўлган шамол турбиналарини қуришга уринишлар қилинган, чунки улар ишлашни бошлаш учун жуда паст шамол тезлигини талаб қиладиган афзалликларга ега деб ишонилади.

Калим сўзлар: Энергия тежаши, энергия самарадорлиги, энергетик тежамкорлик, ишончли фаолият, энергия сарфи, қайта тикланувчи энергия манбалари.

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IMPROVING ELECTRICITY SUPPLY IN RURAL AREAS USING ALTERNATIVE ENERGY SOURCES

Abstract: The most common in the world is the design of yega wind turbines with three blades and a horizontal axis of rotation. In addition, attempts have been made to build wind turbines with a vertical axis of rotation, as it is believed that they will eat up the advantages that require a very low wind speed to start working.

Keywords: energy saving, energy efficiency, energy saving, reliable activity, energy consumption, renewable energy sources.

Шамол ер юзасининг куёш нурлари ва атмосферанинг пастки қатламлари томонидан нотекис исиши натижасида ҳосил бўлади-ҳаво массалари ер юзасига ва ундан юқорига, ердан 7-12 км баландликда ҳаракатлана бошлайди. Шундай қилиб, шамол энергияси куёш фаолиятининг натижасидир. Шамол турбиналарини жойлаштириш учун энг фойдали жойлар — шамол энергиясини конвертация қилиш учун тузилмалар — қирғоқ чизиқлари (қирғоқдан камида 10-12 км), ҳароратнинг пасайиши ва кучли ва барқарор шамол (камида 5 м/с).

Дунёда энг кенг тарқалгани учта пичоқли ва горизонтал айланиш ўқига

ега шамол турбиналарининг дизайни. Бундан ташқари, вертикал айланиш ўқи бўлган шамол турбиналарини қуришга уринишлар қилинган, чунки улар ишлашни бошлаш учун жуда паст шамол тезлигини талаб қиладиган афзалликларга ега деб ишонилади. Бироқ, тормоз механизми билан боғлиқ муаммолар туфайли бундай шамол генераторлари шамол энергетикаси саноатида амалий тақсимланмаган.

Шамол ёрдамида электр энергиясини ишлаб чиқариш бир қатор афзалликларга ега:

1. зарarli чиқиндиларсиз экологик тоза ишлаб чиқариш;
2. мавжудлиги;
3. амалий битмас-туганмаслик.

Бироқ, шамол энергияси бир қатор камчиликларга ега:

1. нотекис энергия чиқиши;
2. энергияни сақлаш зарурати;
3. шовқиннинг ифлосланиши ва телевизор сигналини қабул қилиш учун шовқин мавжудлиги;
4. кушлар ва ҳашаротларнинг учишига аралашини;
5. шамол турбиналарининг юқори нархи;
6. батареяларни ўрнатиш учун катта майдонларга еhtiёж.

Россиянинг умумий шамол салоҳияти 26000 млн.т., техник салоҳияти 2000 млн.т. ва иқтисодий салоҳияти 10 млн.т.

Шамол энергиясининг салоҳияти Россия ҳудудида нотекис тақсимланган. 2-иловада келтирилган Россия Федерациясининг шамол ресурслари харитасида шамол энергияси манбаларининг ер сатҳидан 50 метр баландликда жойлашганлиги кўрсатилган. Ушбу харитага кўра, шамолнинг ўртача тезлиги Barents, Кара, Bering ва Охоцк денгизлари бўйлаб тўпланган. Шамол тезлиги нисбатан юқори бўлган ҳудудларга (5-6 м/с) шимолда Шарқий Сибир, Чукчи ва Лаптев денгизлари ва Шарқда Япония денгизи қирғоқлари киради. Ўрта ва қуйи Volga минтақаларида, Уралсда, Ғарбий Сибирнинг дашт минтақаларида ва Байкал кўлида ҳам муҳим манбалар мавжуд.

Россиянинг аксарият ҳудудларида кундузи шамол тезлиги тунга қараганда юқори ва бу фарқлар қишда камроқ сезилади. Россиянинг аксарият минтақаларида ўртача шамол тезлигининг йиллик йўналиши аҳамияциз ва 1 дан 4 м/с гача ўзгариб туради, ўртача 2-3 м/с. юқори амплитудалар

Россиянинг Европа қисмининг марказида, Шарқий ва Ғарбий Сибирда, шунингдек узоқ Шарқда кузатилади. улар 4 м/с га етади. Россиянинг Европа қисмининг жануби-Шарқий ва жануби-ғарбий қисмида ва Марказий Сибирда йиллик 2 м/с дан кам амплитудалар кузатилади.

Тўлқинли гидроэнергетика - тўлқинлар энергиясини бошқа энергия турларига айлантириш.

Гелгит электр станциялари (ИЕС) юқори оқим ва паст оқим пайтида сув сатҳининг максимал фарқлари билан қирғоқларда жойлашган. Песнинг ишлаш принципи қуйидагича: кўрфазда унинг бир қисмини океандан ажратиб турадиган тўғон қурилмокда. Юқори оқим ва паст оқим пайтида тўғоннинг

турли томонларида сув сатҳининг пасайиши ҳосил бўлади, сув тўғон орқали пастки сатҳга қараб оқади ва бир йўналишда (юқори оқимда),

сўнгра бошқа томонда (паст оқимда) айланадиган тескари турбиналарни ҳаракатга келтиради.

Тўлқинли электр станцияларини қуришдан иқтисодий фойдаларни баҳолашда шуни ёдда тутиш керакки, тўлқинлар пайтида сув сатҳининг энг кучли тебранишлари чекка денгизларга хосдир. Ушбу қирғоқларнинг аксарияти кам аҳоли яшайдиган жойларда жойлашган бўлиб, иқтисодий фаолият ва электр энергиясини оммавий истеъмол қилиш жойларидан сезиларли даражада олиб ташланган. Бундан ташқари, у ҳисобга йил фасллари электр станциялари чиқимларни қоплаш анча жозибадор сезиларли уларнинг қуввати ортади сифатида бўлади, деб ҳақиқатни олиш зарур 5 ва яна ҳам шундай учун 15 million квт. Бироқ, мамлакатнинг чекка ҳудудларида бундай миқёсдаги тўлқин станцияларини қуриш жуда кўп пул талаб қилади ва ҳар доим ҳам тавсия етилмайди.

Маълумки, республикамизда иқтисодиёт барқарор ўсишини таъминлашга ва аҳолининг фаровонлик даражасини оширишга, ёқилғи-энергетика ресурсларига бўлган талаб – эҳтиёжни узлуксиз қаноатлантиришга қаратилган нефть – газ, электр энергетика, кўмир, кимё, қурилиш индустриясини ривожлантиришнинг узоқ муддатли стратегияси амалга оширилмоқда. Шу билан бирга, ёқилғи – энергетика тармоғининг мавжуд қувватлари энергия ресурсларига ортиб бораётган талаб-эҳтиёжни тўлиқ даражада таъминламаяпти, мамлакатимиз иқтисодиётининг энергия сарфи ҳажми ривожланган мамлакатларнинг ўртача кўрсаткичидан анча юқоридир. Ҳозирги вақтда асосан гидроэлектростанциялар ишлаб чиқараётган қайта тикланувчи энергия манбалари ҳиссасига мамлакатда ишлаб чиқарилаётган электр энергияси умумий ҳажмининг атиги ўн фоизи тўғри келмоқда. Ниҳоятда катта салоҳият мавжуд бўлишига қарамасдан, қуёш ва шамол сингари қайта тикланувчи энергия манбаларининг имкониятларидан тўлиқ даражада фойдаланилмаяпти.

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САНОАТ КОРХОНАЛАРИ ВА БИНОЛАРИДА ЭНЕРГИЯ ТЕЖАШНИНГ ЗАМОНАВИЙ УСУЛЛАРИ

Аннотация: *Замонавий шароитларда электр энергетика тармогида рақобат муҳитини ривожлантириш ва инвестицияларни жалб қилиш электр энергиясини ишлаб чиқариш ва етказиб бериш соҳасидаги фаолиятнинг институционал ва ташкилий-ҳуқуқий асосларини тубдан такомиллаштириш Ўзбекистон Республикаси Маъмурий ислохотлар концепциясида белгиланган вазифаларни бажариш мақсадларини белгилайди.*

Калим сўзлар: *Энергия тежаши, энергия самарадорлиги, энергетик тежамкорлик, ишончли фаолият, энергия сарфи, қайта тикланувчи энергия манбалари.*

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MODERN METHODS OF ENERGY SAVING IN INDUSTRIAL ENTERPRISES AND BUILDINGS

Annotation: *It is known that in the republic, economic recovery, housing and population provision abound with long-term strategic prospects, and in Kazakhstan – energy resources - long-term needs, satisfaction of needs in the nodes of the oil and gas, electric power, chemical, chemical industries.*

Keywords: *energy saving, energy efficiency, energy saving, reliable activity, energy consumption, renewable energy sources.*

Ўзбекистон Республикаси Олий Мажлиси томонидан 2009 йил 30 сентябрда қабул қилинган “Электр энергетикаси тўғрисида”ги қонуннинг қабул қилиниши электр энергетикаси соҳасидаги муносабатларни тартибга солиш, Ўзбекистон Республикасининг электр энергетика хавфсизлигини таъминлаш, электр энергиясини ҳосил қилиш, узатиш ва сотиш бўйича бошқарув ҳамда ҳўжалик алоқалари тизимида бозор принциплари ва механизмларини жорий этиш, электр энергетикасининг мутаносиб ривожланишини таъминлаш, электр энергиясидан ва ёқилғи-энергетика

ресурсларидан оқилона фойдаланишга имкониятини беради.

Сўнгги йилларда мамлакатимизда, аввало, иқтисодиётнинг барча тармоқларини ривожлантиришни жадаллаштириш, инвестицион жозибадорлик ва ишбилармонлик фаоллигини ошириш, ишлаб чиқариш ва хизмат кўрсатиш соҳасини кенгайтириш борасида кенг қўламли ислохотлар амалга ошириш ҳамда Ўзбекистон республикасида энергетикани ривожлантириш ва ундан оқилона фойдаланиш бўйича “Энергиядан оқилона фойдаланиш тўғрисида”, “Электр энергетика тармоғини янада ривожлантириш ва ислох қилиш стратегияси тўғрисида”, “Электр энергетикаси тўғрисида”, “Электр ва иссиқлик энергиясидан фойдаланиш қоидаларини тасдиқлаш тўғрисида”, “Қайта тикланувчи энергия манбаларидан фойдаланиш тўғрисида” ва бир нечта қонунлар қабул қилинди. Юқорида санаб ўтилган қонунлар ичида 1997 йил 25 апрелда қабул қилинган “Энергиядан оқилона фойдаланиш тўғрисида” ги қонун энергия ҳосил қиладиган ва энергия сарфлайдиган асбоб-ускуналар ҳамда маҳсулотга қонунчиликда назарда тутилган тартибда энергия жиҳатидан самарадорлик кўрсаткичларидан фойдаланиш ҳақидаги қонунлардан бири ҳисобланади. Ушбу қонуннинг мақсади миллий энергетика ресурслари сақланишини, энергиядан ва ишлаб чиқариш имкониятларидан самарали фойдаланишни таъминлайдиган умумий ҳуқуқий асосларни шакллантиришдан иборатдир.

Албатта, Ўзбекистон Республикасининг 1997 йил 25 апрелда қабул қилинган «Энергиядан оқилона фойдаланиш тўғрисида» ги 412-І-сонли Қонунига киритилган ўзгартиришлар Қонунчилик палатаси томонидан 2020 йил 1 майда қабул қилинган бўлиб, Сенат томонидан 2020 йил 19 июнда маъқулланган. Ўзбекистон Республикасининг Президенти Ш. Мирзиёев 2020 йил 14 июль санасида ушбу ўзгартиш ва қўшимчаларни ЎРҚ-628-сон билан имзолади, Қонун расман эълон қилинди ва эълон қилинган кундан эътиборан кучга кирди. Хулоса ўрнида шуни алоҳида таъкидлаш жоизки, Ўзбекистон Республикаси Қонунига ўзгартиш ва қўшимчалар киритилганда: «энергиядан оқилона фойдаланиш», «энергияни тежаш ва энергия жиҳатидан самарадорликни ошириш», «давлат томонидан қўллаб-қувватлашни»,

«энергия жиҳатидан самарадор», «энергия тежаладиган дастурлар ва лойиҳаларни ишлаб чиқиш», «энергия жиҳатидан тежамкор техника ҳамда маҳсулот» «қайта тикланувчи энергия манбалари» каби муҳим жумлалар учрайдики, буларнинг барчаси Қонун энергетика соҳасининг ривожини, истеъмолчиларнинг ҳақ-ҳуқуқлари, Ўзбекистоннинг табиий бойликларида оқилона фойдаланиш — энергия тежамкорлиги ва самарадорлиги нуқтаи назаридан бирмунча такомиллаштирилган.

Ушбу мақсадда Энергетика вазирлиги томонидан «Энергияни тежаш ва энергия самарадорлигини ошириш тўғрисидаги» қонун лойиҳаси ишлаб чиқилди ва норматив-ҳуқуқий ҳужжатлар лойиҳаларининг муҳокамаси порталида эълон қилинди. Лойиҳа 7 боб ва 24 моддадан иборат. У энергия тежаш ва энергия самарадорлиги объект ва субъектларига тавсиф берувчи, асосий атама ва тушунчаларни белгиловчи ҳамда энергетика нуқтаи

назаридан муносабатларни расмийлаштирувчи янги бўлим ва моддаларни ўз ичига олган. Бундай қонун лойиҳада келтирилган моддалар албатта энергияни тежаш ва самарадорлигини ошириш учун мақсад қилинган.

Ўзбекистон Республикаси Олий Мажлиси томонидан 2019 йил 27 мартда қабул қилинган “Ўзбекистон Республикасида электр энергетика тармоғини янада ривожлантириш ва ислоҳ қилиш стратегияси тўғрисида” қонун Электр энергетика тармоғининг ишончли фаолият юритишини таъминламасдан туриб иқтисодиёт тармоқлари ва мамлакат ҳудудларининг

саноат салоҳиятини ошириш, тадбиркорлик фаолиятини ривожлантиришни рағбатлантириш, аҳоли фаровонлигини юксалтириш ва ҳаёт сифатини яхшилаш масалаларига бағишланган. Ушбу қонун замонавий шароитларда электр энергетика тармоғида рақобат муҳитини ривожлантириш ва инвестицияларни жалб қилиш электр энергиясини ишлаб чиқариш ва етказиб бериш соҳасидаги фаолиятнинг институционал ва ташкилий-ҳуқуқий асосларини тубдан такомиллаштириш, электр энергетика тармоғини ислоҳ қилиш бўйича вазифаларнинг амалий ижросини таъминлаш, шунингдек, 2017

— 2021 йилларда Ўзбекистон Республикасини ривожлантиришнинг бешта устувор йўналиши бўйича Ҳаракатлар стратегияси ва Ўзбекистон Республикаси Маъмурий ислохотлар концепциясида белгиланган вазифаларни бажариш мақсадларини белгилайди.

Маълумки, республикамизда иқтисодиёт барқарор ўсишини таъминлашга ва аҳолининг фаровонлик даражасини оширишга, ёқилғи-энергетика ресурсларига бўлган талаб – эҳтиёжни узлуксиз қаноатлантиришга қаратилган нефть – газ, электр энергетика, кўмир, кимё, қурилиш индустриясини ривожлантиришнинг узоқ муддатли стратегияси амалга оширилмоқда. Шу билан бирга, ёқилғи – энергетика тармоғининг мавжуд қувватлари энергия ресурсларига ортиб бораётган талаб-эҳтиёжни тўлиқ даражада таъминламаяпти, мамлакатимиз иқтисодиётининг энергия сарфи ҳажми ривожланган мамлакатларнинг ўртача кўрсаткичидан анча юқоридир. Ҳозирги вақтда асосан гидроэлектростанциялар ишлаб чиқараётган қайта тикланувчи энергия манбалари ҳиссасига мамлакатда ишлаб чиқарилаётган электр энергияси умумий ҳажмининг атиги ўн фоизи тўғри келмоқда. Ниҳоятда катта салоҳият мавжуд бўлишига қарамасдан, қуёш ва шамол сингари қайта тикланувчи энергия манбаларининг имкониятларидан тўлиқ даражада фойдаланилмаяпти. Шу муносабат билан, иқтисодиёт тармоқлари ва ижтимоий соҳанинг энергия самарадорлигини ошириш, энергия тежовчи технологиялар ва қайта тикланувчи энергия

манбаларини кенг жорий этиш давлат сиёсатининг ҳозирги босқичдаги долзарб йўналишларидан бири бўлиб қолиши лозим.

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БИОМАССАДАН ЭЛЕКТР ИШЛАБ ЧИҚАРИШДА ЗАМОНАВИЙ ТЕХНОЛОГИЯЛАР

Аннотация: Юқори намлик (чиқинди сув, маиший чиқиндилар, органик қолдиқларни гидролизлаш маҳсулотлари) бўлган биомасса биологик жараёнлар билан қайта ишланади: анаэроб ҳазм қилиш ва ферментация. Ушбу жараёнлар натижасида биогаз (метан ва карбонат ангидрид), органик кислоталар, спиртлар ва ацетон олинади.

Калим сўзлар: Энергия тежаши, энергия самарадорлиги, энергетик тежамкорлик, ишончли фаолият, энергия сарфи, қайта тикланувчи энергия манбалари.

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MODERN TECHNOLOGIES IN PRODUCING ELECTRICITY FROM BIOMASS

Annotatation: Biomass with high humidity (waste water, household waste, organic residue hydrolysis products) is processed by biological processes: anaerobic digestion and fermentation. As a result of these processes, biogas (methane and carbon dioxide), organic acids, alcohols and acetone are obtained.

Keywords: energy saving, energy efficiency, energy saving, reliable activity, energy consumption, renewable energy sources.

Биоэнергия - бу "биомасса энергияси, биогаз ва биомассани қайта ишлаш маҳсулотларини бошқа энергия турларига айлантириш."

Биомасса ердаги қайта тикланадиган энергиянинг енг истиқболли манбаларидан биридир. Бу ҳақиқатга биомассанинг муҳим энергия салоҳияти ва бу энергия манбасининг нисбатан оддий янгиланиши каби ўзига хос хусусиятлари ёрдам беради. Бундан ташқари, ушбу турдаги ёқилғини ишлаб чиқариш ва улардан фойдаланиш катта молиявий инвестицияларни талаб қилмайди.

"Биомасса" атамаси ўсимлик ва ҳайвонот манбаларидан барча қайта

ишланадиган органик моддаларни бирлаштиради. Биомасса бирламчи (ўсимликлар, ҳайвонлар, микроорганизмлар ва бошқаларга бўлинади.) ва иккиламчи (бирламчи биомасса ва одамлар ва ҳайвонларнинг чиқиндиларини қайта ишлаш чиқиндилари). Биоёқилғининг уч тури мавжуд: суюқ (этанол, метанол, биодизел), қаттиқ (ўтин, сомон) ва газсимон (биогаз, водород).

Биомассадан энергия ишлаб чиқариш дунёнинг кўплаб мамлакатларида энг жадал ривожланаётган тармоқлардан биридир.

Намликка қараб, биомасса термохимёвий ёки биологик усуллар билан қайта ишланади. Намлиги паст бўлган биомасса (қишлоқ хўжалиги ва шаҳар қаттиқ чиқиндилари) термохимёвий жараёнлар билан қайта ишланади: тўғридан-тўғри ёниш, пиролиз (термал парчаланиш), суюлтириш, гидролиз. Натижада сув буғлари, электр энергияси, ёқилғи газ, водород, суюқ ёқилғи, кўмир, глюкоза олинади. Юқори намлик (чиқинди сув, майший чиқиндилар, органик қолдиқларни гидролизлаш маҳсулотлари) бўлган биомасса биологик жараёнлар билан қайта ишланади: анаэроб ҳазм қилиш ва ферментация. Ушбу жараёнлар натижасида биогаз (метан ва карбонат ангидрид), органик кислоталар, спиртлар ва асетон олинади.

Биомассадан энергиядан фойдаланишнинг энг истикболли йўналишларидан бири ундан биогаз ишлаб чиқаришдир. Биогаз қурилмалари ва қурилмалари Россиянинг исталган минтақаларида куннинг исталган вақтида, органик чиқиндилар ва энергия биомассаси мавжуд бўлган деярли ҳамма жойда ишлаши мумкин.

Гўнган биогазни энг самарали ишлаб чиқариш. Унинг бир тоннасидан 10-12 м³ метан олиш мумкин. Дала деҳқончилигидан 100 million тонна донли сомон каби чиқиндиларни қайта ишлаш 20 миллиардга яқин маблағни бериши мумкин. м³ метан. Пахта етиштириладиган ҳудудларда йилига 8-9 million тонна пахта пояси қолади, ундан 2 миллиардгача пахта олиш мумкин. м³ метан. Худди шу мақсадлар учун маданий ўсимликлар ва ўтларнинг тепаларини йўқ қилиш мумкин.

Россияда ҳар йили Халқ хўжалигининг турли соҳаларида 300 million тоннагача (қуруқ моддалар) ишлаб чиқарилади, шундан: қишлоқ хўжалигида 230 million тонна – чорвачилик ва паррандачиликда 130 million тонна ва ўсимликчиликда 100 million тонна; шаҳарларда – 70 million тонна: 60 million тонна қишлоқ хўжалиги ишлаб чиқаришида. қаттиқ майший чиқиндилар ва 10 million тонна канализация лойи. Белгиланган миқдордаги чиқиндиларнинг энергия салоҳияти 190 million тонна кубни ташкил қилади.т., ҳақиқатан ҳам 45 million тоннагача су олиш мумкин.т. йилига. Бу салоҳият ҳали ҳам тўлиқ етарли даражада ишлатилмаяпти. Қаттиқ чиқиндиларни қайта ишлаш бўйича ягона тажриба заводлари мавжуд бўлиб, уларнинг эксплуатацион хусусиятлари кенг саноат мақсадларида фойдаланиш учун қониқарли деб ҳисобланмайди. Бу борада ҳали кўп ишлар қилиниши керак.

Биомассадан энергия олиш технологияларидан фойдаланиш учун энергия ишлаб чиқаришнинг хом ашё манбасига яқинлиги зарур ("ноанъанавий биомасса" учун бу қишлоқ хўжалиги корхоналари, фермер

хўжаликлари), бу сизга нисбатан арзон энергиянинг мақбул миқдорини олиш имконини беради. Россияда чернозем вилояти, Krasnodar ўлкаси, Марказий Россия ва Жанубий Сибирда биомассада энергия ишлаб чиқаришни ташкил этиш мақсадга мувофиқдир.

Геотермик энергия - бу " геотермик сувларнинг энергиясини бошқа энергия турларига айлантириш."Геотермал манбалар деярли битмас-туганмас ва олинган энергия миқдори бўйича юқори даражада башорат қилиш қобилиятига ега.

Халқаро энергетика агентлиги таснифига кўра геотермал энергия манбалари 5 турга бўлинади :

1. геотермик куруқ буг ь конлари;
2. нам буг ь манбалари (иссиқ сув ва буг ь аралашмалари);
3. геотермик сув конлари (иссиқ сув ёки буг ь ва сувни ўз ичига олади);
4. магма билан иситиладиган куруқ иссиқ тошлар;
5. магма, қайси ериган жинслар ҳисобланади.

Сув, буг ёки уларнинг аралашмасининг ҳароратига қараб, геотермик манбалар паст ҳароратли ва ўрта ҳароратга (130-150 гача) ва юқори ҳароратга (150 дан ортиқ) бўлинади. Геотермик манбанинг ҳарорати асосан уни ишлатиш хусусиятини белгилайди.

Геотермал энергиядан фойдаланиш бир қатор аниқ афзалликларга ега:

1. ушбу турдаги энергия захиралари деярли тугамайди;
2. геотермик энергия жуда кенг тарқалган;
3. геотермал энергиядан фойдаланиш катта харажатларни талаб қилмайди.

Бироқ, шу билан бирга, геотермал энергия иккита муҳим камчиликка ега:

1. унинг манбасида геотермал энергиянинг заиф концентрацияси;
2. буг захарли газларни ўз ичига олади ва сув олтингугурт ва бошқа аралашмаларни ташийди.

Россияда геотермал энергия потенциал фойдаланиш бўйича биринчи ўринда туради. Россияда ушбу турдаги энергиянинг умумий захиралари 2000 МВт га баҳоланмоқда. Геотермал энергиянинг иқтисодий салоҳияти йилига 115 million тоннани ташкил этади.

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СТАНДАРТИЗАЦИЯ И ОФОРМЛЕНИЕ КОНСТРУКТОРСКОЙ ДОКУМЕНТАЦИИ В МАШИНОСТРОЕНИИ

***Аннотация:** В данной работе рассматриваются ключевые аспекты стандартизации и оформления конструкторской документации в машиностроении, а также их влияние на повышение качества проектных решений и производственной эффективности. Анализируется структура документации, регламентируемая системой ЕСКД, выделяются наиболее частые ошибки при оформлении чертежей и текстовых материалов, а также предоставляется обзор современных требований к инженерной графике и техническому языку. Особое внимание уделяется роли стандартов в обеспечении унификации и взаимозаменяемости элементов машиностроительной продукции.*

***Ключевые слова:** стандартизация, документация, машиностроение, оформление, ЕСКД, проектирование, контроль, методика, чертеж, качество*

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STANDARDIZATION AND EXECUTION OF DESIGN DOCUMENTATION IN MECHANICAL ENGINEERING

***Abstract:** This paper examines key aspects of standardization and execution of design documentation in mechanical engineering, as well as their impact on improving the quality of design solutions and production efficiency. The structure of documentation regulated by the Unified System for Design Documentation (ESKD) is analyzed, the most common errors in the execution of drawings and text materials are highlighted, and an overview of modern requirements for engineering graphics*

and technical language is provided. Particular attention is paid to the role of standards in ensuring the unification and interchangeability of elements of mechanical engineering products.

Keywords: *standardization, documentation, mechanical engineering, execution, ESKD, design, control, methodology, drawing, quality*

В условиях стремительного развития машиностроительной отрасли и внедрения цифровых технологий особую значимость приобретает стандартизация и правильное оформление конструкторской документации. Конструкторская документация представляет собой совокупность взаимосвязанных чертежей, схем, спецификаций и текстовых материалов, регламентирующих процесс создания, изготовления, контроля и эксплуатации изделия. Единые требования к оформлению документации, закреплённые в системе государственных стандартов (в частности, ЕСКД — Единой системе конструкторской документации), обеспечивают унификацию, взаимозаменяемость деталей и эффективное взаимодействие между различными подразделениями предприятия.

Методика поэтапного контроля оформления конструкторской документации направлена на обеспечение соответствия создаваемых чертежей и текстовых материалов установленным стандартам ЕСКД на каждом этапе проектирования. Данная методика предполагает внедрение системы промежуточной проверки, которая осуществляется после завершения каждого ключевого этапа разработки: эскизного проектирования, технического проектирования и оформления рабочих чертежей. На каждом этапе проводится экспертная оценка правильности применения условных обозначений, шрифтов, рамок, спецификаций и других элементов, регламентируемых стандартами. Особое внимание уделяется полноте и логической связности документации, а также корректности используемых форматов и обозначений.

Важной составляющей методики является использование контрольных листов (чек-листов), включающих конкретные критерии соответствия оформляемых документов нормативным требованиям. Такие листы заполняются ответственными инженерами-конструкторами либо сотрудниками отдела технического контроля. Методика позволяет выявлять ошибки и несоответствия на ранних стадиях, тем самым снижая затраты времени и ресурсов на доработку. Кроме того, она способствует формированию у молодых специалистов устойчивых профессиональных навыков работы с конструкторской документацией и развитию культуры технического мышления.

В результате проведения исследования по методике поэтапного контроля оформления конструкторской документации были получены убедительные данные, подтверждающие её эффективность. В исследовании приняли участие 30 студентов старших курсов инженерных специальностей, которым было предложено оформить комплект конструкторской

документации сначала без применения методики, а затем с поэтапной проверкой. Анализ показал, что доля правильно оформленных элементов увеличилась с 62% до 91%, а количество грубых нарушений требований ЕСКД сократилось более чем в три раза. Это свидетельствует о значительном повышении качества выполнения графических и текстовых материалов при включении системного контроля на каждом этапе.

Кроме того, в ходе анкетирования участников эксперимента выяснилось, что 87% студентов отметили улучшение понимания стандартов и уверенности в своих действиях при оформлении чертежей. 76% респондентов заявили, что наличие четких чек-листов помогло им структурировать процесс работы и избежать ошибок. Таким образом, методика поэтапного контроля не только повышает объективное качество документации, но и способствует формированию профессиональных компетенций у будущих специалистов в области машиностроения.

Заключение: В условиях стремительно развивающейся промышленности Узбекистана, где машиностроение становится одним из ключевых векторов технологического прогресса, вопросы стандартизации и грамотного оформления конструкторской документации приобретают особую актуальность. Современный инженер, вооружённый методиками поэтапного контроля и знанием международных и национальных стандартов, становится не просто исполнителем, а создателем конкурентоспособной продукции, способной выйти на глобальный рынок. Формирование таких специалистов сегодня — важнейшая задача для образовательной системы и производственной сферы страны, устремлённой в будущее.

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АВТОРСКИЙ ПОДХОД К ФОРМИРОВАНИЮ СТРАТЕГИИ ПРОДВИЖЕНИЯ ЛИЧНОГО БРЕНДА В РОССИЙСКИХ РЕАЛИЯХ

***Аннотация:** В научной статье рассматриваются методы и этапы формирования стратегии продвижения личного бренда в условиях российского цифрового и профессионального пространства. Анализируются ключевые компоненты стратегии, включая аудит аудитории, постановку целей, выбор каналов продвижения, создание контента и визуальной идентичности, а также мониторинг эффективности. Приводятся успешные российские кейсы, демонстрирующие значимость системного и адаптивного подхода к развитию личного бренда.*

***Ключевые слова:** личный бренд, продвижение, цифровые платформы, стратегия, маркетинг, контент, коммуникации, медийная активность.*

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AN AUTHOR'S APPROACH TO FORMING A PERSONAL BRAND PROMOTION STRATEGY IN RUSSIAN REALITIES

***Abstract:** The scientific article examines the methods and stages of developing a personal brand promotion strategy in the Russian digital and professional space. It analyzes the key components of the strategy, including audience audit, setting goals, choosing promotion channels, creating content and visual identity, and monitoring effectiveness. The article provides successful Russian case studies that demonstrate the importance of a systematic and adaptive approach to personal brand development.*

Keywords: *personal brand, promotion, digital platforms, strategy, marketing, content, communications, media activity.*

В современном профессиональном и цифровом пространстве личный бренд становится неотъемлемым инструментом карьерного и бизнес-роста. Ранее формирование имиджа было прерогативой публичных персон или руководителей крупных компаний, сегодня же личный бренд необходим каждому специалисту, стремящемуся выделиться на рынке труда, привлечь клиентов или расширить аудиторию.

Анализ текущих тенденций демонстрирует, что цифровые платформы, социальные сети и мессенджеры являются ключевыми инструментами продвижения. По данным Mediascope (Digital Brand Day, 2023) [7], более 70% российских профессионалов активно используют такие каналы, как ВКонтакте и Telegram, для демонстрации экспертности и взаимодействия с аудиторией. При этом рост конкуренции и насыщенность информационного пространства создают необходимость системного подхода к построению личного бренда. Одного яркого аккаунта в соцсетях или нескольких публикаций недостаточно: требуется стратегия, которая объединяет ценности личности, экспертные компетенции, визуальную идентичность и каналы коммуникации в единую, управляемую систему.

Таким образом, актуальность исследования заключается в необходимости разработки методологии формирования стратегии продвижения личного бренда, способной адаптироваться под цифровую среду России и обеспечивать долгосрочную устойчивость профессионального имиджа.

Цель данной статьи — предложить авторский подход к формированию стратегии продвижения личного бренда, который учитывает специфику российских цифровых и офлайн-каналов, особенности целевых аудиторий и современные тенденции в управлении имиджем. Задачи, вытекающие из цели, включают:

1. Анализ текущих методов и инструментов продвижения личного бренда.
2. Выделение ключевых компонентов стратегии, обеспечивающих системность и эффективность.
3. Разработка практических рекомендаций по выбору каналов, форматов контента и методов оценки эффективности.
4. Формирование модели адаптивного управления личным брендом для российских условий.

Предлагаемый подход базируется на интеграции анализа текущего состояния бренда, постановки стратегических целей, выбора каналов продвижения и инструментов коммуникации, а также оценки эффективности реализованных действий.

Ниже представлена структурированная схема этапов стратегии с указанием основных действий, используемых инструментов и методов оценки эффективности

Таблица 1 - Этапы формирования и реализации стратегии продвижения личного бренда

Этап стратегии	Основные действия	Каналы и инструменты	Методы оценки эффективности	Цель этапа
Анализ текущего состояния бренда	Аудит идентичности личности, миссии, компетенций, восприятия аудитории	Соцсети: ВК, Telegram, Rutube; Платформы: LinkedIn.ru, Хабр; Опросы, мониторинг упоминаний	SWOT-анализ, опросы, фокус-группы, мониторинг комментариев и реакций	Определить сильные и слабые стороны бренда, выявить возможности для продвижения
Постановка целей и ценностного предложения	Формулирование стратегических целей, определение УТП личности	Документы стратегии, KPI-доски, стратегические карты	Методы оценки эффективности KPI целей, соответствие ценностного предложения запросам аудитории	Повышение узнаваемости, укрепление экспертного статуса, формирование доверия
Выбор каналов продвижения и инструментов коммуникации	Планирование публикаций, форматов и каналов контента	ВК (статьи, кейсы), Telegram (сообщество, рассылки), YouTube/Rutube (видео), конференции, форумы	Метрики публикаций: охват, вовлечённость, подписчики	Обеспечить системное присутствие и коммуникацию с целевой аудиторией
Создание контента и визуальной идентичности	Разработка контент-стратегии, визуального стиля, storytelling	Тексты, видео, подкасты, инфографика, брендбук	Engagement rate, тональность комментариев, частота публикаций	Формирование узнаваемого, привлекательного и доверительного имиджа
Мониторинг и корректировка стратегии	Отслеживание реакции аудитории, адаптация контента и каналов	Аналитика соцсетей, опросы, фокус-группы	Изменение охвата, вовлечённости, удовлетворённость аудитории	Повышение эффективности стратегии, адаптация к изменениям среды
Долгосрочное позиционирование и устойчивость бренда	Планирование профессионального роста, укрепление репутации, управление влиянием	Публикации в СМИ, участие в рейтингах, коллаборации, офлайн-мероприятия	ROI, рост числа упоминаний, укрепление репутации	Создание устойчивого личного бренда с доверительной и профессиональной репутацией

Представленная таблица систематизирует ключевые этапы формирования и реализации стратегии продвижения личного бренда, связывая каждый шаг с конкретными действиями, инструментами и методами оценки эффективности. Такой подход позволяет визуализировать процесс

стратегического управления брендом, делая его более понятным и управляемым. Авторская точка зрения заключается в том, что успех стратегии продвижения личного бренда напрямую зависит от согласованности всех этапов: анализ аудитории и текущего состояния, постановка целей, разработка контентной и коммуникационной стратегии, внедрение и последующая адаптация. Особенно важно подчеркнуть взаимосвязь между цифровыми и офлайн-каналами, а также регулярный мониторинг KPI, который позволяет своевременно корректировать действия и сохранять актуальность бренда в профессиональной и цифровой среде.

Эффективная стратегия продвижения личного бренда требует обязательного продумывания всех этапов. Без системного подхода продвижение будет фрагментарным и малоэффективным. Ниже приведены успешные российские кейсы, демонстрирующие результативность продуманной стратегии продвижения личного бренда:

1. Кейс - Ксения Собчак

Телеведущая, журналист и общественный деятель Ксения Собчак строит личный бренд через сочетание цифровых платформ (Instagram (запрещен в РФ), YouTube, Telegram, VK) и офлайн-активностей (конференции, медийные проекты). Чётко сформированное ценностное предложение, регулярный контент и публичная активность обеспечивают узнаваемость и влияние на аудитории [4].

2. Кейс - Артемий Лебедев «Личный бренд как бизнес-актив».

Артемий Лебедев, дизайнер и основатель «Студии Артемия Лебедева», формирует личный бренд через сочетание цифровых платформ (Telegram, YouTube, подкасты) и офлайн-активностей (интервью, участие в шоу, публикации проектов студии). Чётко выстроенное ценностное предложение, регулярный контент и активная медийная позиция позволяют ему поддерживать узнаваемость, укреплять доверие к бренду и продвигать собственные бизнес-проекты [3].

Эти примеры демонстрируют, что системный и адаптивный подход к продвижению личного бренда, включающий анализ аудитории, разработку ценностного предложения, выбор эффективных каналов коммуникации и регулярный мониторинг результатов, может привести к значительным успехам в различных профессиональных сферах.

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МОДЕРНИЗАЦИЯ СОДЕРЖАНИЯ ОБУЧЕНИЯ ИЗОБРАЗИТЕЛЬНОМУ ИСКУССТВУ В ОБЩЕОБРАЗОВАТЕЛЬНЫХ ШКОЛАХ УЗБЕКИСТАНА: НАУЧНО-ПРАКТИЧЕСКИЕ РЕКОМЕНДАЦИИ

***Аннотация:** В статье рассматриваются актуальные проблемы модернизации содержания обучения изобразительному искусству в общеобразовательных школах Узбекистана. Особое внимание уделено необходимости интеграции инновационных педагогических технологий и современных цифровых средств в учебный процесс, что позволяет повысить эффективность усвоения художественных знаний и развитие эстетического вкуса у учащихся. Подчеркивается роль изобразительного искусства в формировании креативного и критического мышления, развитии визуальной грамотности и культурной идентичности школьников. В работе также приводятся научно-практические рекомендации по совершенствованию методики преподавания, внедрению STEAM-подхода и созданию образовательной среды, соответствующей требованиям реформ до 2030 года.*

***Ключевые слова:** изобразительное искусство, общее среднее образование, образование, эстетическая грамотность, метод, мультимедиа, инновации, технология, полевая практика.*

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MODERNIZATION OF THE CONTENT OF FINE ARTS EDUCATION IN SECONDARY SCHOOLS OF UZBEKISTAN: SCIENTIFIC AND PRACTICAL RECOMMENDATIONS

***Abstract:** This article addresses the urgent issues of modernizing the content of art education in general secondary schools of Uzbekistan. Special emphasis is placed on the need to integrate innovative pedagogical technologies and modern digital tools into art classes, which contributes to improving the effectiveness of learning artistic knowledge and enhancing students' aesthetic perception. The role of art education in developing creative and critical thinking, visual literacy, and cultural identity of schoolchildren is highlighted. The paper also provides scientific and practical recommendations for improving teaching methods, introducing the*

STEAM approach, and creating an educational environment that meets the requirements of the national education reform agenda up to 2030.

Key words: *visual arts, general secondary education, education, aesthetic literacy, method, multimedia, innovation, technology, fieldwork.*

Образование в области изобразительного искусства играет важную роль в формировании эстетических чувств и визуального мышления у школьников. В мире отмечается, что образование STEAM (искусство, наука, технология, инженерия, математика) эффективно в развитии творческого и критического мышления. Тот факт, что в Узбекистане более 6,3 миллиона учащихся получают общее среднее образование, и более 85% из них получают образование на узбекском языке, повышает важность страны. Государство разработало Стратегию реформ до 2030 года в соответствии с Указом Президента PF-5712 (2019) в целях развития STEAM [1].

Цели и задачи:

1. Анализ современной учебной программы и методов обучения;
2. Предложить стратегию модернизации на основе интеграции STEAM + AR/VR;
3. Практические меры: пилотные проекты, переподготовка педагогов и развитие инфраструктуры.

Основная часть. Текущее состояние и анализ

Содержание образования в области изобразительного искусства в школах Узбекистана носит преимущественно академический и реалистический характер, цифровые и креативные средства используются редко. Например, согласно исследованию Кокандского государственного педагогического института, эффективное использование AR-технологий значительно повышает интерактивность учебного процесса и эффективность памяти знаний.

В рамках реформы STEAM-образования в 2022 году было создано 2 STEAM-школы, а в 2023 году - 26, что привлекает педагогов к интеграции информационно-коммуникационных технологий (ИКТ) и предметов.

Основа модернизации:

STEAM-интеграция формирует у учащихся креативное мышление и обеспечивает коммуникацию между предметами.

Технологии AR/VR позволяют визуализировать, демонстрировать и понимать учебный процесс на 50-75%.

Art Station in Samarkand создан как кластер-музей и педагогический центр, где проводятся выставки, мастер-классы и образовательные программы [2].

Концепция модернизации

Современное развитие образования требует системного обновления содержания преподавания изобразительного искусства в школах. В рамках концепции модернизации предлагается:

Учебная программа.

Пересмотр и дополнение учебных программ с учетом интеграции инновационных направлений. В частности, включение в Государственные образовательные стандарты (SES) тем, связанных с использованием технологий AR/VR, цифрового эскиза, графического и медиадизайна. Эти направления способствуют развитию у учащихся навыков визуального мышления, цифровой грамотности и междисциплинарной креативности.

- **Пилотные проекты.** Организация пилотных курсов и экспериментальных классов в школах Ташкента и Самарканда с целью апробации новых методик. Предполагается подготовка учителей по цифровым технологиям, обеспечение школ оборудованием (VR-гарнитуры, планшеты для цифрового рисования, графические редакторы) и разработка авторских методических материалов.

- **STEAM-подход.** Интеграция изобразительного искусства в междисциплинарное обучение (наука, технология, инженерия, математика и искусство), что позволит школьникам формировать как эстетические, так и прикладные компетенции.

- **Оценка и масштабирование.** По результатам пилотных проектов предлагается провести научно-практическую экспертизу и постепенно внедрить успешные практики в другие регионы страны в рамках реализации Концепции развития системы образования до 2030 года.

Методические приёмы.

Одним из ключевых направлений модернизации преподавания изобразительного искусства является внедрение проектного метода как основной формы обучения. В рамках данного подхода учащиеся не только осваивают теоретические знания, но и самостоятельно создают художественные произведения, представляя их в виде индивидуальных или групповых проектов. Такой формат способствует развитию творческого мышления, самостоятельности и навыков публичного выступления.

Современные цифровые инструменты позволяют существенно расширить возможности визуализации. Использование технологий AR/VR обеспечивает не только демонстрацию трёхмерных объектов, но и создание интерактивных учебных процессов в классах. Например, школьники могут «погружаться» в виртуальные галереи, моделировать художественные композиции или работать над коллективными проектами в цифровой среде.

Особое значение имеет подготовка педагогических кадров. Для этого предлагается организация системы повышения квалификации (СРЕ) через специализированные семинары и тренинги, направленные на освоение методик использования ИКТ, искусственного интеллекта и STEAM-подхода. Эти программы могут реализовываться в сотрудничестве с ЮНЕСКО и другими международными организациями, что обеспечит доступ к передовому опыту и международным образовательным практикам.

Инфраструктура.

Развитие современной образовательной инфраструктуры является неотъемлемой частью процесса модернизации. В Самарканде Art Station функционирует как гуманитарно-выставочный кластер, объединяющий педагогическую практику, исследовательскую деятельность и художественное творчество. Он служит площадкой для организации мастер-классов, проведения художественных экспериментов и интеграции искусства с цифровыми технологиями.

В Ташкенте планируется дальнейшее развитие цифровой образовательной среды через VR-лаборатории на базе Центра молодёжных инициатив (CFYI “Youth Tech Center”). Здесь учащиеся смогут осваивать навыки 3D-моделирования и виртуального рисования, участвовать в международных конкурсах и обменных программах. Таким образом, создаётся единая экосистема, обеспечивающая преемственность между школьным образованием, культурными центрами и инновационными технологическими лабораториями [3].

Научные и практические рекомендации.

Учебная программа. В условиях модернизации системы образования особое значение приобретает интеграция STEAM-подхода с AR/VR технологиями. Согласно современным исследованиям, использование данных технологий способно повысить эффективность усвоения учебного материала на 50–75%, что подтверждает их высокий потенциал для формирования устойчивых знаний и практических навыков у учащихся. Рекомендуется внедрение новых учебных модулей в соответствии с Государственными образовательными стандартами (SES), с акцентом на цифровое искусство, графический дизайн, 3D-моделирование и виртуальное проектирование. Первоначальная апробация данных нововведений может быть реализована в рамках пилотных школ Ташкента и Самарканда, что позволит сформировать методическую базу для дальнейшего масштабирования.

Методика. В качестве ведущего метода обучения рекомендуется проектно-базовое обучение, при котором учащиеся самостоятельно разрабатывают художественные проекты, интегрируя традиционные и цифровые техники. Такой формат повышает их мотивацию, развивает креативность, критическое мышление и самостоятельность. Практическая реализация методики предполагает организацию AR/VR-лабораторий и виртуальных чертежных классов, где школьники могут работать с цифровыми инструментами, создавать трёхмерные объекты и представлять свои результаты в интерактивной форме.

Для успешного внедрения данных подходов особое внимание должно быть уделено повышению квалификации педагогов. Рекомендуется организовать программы CPE (continuing professional education), включающие международные семинары, мастер-классы и тренинги в сотрудничестве с ЮНЕСКО, программой Muskie и другими международными организациями. Педагогам необходим доступ к современным методическим материалам и

возможность обмена опытом с коллегами, работающими в области STEAM-образования.

Интеграция. STEAM-образование базируется на взаимосвязи различных предметов и дисциплин. В рамках существующих 26 STEAM-школ, а также Президентских школ, можно выстроить удобную модель интеграции учебных дисциплин, где искусство органично соединяется с наукой, инженерией, технологиями и математикой. Это позволит учащимся не только развивать междисциплинарные навыки, но и формировать целостное понимание современного мира, что соответствует стратегическим целям реформы образования до 2030 года [4].

Заключение

Интеграция содержания обучения изобразительному искусству с STEAM, AR/VR и проектно-основными методами повышает у учащихся наглядное мышление, творческий подход и интерес к науке.

Модернизация образования в области изобразительного искусства с помощью цифровых технологий, включая AR/VR, STEAM и проектные методы, повышает навыки визуального мышления, креативности и интереса учащихся к науке.

Приоритетные реформы осуществляются за счет выставочно-научного кластера Art Station в Самарканде, а также программ ЮНЕСКО и Muskie для подготовки педагогов и STEAM-школ. Эти реформы позволят создать конкурентную образовательную среду для школ в соответствии с международными стандартами, получить доступ к международным рейтингам, таким как PISA, и значительно улучшить качество системы общего образования.

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ВЛИЯНИЕ ЦИФРОВИЗАЦИИ БАНКОВСКИХ УСЛУГ НА УРОВЕНЬ МОШЕННИЧЕСТВА: ВЫЗОВЫ И ПУТИ РЕШЕНИЯ

***Аннотация:** цифровизация банковских услуг ускорила развитие онлайн- и мобильных транзакций, но одновременно усилила киберугрозы, включая фишинг, социальную инженерия и атаки на платежную инфраструктуру. Цель исследования — выявить взаимосвязь между уровнем цифровизации и масштабами кибермошенничества, а также определить эффективные меры противодействия. Используются сравнительный, регрессионный, DEA- и сценарный анализ на основе данных за 2019–2024 гг. Результаты показали, что комплексное сочетание строгого регулирования, современных антифрод-технологий и повышения цифровой грамотности способно снизить успешность атак на 20–40 %. Международное сотрудничество (Interpol, FATF, Базельский комитет) усиливает устойчивость финансового сектора к трансграничным угрозам.*

***Ключевые слова:** цифровизация банковских услуг, кибермошенничество, кибербезопасность, антифрод-технологии, регуляторные меры, международное сотрудничество.*

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IMPACT OF THE BANKING SERVICES DIGITALIZATION ON THE FRAUD LEVEL: CHALLENGES AND SOLUTIONS

***Abstract:** The digitalization of banking services has accelerated the development of online and mobile transactions while simultaneously intensifying cyber threats, including phishing, social engineering, and attacks on payment infrastructure. The aim of the study is to identify the relationship between the level of digitalization and the scale of cyber fraud, as well as to determine effective*

countermeasures. Comparative, regression, DEA, and scenario analyses were applied using data from 2019–2024. The results indicate that a comprehensive combination of strict regulatory measures, advanced anti-fraud technologies, and the enhancement of digital literacy can reduce the success rate of attacks by 20–40%. International cooperation (Interpol, FATF, Basel Committee) strengthens the resilience of the financial sector to cross-border threats.

Keywords: *banking services digitalization, cyber fraud, cybersecurity, anti-fraud technologies, regulatory measures, international cooperation.*

Введение

Цифровизация банковских услуг за последние два десятилетия стала одним из ключевых факторов трансформации финансового сектора. Внедрение технологий онлайн- и мобильного банкинга, дистанционной идентификации, бесконтактных платежей и интеграции с финтех-сервисами существенно изменило не только каналы взаимодействия банков с клиентами, но и структуру самих банковских операций [1]. Согласно последним исследованиям, в развитых странах уже свыше 90 % транзакций осуществляется через цифровые каналы, а мировой средний показатель превышает 65 % [2].

Однако рост объемов дистанционных операций сопровождается и масштабированием угроз. Кибермошенничество - от фишинга и вредоносных программ до социальной инженерии и атак на платежную инфраструктуру - стало одной из наиболее динамично развивающихся форм финансовых преступлений [3]. Статистика показывает, что в ряде стран ущерб от цифрового мошенничества уже превышает убытки от традиционных видов банковских преступлений [4]. При этом технологии, используемые преступниками, становятся всё более изощрёнными: применяются методы имитации биометрических данных, атаки на системы двухфакторной аутентификации, автоматизированные боты для массового взлома аккаунтов [5].

Регуляторы и сами банки вынуждены адаптироваться к новым условиям. В разных странах применяются различные подходы: жёсткое регулирование и установление обязательных стандартов безопасности (Великобритания, Сингапур), развитие поведенческой аналитики и искусственного интеллекта в антифрод-системах (США, Республика Корея), а также массовое обучение населения цифровой гигиене (страны ЕС) [6]. Несмотря на предпринимаемые меры, универсального решения проблемы не существует, что делает тему исследования взаимосвязи между цифровизацией банковских услуг и уровнем мошенничества крайне актуальной [7].

Цель исследования заключается в выявлении ключевых тенденций и закономерностей в развитии цифровых банковских услуг и анализе их влияния на уровень кибермошенничества в международной практике.

Для достижения поставленной цели в работе решаются следующие задачи:

- систематизировать теоретические подходы к понятию цифровизации банков и её роли в трансформации финансового сектора;
- классифицировать основные виды кибермошенничества, возникающие в результате развития цифровых каналов;
- провести сравнительный анализ международных и региональных стратегий противодействия финансовым преступлениям в цифровой среде;
- выявить наиболее эффективные технологические, институциональные и образовательные меры по снижению рисков.

В качестве гипотезы выдвигается предположение, что ускоренная цифровизация банковских услуг, при отсутствии комплексной системы киберзащиты и просвещения пользователей, способствует росту числа мошеннических инцидентов, тогда как сочетание регуляторных мер, инновационных технологий и информационной грамотности клиентов способно существенно снизить масштабы угроз.

Практическая значимость работы заключается в том, что полученные результаты могут быть использованы при разработке и совершенствовании национальных стратегий кибербезопасности финансового сектора, а также в деятельности банков и регуляторов для оптимизации подходов к управлению цифровыми рисками.

1. Теоретические основы цифровизации банковских услуг и ее влияния на уровень мошенничества

Цифровизация банковских услуг представляет собой комплексное внедрение информационно-коммуникационных технологий (ИКТ) в сферу предоставления и управления финансовыми продуктами. Она охватывает автоматизацию процессов, развитие дистанционных каналов обслуживания, интеграцию с финтех-экосистемами и использование больших данных для персонализации услуг [8]. Основная цель цифровизации - повысить эффективность, доступность и удобство банковских сервисов для клиентов при одновременном снижении издержек и повышении конкурентоспособности кредитных организаций [9].

В последние годы тенденция цифровой трансформации приобрела глобальный характер. Согласно данным Международного валютного фонда (IMF), доля активных пользователей мобильного банкинга в ряде стран превысила 60% населения, а объем безналичных транзакций увеличился более чем вдвое за период с 2019 по 2023 гг. [10]. Ключевыми драйверами стали развитие мобильных приложений, бесконтактных платежей, удаленной идентификации клиентов и открытых API в рамках концепции Open Banking [11].

1.1. Влияние цифровизации на операционную эффективность и риски

С точки зрения теории управления, цифровизация банков способствует оптимизации бизнес-процессов за счет автоматизации рутинных операций, сокращения времени обслуживания и улучшения клиентского опыта. Однако

наряду с преимуществами она несет и новые угрозы. Операционные риски, включая киберугрозы и мошенничество, возрастают по мере увеличения доли дистанционного обслуживания [12].

Международные исследования показывают, что цифровая среда создает новые векторы атак, включая фишинг, социальную инженерию, взлом мобильных приложений, атаки на API и компрометацию биометрических данных [13]. Особенно уязвимыми становятся клиенты, обладающие низким уровнем цифровой грамотности, а также сегменты, активно использующие быстрые платежи, поскольку сокращение времени транзакций снижает возможности для их проверки.

1.2. Методы оценки взаимосвязи цифровизации и мошенничества

Научная литература выделяет несколько подходов к изучению связи между цифровизацией и уровнем мошенничества.

1. Модель технологической диффузии (Technology Diffusion Model) рассматривает распространение цифровых сервисов как фактор, создающий «критическую массу» пользователей, после которой мошенники получают экономический стимул для активизации атак [14].

2. Теория рутинной деятельности (Routine Activity Theory) утверждает, что рост числа онлайн-транзакций повышает вероятность контакта между потенциальной жертвой и преступником при отсутствии достаточных механизмов защиты [15].

3. Модель зрелости цифровой безопасности (Digital Security Maturity Model) описывает, как банки на разных этапах цифровой трансформации по-разному подвержены мошенничеству в зависимости от уровня внедрения защитных технологий и культуры информационной безопасности [16].

С практической точки зрения, эти подходы обосновывают необходимость параллельного развития цифровых сервисов и антифрод-инструментов, включая многофакторную аутентификацию, поведенческую аналитику и искусственный интеллект для мониторинга транзакций.

1.3. Международный опыт борьбы с цифровым мошенничеством

Мировая практика демонстрирует, что регулирование и технологические меры должны развиваться синхронно.

- Великобритания реализует подход «экономической ответственности банков», когда кредитные организации обязаны компенсировать клиентам убытки от определенных видов мошенничества (например, Authorised Push Payment scams). Дополнительно внедрена система Confirmation of Payee для верификации получателя платежа, что позволило сократить число ошибок и поддельных переводов.

- Сингапур сделал акцент на превентивных мерах: введена обязательная задержка первого перевода на новый счет, лимиты по суммам для новых получателей и автоматическая блокировка подозрительных SMS со ссылками. Эти шаги значительно снизили уровень социально-инженерных атак.

- Республика Корея активно использует межведомственный обмен данными между банками, телеком-компаниями и правоохранительными органами. Особое внимание уделяется фильтрации звонков через систему Call Filter, что позволило снизить масштаб телефонного фишинга.

Опыт стран показывает, что успешные модели включают три ключевых элемента: жесткое регулирование, технологические инновации и широкомасштабное просвещение населения в сфере финансовой безопасности.

1.4.Современные антифрод-технологии в банковском секторе

На практике борьба с цифровым мошенничеством ведется на нескольких уровнях:

1. Идентификация и аутентификация — использование многофакторных схем, включая биометрию (отпечатки пальцев, распознавание лица), аппаратные токены и одноразовые пароли.

2. Мониторинг транзакций в реальном времени — анализ поведенческих и транзакционных паттернов для выявления аномалий с помощью машинного обучения.

3. Информационное взаимодействие — обмен данными о мошеннических операциях через отраслевые базы (например, базы мошенников) и координацию с регуляторами.

4. Повышение цифровой грамотности клиентов — регулярные кампании по информированию о новых угрозах и безопасных практиках.

Современные исследования подчеркивают, что изолированное применение одного инструмента не обеспечивает достаточной защиты. Эффективность достигается при интеграции технологий в единую систему кибербезопасности, охватывающую все этапы клиентского пути.

Рост цифровых каналов меняет не только структуру обслуживания клиентов, но и стратегические приоритеты банков. Уровень доверия к финансовым институтам напрямую связан с их способностью обеспечивать безопасность средств и персональных данных клиентов. Масштабные инциденты кибермошенничества могут приводить к репутационным потерям, оттоку клиентов и даже системным рискам для банковской отрасли.

Поэтому цифровизация и противодействие мошенничеству должны рассматриваться не как параллельные, а как взаимосвязанные процессы, требующие комплексного подхода. Этот тезис лежит в основе гипотезы настоящего исследования, предполагающей, что рост числа пользователей цифровых сервисов без сопутствующего усиления защитных мер ведет к статистически значимому увеличению уровня мошенничества.

1.5.Роль международного сотрудничества

Особое значение в противодействии цифровому мошенничеству имеет международное сотрудничество. Интерпол (Interpol) координирует трансграничные операции по выявлению и задержанию киберпреступников, обеспечивая обмен информацией между правоохранительными органами более чем 190 стран. Группа разработки финансовых мер борьбы с

отмыванием денег (FATF) вырабатывает международные стандарты по предотвращению использования финансовых систем для финансирования терроризма и преступной деятельности, включая рекомендации по отслеживанию транзакций в цифровой среде. Базельский комитет по банковскому надзору (BIS) активно развивает методологию оценки киберустойчивости банков, включая показатели частоты и масштабов инцидентов цифрового мошенничества, которые предлагается интегрировать в систему пруденциального надзора. Такая координация позволяет странам синхронизировать меры регулирования, оперативно обмениваться аналитическими данными о новых схемах атак и повышать эффективность предотвращения преступлений в условиях глобальной цифровизации финансовых услуг.

2. Методология исследования

2.1. Объект и предмет исследования

Объектом исследования выступает процесс цифровизации банковских услуг в контексте трансформации финансового сектора и сопутствующего роста кибермошенничества. Предметом исследования являются закономерности и взаимосвязи между уровнем внедрения цифровых технологий в банковскую деятельность и частотой, масштабом и сложностью мошеннических инцидентов в этой сфере.

Выбор объекта обусловлен тем, что именно банковский сектор является одной из наиболее активных сфер внедрения цифровых технологий, включая мобильный банкинг, дистанционную идентификацию, бесконтактные платежи и интеграцию с финтех-экосистемами. При этом данные услуги всё чаще становятся целью злоумышленников, использующих как технические, так и социально-инженерные методы атак.

2.2. Источники и структура данных

Для достижения целей исследования были использованы данные из следующих источников:

3. Официальная статистика национальных регуляторов (Агентства по регулированию и развитию финансового рынка, центральных банков стран, банковских ассоциаций);

4. Международные базы данных (World Bank Global Findex, IMF Financial Access Survey, OECD Digital Economy Outlook, Interpol Cybercrime Reports, FATF Mutual Evaluation Reports);

5. Отчёты аналитических и консалтинговых компаний (McKinsey, Deloitte, KPMG, PwC) по цифровизации банков и трендам киберпреступности;

6. Научные публикации из международных рецензируемых журналов (Elsevier, Springer, Taylor & Francis) за период 2020–2024 гг., содержащие количественные оценки влияния цифровизации на уровень мошенничества;

7. Отраслевые антифрод-платформы (European Payments Council Fraud Reports, Азиатская ассоциация электронных платежей) для получения статистики о распространённости отдельных видов атак.

Период исследования охватывает 2019–2024 гг., что позволяет учесть ускоренный рост цифровых каналов в постпандемийный период и сопутствующие изменения в структуре угроз.

Структура данных включает следующие группы переменных:

Показатели цифровизации - доля пользователей интернет- и мобильного банкинга, количество бесконтактных транзакций, уровень внедрения дистанционной идентификации и биометрии, объем операций через API в рамках Open Banking.

Показатели мошенничества - количество зарегистрированных случаев кибермошенничества на 100 тыс. пользователей, средний финансовый ущерб на инцидент, распределение атак по типам (фишинг, скимминг, социальная инженерия, SIM-swapping, вредоносное ПО).

Регуляторные и институциональные переменные - наличие обязательных стандартов информационной безопасности, уровень зрелости национальной системы киберзащиты, участие в международных соглашениях (FATF, Interpol, BIS).

Контрольные переменные - уровень цифровой грамотности населения, общий уровень проникновения интернета, экономические показатели (ВВП на душу населения, инфляция).

2.3. Методы анализа

Для изучения связи между цифровизацией банковских услуг и уровнем мошенничества использовался комплекс методов, включающий как качественные, так и количественные подходы.

Сравнительный анализ применялся для сопоставления данных разных стран и регионов, где уровень цифровизации и подходы к киберзащите различаются. Это позволило выявить общие закономерности: в странах с развитой системой безопасности уровень мошенничества ниже, даже при высокой доле цифровых операций.

Регрессионный анализ использовался для количественной оценки влияния цифровизации на количество мошеннических случаев. Модель включала четыре основных переменные:

- индекс цифровизации банковских услуг;
- жесткость регуляторных требований;
- уровень цифровой грамотности населения;
- макроэкономические показатели (как контрольные переменные).

Такой подход позволяет определить, какие именно факторы оказывают наибольшее влияние на уровень угроз.

DEA-анализ (Data Envelopment Analysis) применялся для оценки того, насколько эффективно банки используют инструменты киберзащиты в зависимости от уровня цифровизации. Это помогает понять, какие организации достигают максимальной безопасности при минимальных затратах.

Сценарный анализ позволил смоделировать, как может измениться ситуация при различных условиях: усилении биометрической

идентификации, внедрении искусственного интеллекта в антифрод-системы или при проведении масштабных кампаний по повышению цифровой грамотности.

Использование этих методов в совокупности дает более полное понимание проблемы, чем применение одного подхода.

3. Результаты исследования

Проведённый анализ показал, что расширение цифровых каналов обслуживания клиентов практически всегда сопровождается увеличением числа попыток кибератак. Однако успешность этих атак напрямую зависит от уровня зрелости защитных систем. В странах и организациях, где внедрение цифровых сервисов шло параллельно с развитием многоуровневой киберзащиты, наблюдается более низкий уровень успешных мошеннических операций. Это подтверждает ключевую гипотезу исследования: опасность возникает не столько из-за самого роста цифровых услуг, сколько из-за несоответствия темпов внедрения защитных мер скорости цифровизации.

Сравнительный анализ стран с разным уровнем развития онлайн-банкинга показал, что при схожем объёме цифровых транзакций различия в успешности атак могут достигать 2–3 раз. Это различие объясняется как особенностями регулирования, так и инвестициями в современные антифрод-технологии.

3.1. Влияние отдельных факторов на уровень кибермошенничества

Регрессионный анализ выявил, что наличие строгих регуляторных требований (индекс Regulation) связано со снижением успешности атак на 20–35 %. Особенно эффективными оказались меры по проверке получателя платежа, задержке подозрительных переводов и обязательной многофакторной аутентификации.

Фактор цифровой грамотности также показал высокую значимость: в странах, где свыше 70 % населения прошли базовые курсы по кибербезопасности, уровень успешных атак социальной инженерии оказался почти в два раза ниже. Это подтверждает, что человеческий фактор остаётся критическим элементом в борьбе с мошенничеством.

DEA-анализ эффективности затрат на киберзащиту показал, что максимальный результат достигается при интеграции нескольких технологий — поведенческой аналитики, ИИ-мониторинга и централизованных баз данных мошенников. Использование только одной технологии при высоких инвестициях часто не давало ожидаемого эффекта.

3.2. Прогноз и роль международного сотрудничества

Сценарный анализ показал, что внедрение биометрической идентификации способно снизить уровень успешных атак на 25–30 %, а применение искусственного интеллекта для анализа транзакций в реальном времени — уменьшить ущерб на 15–20 %. Наибольший эффект даёт одновременное использование технологических и образовательных мер: прогнозируемое снижение успешности атак в этом случае достигает 40 % уже в течение трёх лет.

Международное сотрудничество в рамках Interpol, FATF и BIS значительно повышает эффективность борьбы с кибермошенничеством. Обмен данными о новых схемах атак, проведение совместных операций и унификация стандартов учёта инцидентов позволяют быстрее реагировать на угрозы и препятствовать перемещению преступной активности в менее защищённые юрисдикции.

В целом результаты подтверждают, что синхронное развитие цифровых услуг, киберзащиты, регулирования и образовательных инициатив создаёт условия, при которых рост цифровых транзакций не увеличивает риски, а напротив, может способствовать их снижению.

Заключение

Проведённое исследование подтвердило, что цифровизация банковских услуг является не только важнейшим драйвером трансформации финансового сектора, но и ключевым источником новых вызовов, связанных с безопасностью. Рост объёмов онлайн- и мобильных транзакций, расширение спектра дистанционных сервисов, внедрение удалённой идентификации и открытых API - всё это радикально изменяет способы взаимодействия банков с клиентами. Вместе с тем, увеличение цифрового присутствия закономерно сопровождается масштабированием угроз — от традиционных схем социальной инженерии до высокотехнологичных атак с использованием искусственного интеллекта и методов обхода биометрической защиты.

Целью настоящего исследования было выявить ключевые закономерности взаимосвязи между уровнем цифровизации банковских услуг и масштабами кибермошенничества, а также определить наиболее эффективные меры противодействия угрозам в международной и региональной практике. Для её достижения были поставлены задачи: систематизировать теоретические подходы к понятию цифровизации, классифицировать виды мошенничества, провести сравнительный и регрессионный анализ, оценить эффективность защитных технологий и стратегий, а также смоделировать сценарии развития ситуации при различных комбинациях мер.

Выдвинутая гипотеза предполагала, что при отсутствии комплексной системы киберзащиты и просвещения пользователей ускоренная цифровизация способствует росту числа инцидентов мошенничества. Одновременно предполагалось, что интеграция жёстких регуляторных требований, современных технологий защиты и программ повышения цифровой грамотности способна существенно снизить риски. Полученные результаты подтвердили справедливость обеих частей гипотезы: там, где рост цифровых сервисов не сопровождался усилением защиты, наблюдался статистически значимый рост числа атак, тогда как комплексный подход позволял не только стабилизировать ситуацию, но и добиться снижения уровня угроз.

Ключевые выводы исследования можно сформулировать следующим образом. Во-первых, темпы цифровизации и масштабы мошенничества

действительно связаны, однако характер этой связи определяется качеством киберзащиты. Во-вторых, наибольшее влияние на снижение успешности атак оказывают меры регулирования и повышение цифровой грамотности населения. В-третьих, использование технологий искусственного интеллекта и поведенческой аналитики демонстрирует высокую эффективность, но только при условии интеграции в многоуровневую систему защиты.

Регрессионный анализ показал, что наличие строгих стандартов безопасности способно снизить успешность атак на 20–35 %, а высокий уровень цифровой грамотности - почти вдвое уменьшить количество случаев социальной инженерии. DEA-анализ подтвердил, что максимальная эффективность достигается при комбинировании нескольких технологий, а не при ставке на единственное решение. Сценарное моделирование продемонстрировало, что биометрическая идентификация, искусственный интеллект и массовое обучение пользователей при совместной реализации могут снизить успешность атак до 40 % за трёхлетний период.

Международное сотрудничество, включая координацию через Interpol, FATF и Базельский комитет, оказалось критическим элементом устойчивости банковских систем в условиях глобализации цифровых угроз. Обмен информацией о схемах атак, унификация стандартов учёта и совместные операции позволяют предотвратить смещение преступной активности в страны с менее развитой защитой.

Однако исследование имеет ряд ограничений, которые необходимо учитывать при интерпретации результатов. Статистика по кибермошенничеству в ряде стран неполна или собирается по разным методологиям, что может приводить к смещению оценок. Показатели цифровой грамотности часто носят субъективный характер и могут различаться в зависимости от источника данных. Кроме того, эффект от внедрения новых технологий проявляется с временным лагом: нередко в первые месяцы или годы после запуска наблюдается краткосрочный рост атак, вызванный адаптацией преступников к новым условиям. Трансграничный характер киберпреступлений усложняет их атрибуцию конкретным юрисдикциям, а отсутствие единой международной системы учёта инцидентов затрудняет проведение глобальных сравнений.

Несмотря на эти ограничения, работа позволила сформировать целостное представление о том, как цифровизация и безопасность банковских услуг взаимодействуют в современных условиях. Полученные результаты имеют высокую практическую значимость для регуляторов, коммерческих банков и международных организаций. Для регуляторов они могут служить основанием для разработки национальных стратегий киберзащиты с учётом лучших мировых практик и адаптации их к локальным условиям. Для банков - это руководство по приоритизации инвестиций в технологии, которые обеспечивают наибольший возврат в виде снижения рисков. Для международных организаций - подтверждение необходимости углубления координации и унификации стандартов.

Перспективы дальнейших исследований видятся в нескольких направлениях. Во-первых, требуется разработка единого глобального индекса цифровой зрелости банков, который учитывал бы не только количество и качество предлагаемых сервисов, но и уровень их защиты. Во-вторых, важно изучить долгосрочный эффект от образовательных программ по кибербезопасности, особенно в сочетании с технологическими мерами. В-третьих, необходимо детальнее проанализировать экономическую эффективность различных комбинаций технологий и регуляторных инициатив, чтобы определить оптимальный баланс затрат и получаемых результатов.

Таким образом, цифровизация банковских услуг - это не просто технологический тренд, а сложный социально-экономический процесс, который меняет структуру рисков и требует нового уровня интеграции между технологиями, регулированием и образованием. Выводы данного исследования подтверждают, что только комплексный подход, сочетающий инновационные технические решения, грамотное регулирование и массовое повышение цифровой грамотности, способен обеспечить устойчивое снижение уровня мошенничества в условиях ускоряющейся цифровой трансформации.

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ИННОВАЦИИ И УСТОЙЧИВОЕ РАЗВИТИЕ: ВЛИЯНИЕ СИМУЛЯЦИОННЫХ ТЕХНОЛОГИЙ НА ЭКОЛОГИЧЕСКУЮ УСТОЙЧИВОСТЬ ДОБЫЧИ НА ЗРЕЛЫХ МЕСТОРОЖДЕНИЯХ

Аннотация: В статье рассматривается роль симуляционных технологий в обеспечении экологической устойчивости добычи на зрелых нефтегазовых месторождениях. Особое внимание уделяется применению цифровых двойников и интегрированных моделей, которые позволяют прогнозировать риски, оптимизировать использование ресурсов и снижать негативное воздействие на окружающую среду. Анализируются преимущества симуляционных подходов по сравнению с традиционными методами, а также их влияние на социально-экономическую устойчивость регионов. Отмечаются ключевые перспективы и вызовы внедрения данных технологий, включая кадровые и инфраструктурные барьеры. Сделан вывод о стратегической значимости симуляций как инструмента устойчивого развития.

Ключевые слова: устойчивое развитие; зрелые месторождения; симуляционные технологии; цифровые двойники; экологическая устойчивость; нефтегазовая отрасль; инновации

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INNOVATION AND SUSTAINABLE DEVELOPMENT: THE IMPACT OF SIMULATION TECHNOLOGIES ON THE ENVIRONMENTAL SUSTAINABILITY OF MATURE OILFIELD PRODUCTION

Abstract: This article explores the role of simulation technologies in ensuring the environmental sustainability of production at mature oil and gas fields. Special emphasis is placed on the use of digital twins and integrated models that enable risk prediction, resource optimization, and reduction of negative environmental impacts. The advantages of simulation-based approaches compared to traditional methods are examined, along with their influence on the socio-economic stability of producing regions. Key prospects and challenges of implementation are highlighted, including workforce and infrastructure barriers. The article concludes

that simulation technologies represent a strategic tool for advancing sustainable development.

Keywords: *sustainable development; mature oilfields; simulation technologies; digital twins; environmental sustainability; oil and gas industry; innovation*

Введение

Нефтегазовая отрасль сегодня сталкивается с новыми вызовами, связанными с необходимостью сочетать экономическую эффективность и экологическую ответственность. Особенно остро эта проблема стоит на зрелых месторождениях, где истощение пластов, изношенность инфраструктуры и рост энергоёмкости добычи усиливают как производственные, так и экологические риски [3].

Традиционные методы эксплуатации в таких условиях часто приводят к увеличению объёмов закачки химических реагентов, росту аварийности и повышению углеродного следа. Это создаёт дополнительную нагрузку на компании и негативно влияет на социально-экономическую устойчивость регионов [4].

В этих условиях всё более востребованными становятся инновационные решения, в частности симуляционные технологии, включая цифровые двойники. Их применение позволяет рассматривать производственный комплекс как единую систему и переходить от реактивного управления к проактивному — когда риски прогнозируются заранее, а решения принимаются с учётом экологических последствий.

Поэтому изучение влияния симуляционных технологий на устойчивое развитие добычи на зрелых месторождениях становится актуальной научной задачей, имеющей как прикладное, так и стратегическое значение.

Инновации и симуляционные технологии в нефтегазовой отрасли

Симуляционные технологии, основанные на цифровом моделировании процессов, становятся важным направлением развития нефтегазовой отрасли. В отличие от традиционных методов, которые фиксируют уже произошедшие отклонения, симуляции позволяют прогнозировать сценарии, оценивать риски и находить оптимальные решения до возникновения критических ситуаций [1].

Ключевым инструментом здесь выступает цифровой двойник — виртуальная модель объекта, объединяющая геологические, инженерные и эксплуатационные данные. Такой подход делает возможным рассматривать добывающий комплекс как целостную систему, где изменения в одном элементе сразу отражаются на всей инфраструктуре. Это обеспечивает более полное понимание процессов и позволяет выстраивать стратегию управления с учётом взаимосвязей [2].

Симуляции дают несколько преимуществ: более точный прогноз параметров добычи и состояния оборудования, оптимизацию использования энергии и химических реагентов, а также возможность быстро адаптироваться

к изменяющимся условиям без рискованных экспериментов на реальных объектах.

Симуляционные технологии становятся не только инструментом повышения эффективности, но и важным фактором устойчивого развития. Их значение особенно велико на зрелых месторождениях, где экологическая и технологическая уязвимость наиболее высока, а традиционные методы уже не обеспечивают должного результата.

Экологическая устойчивость и практическое влияние на зрелые месторождения

Зрелые месторождения представляют собой особую категорию добывающих активов, где экономические задачи тесно переплетаются с экологическими рисками. По мере истощения пластов и старения инфраструктуры растут энергозатраты, увеличивается вероятность аварий, утечек и выбросов, что усиливает нагрузку на окружающую среду и снижает устойчивость регионов [3].

Симуляционные технологии помогают снизить эти угрозы. Цифровые модели работы пласта и трубопроводов позволяют прогнозировать изменения параметров и выявлять потенциальные аварии задолго до их возникновения. Это сокращает риск утечек углеводородов и загрязнения экосистем.

Не менее значимо и более рациональное использование ресурсов. Моделирование добычи помогает уменьшать потребление реагентов и энергии, а также продлевать срок службы оборудования. В результате снижается углеродный след и общий экологический ущерб [4].

Экологическая устойчивость зрелых месторождений имеет и социальное измерение: сокращение аварийности обеспечивает стабильность рабочих мест, налоговых поступлений и снижает напряжённость в отношениях с местными сообществами. Таким образом, симуляционные технологии укрепляют как экологическую, так и социально-экономическую основу устойчивого развития.

Перспективы и вызовы внедрения

Несмотря на преимущества, внедрение симуляционных технологий в добыче сталкивается с рядом барьеров. Главный из них — высокая стоимость цифровых решений и необходимость модернизации инфраструктуры. Для зрелых месторождений такие инвестиции кажутся рискованными, хотя в долгосрочной перспективе они окупаются за счёт снижения аварийности и оптимизации расходов [2].

Второй вызов связан с кадрами. Для работы с цифровыми двойниками нужны специалисты, объединяющие знания в геологии, инженерии и IT. Подготовка таких кадров требует времени и совместных усилий университетов и компаний.

Сложности возникают и при интеграции новых инструментов с уже существующими корпоративными системами. Разрозненные программы и устоявшиеся процессы не всегда легко объединить в единую цифровую среду.

Тем не менее перспективы значительны. Симуляции можно связать с ESG-отчётностью, что позволит объективно фиксировать снижение экологического воздействия. Успешный опыт в нефтегазе также открывает путь к их применению в других сферах — от энергетики до городской инфраструктуры, превращая симуляции в универсальный инструмент устойчивого развития [1]

Заключение

Симуляционные технологии становятся одним из ключевых инструментов перехода нефтегазовой отрасли к принципам устойчивого развития. Их значение особенно велико для зрелых месторождений, где технологическая сложность добычи усиливается экологическими и социальными рисками. Цифровые модели и виртуальные двойники позволяют не только повысить точность прогнозирования и снизить аварийность, но и оптимизировать использование ресурсов, уменьшая углеродный след и общее воздействие на окружающую среду.

Опыт показывает, что внедрение симуляционных подходов формирует долгосрочные преимущества. Компании получают более надёжные и гибкие системы управления, регионы — снижение экологической нагрузки и сохранение социально-экономической стабильности. Важно и то, что данные технологии стимулируют развитие новых компетенций и расширяют сферу взаимодействия между наукой, бизнесом и государством.

Несмотря на существующие барьеры, связанные с инвестициями и кадровыми ресурсами, перспективы их применения выходят за рамки нефтегаза. Симуляции способны стать универсальным инструментом в энергетике, промышленности и городской инфраструктуре, закрепляя роль инноваций как основы устойчивого развития.

Влияние симуляционных технологий на добычу на зрелых месторождениях выходит за пределы узкопроизводственной задачи. Оно отражает глобальную тенденцию: экологическая устойчивость всё чаще рассматривается не как ограничение, а как стратегический ресурс, определяющий конкурентоспособность и жизнеспособность отрасли в будущем.

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СИСТЕМА НАЛОГОВ И НАЛОГООБЛОЖЕНИЯ В РЕСПУБЛИКЕ УЗБЕКИСТАН

Аннотация: В статье анализируется система налогов и налогообложения в Республике Узбекистан. Определены сущность и функции налогов как ключевого инструмента формирования бюджета и регулирования экономических процессов. Рассмотрены основные элементы налоговой системы, включающие налоги на добавленную стоимость, прибыль, доходы физических лиц, акцизы, имущественные и земельные налоги, а также социальные платежи. Особое внимание уделено проведённым реформам, направленным на сокращение количества налогов, снижение налоговой нагрузки, внедрение цифровых сервисов и приближение к международным стандартам.

Ключевые слова: налоговая система, налогообложение, Узбекистан, налоговая политика, реформы, цифровизация.

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THE SYSTEM OF TAXES AND TAXATION IN THE REPUBLIC OF UZBEKISTAN

Abstract: The article analyzes the system of taxes and taxation in the Republic of Uzbekistan. The essence and functions of taxes as a key instrument for budget formation and regulation of economic processes are determined. The main elements of the tax system are considered, including taxes on value added, profit, personal income, excise taxes, property and land taxes, as well as social payments. Particular attention is paid to the reforms carried out aimed at reducing the number of taxes, reducing the tax burden, introducing digital services and approaching international standards.

Key words: tax system, taxation, Uzbekistan, tax policy, reforms, digitalization.

Налоговая система является одним из ключевых инструментов регулирования экономики и основным источником формирования доходов государственного бюджета. Она определяет финансовую устойчивость

государства, обеспечивает перераспределение ресурсов и стимулирует развитие различных отраслей. В условиях социально-экономических преобразований Республики Узбекистан реформирование налоговой системы приобретает стратегическое значение, так как связано с повышением эффективности управления, улучшением инвестиционного климата и обеспечением устойчивого роста.

Цель данной статьи – рассмотреть структуру налоговой системы Узбекистана, её основные элементы, направления реформирования и перспективы развития.

Налог – это обязательный платеж, взимаемый государством с физических и юридических лиц в целях формирования бюджета и обеспечения общественных потребностей.

Функции налогов:

- ✓ **Фискальная** – обеспечение государственных доходов;
- ✓ **Регулирующая** – воздействие на экономические процессы;
- ✓ **Социальная** – перераспределение доходов между различными слоями населения;
- ✓ **Стимулирующая** – развитие приоритетных отраслей и предпринимательства.

Налоговая система Узбекистана базируется на Конституции и Налоговом кодексе. В её состав входят государственные налоги, местные налоги и обязательные сборы.

К основным видам налогов относятся:

- ✓ **Налог на добавленную стоимость (НДС)** – один из главных источников доходов бюджета.
- ✓ **Налог на прибыль юридических лиц.**
- ✓ **Подоходный налог с физических лиц.**
- ✓ **Акцизный налог** – применяется к отдельным товарам (алкоголь, табак, нефтепродукты).
- ✓ **Налог на имущество юридических и физических лиц.**
- ✓ **Земельный налог.**
- ✓ **Социальные платежи и взносы.**

В последние годы в Узбекистане проведены масштабные реформы, направленные на:

- сокращение количества налогов и упрощение их администрирования;
- снижение налоговой нагрузки на бизнес и население;
- внедрение электронных сервисов (онлайн-кассы, электронные счета-фактуры, личный кабинет налогоплательщика);
- переход к международным стандартам налогового администрирования.

Например, ставка налога на прибыль юридических лиц была снижена до 15%, а подоходный налог – до 12%. Это способствует созданию благоприятных условий для предпринимательской деятельности и привлечения инвестиций.

Несмотря на успехи, в налоговой системе Узбекистана сохраняются вызовы:

- высокая доля теневой экономики;
- необходимость повышения налоговой дисциплины;
- совершенствование механизмов поддержки малого бизнеса;
- расширение базы налогообложения при одновременном снижении ставок.

В перспективе налоговая политика будет ориентирована на дальнейшую цифровизацию налоговых процессов, развитие партнерства между государством и налогоплательщиками, стимулирование инноваций и «зелёной» экономики.

Таким образом, система налогов и налогообложения в Республике Узбекистан является динамично развивающимся элементом экономической политики. Современные реформы направлены на упрощение налоговой системы, снижение нагрузки на бизнес и повышение прозрачности администрирования. В ближайшие годы приоритетом станет дальнейшая цифровизация, интеграция в международное налоговое пространство и укрепление роли налогов как инструмента устойчивого развития.

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ЭКОНОМИЧЕСКАЯ ЭФФЕКТИВНОСТЬ ИСПОЛЬЗОВАНИЯ НАТУРАЛЬНЫХ КОРМОВ В ПТИЦЕВОДСТВЕ

***Аннотация:** В данной статье рассматриваются негативные последствия применения химических методов в сельском хозяйстве и животноводстве, а также естественные способы их устранения. В ходе эксперимента, проведённого в домашних условиях, установлено, что цыплята, получавшие в корм мух, значительно превысили по массе контрольную группу. Результаты исследования показывают, что использование мух в качестве натурального корма для птицы способствует получению экологически чистой продукции, сохранению природного баланса и повышению экономической эффективности.*

***Ключевые слова:** Сельское хозяйство, животноводство, натуральный корм, мухи, цыплята, экологически чистая продукция, эксперимент.*

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ECONOMIC EFFICIENCY OF USING NATURAL FEED IN POULTRY FARMING

***Annotation:** This article discusses the negative effects of chemical methods used in agriculture and livestock farming, as well as natural alternatives to reduce these impacts. A home-based experiment demonstrated that chicks fed with flies gained significantly more weight compared to the control group. The findings indicate that using flies as a natural feed for poultry can provide environmentally friendly products, help maintain ecological balance, and improve economic efficiency.*

***Keywords:** Agriculture, livestock, natural feed, flies, chicks, eco-friendly product, experiment.*

Известно, что в настоящее время основной целью является ускоренное развитие сельскохозяйственной и животноводческой продукции,

выращивание большого количества продуктов за короткое время и получение большой прибыли. В этом отношении использование в основном химических методов дает высокий эффект и требует малых затрат. Однако большинство химических методов наряду с ускорением выращивания продукции оказывают отрицательное влияние на здоровье людей, употребляющих эти продукты. Вследствие этого среди молодежи увеличивается количество заболеваний, что приводит к ослаблению организма, быстрому ожирению, а в некоторых случаях и к летальному исходу.

С целью предотвращения вышеуказанных негативных последствий и уменьшения их воздействия мы решили провести следующий опыт и добились хороших результатов.

Опыт проводился в домашних условиях, для него было взято 9 цыплят породы «темир қанот». Их взвесили на весах и разместили по 3 цыпленка в две клетки, а оставшихся 3 выпустили свободно гулять во двор. Всем трём группам ежедневно давали одинаковый корм. В состав корма входили вода, кукурузная крупа, различные измельчённые травы и растения, творог, перец и другие натуральные продукты. Искусственные кормовые продукты или лекарственные средства не использовались.

– Цыплятам из 1-й клетки помимо основного корма три раза в день давали в среднем по 8–10 мух.

– 2-я клетка была взята как эталон (контроль), её цыплятам давался только общий корм без дополнительных добавок.

– Цыплята из 3-й группы свободно гуляли во дворе и питались различными насекомыми и другими кормами, встречающимися в естественных условиях.

Цыплята каждые 5 дней взвешивались на весах с точностью до 5 граммов, данные фиксировались в тетрадь

Результаты опыта начали проявляться уже через 5 дней.

По результатам опытов было установлено, что цыплята, получавшие в корм мух, по сравнению с контрольными цыплятами увеличили свой вес на 16% через 5 дней, на 27% через 20 дней, на 22% через 25 дней и на ... % через 30 дней. Из цыплят, свободно гулявших во дворе, двое погибли в результате нападения кошки. У выжившего по сравнению с контрольными цыплятами вес оказался выше на 1% через 5 дней, на 6% через 20 дней, на 9% через 25 дней и на ... % через 30 дней (см. график).

Согласно наблюдениям, в период 10–15 дней у цыплят всех трёх групп отмечалось одинаково слабое изменение в прибавке веса. Причина этого явления осталась для нас неизвестной. Возможно, это связано с фазами луны, атмосферными условиями или другими факторами окружающей среды. Было решено изучить это явление в последующих исследованиях.

На основании полученных результатов можно сделать вывод, что уничтожение мух не обязательно должно происходить только путём отравления их химическими веществами. Их можно специально разводить на фермах и использовать для откорма птицы. Это имеет важное значение для

получения экологически чистого диетического мяса, помогает регулировать количество мух в природе и снижает их вред для людей.

Себестоимость продукции снижается в несколько раз, а получаемая прибыль, соответственно, возрастает.

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РОЛЬ ФИЗИЧЕСКОЙ КУЛЬТУРЫ В ЖИЗНИ СТУДЕНТОВ: МНОГОМЕРНЫЙ АНАЛИЗ

Аннотация: В статье рассматривается многогранная роль физической культуры в жизни студенческой молодежи. Анализируется значение физической активности не только как средства укрепления здоровья, но и как важнейшего фактора, влияющего на академическую успеваемость, психоэмоциональное состояние и социальную адаптацию студентов. Предлагаются возможные пути оптимизации физкультурно-оздоровительной работы в высших учебных заведениях. Статья предназначена для преподавателей, организаторов образовательного процесса, а также для самих студентов.

Ключевые слова: физическая культура, студенты, здоровье, академическая успеваемость, психоэмоциональное состояние, социальная адаптация, малоподвижный образ жизни, когнитивные функции, стресс, вуз.

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THE ROLE OF PHYSICAL EDUCATION IN STUDENTS' LIVES: A MULTIDIMENSIONAL ANALYSIS

Abstract: This article examines the multifaceted role of physical education in the lives of students. It analyzes the importance of physical activity not only as a means of promoting health but also as a key factor influencing students' academic performance, psycho-emotional state, and social adaptation. Possible ways to optimize physical education and health programs in higher education institutions are proposed. This article is intended for teachers, educational process organizers, and students themselves.

Keywords: physical education, students, health, academic performance, psycho-emotional state, social adaptation, sedentary lifestyle, cognitive functions, stress, university.

Студенческий период является одним из наиболее важных и одновременно сложных этапов в жизни человека. Он характеризуется высокой интеллектуальной и психоэмоциональной нагрузкой, связанной с усвоением больших объемов информации, сдачей экзаменов, а также процессом социальной адаптации и самоопределения. В этих условиях существенно

возрастает роль физической культуры как системообразующего фактора сохранения и укрепления здоровья, повышения эффективности учебной деятельности и улучшения качества жизни студентов в целом [1]. Однако, несмотря на очевидную пользу, современные студенты часто относятся к дисциплине «Физическая культура» как к второстепенной, что обуславливает актуальность данного исследования.

1. Физическая культура как основа здоровья и профилактики заболеваний
Переход к обучению в вузе часто сопряжен с кардинальным изменением образа жизни: нарушением режима дня, нерегулярным и несбалансированным питанием, увеличением времени, проводимого за компьютером в статичной позе. Это приводит к росту числа студентов с различными отклонениями в состоянии здоровья, объединенными термином «гипокинезия» [2].

Систематические занятия физической культурой выполняют ряд критически важных функций:

- Компенсация дефицита двигательной активности: регулярные нагрузки поддерживают функциональное состояние сердечно-сосудистой, дыхательной, мышечной и других систем организма.
- Повышение резистентности организма: закаливание и общее укрепление иммунитета снижают восприимчивость к заболеваниям.
- Формирование правильной осанки и профилактика опорно-двигательных нарушений (остеохондроза, сколиоза), особенно актуальная для студентов.
- Выработка устойчивых гигиенических навыков и основ здорового образа жизни (ЗОЖ).

2. Влияние физической активности на академическую успеваемость
Прямая связь между физической активностью и когнитивными способностями студентов подтверждена многочисленными исследованиями [3]. Это влияние реализуется через несколько механизмов:

- Улучшение мозгового кровообращения и нейропластичности: физические нагрузки стимулируют синтез нейротрофических факторов (например, BDNF), которые способствуют росту и соединению нервных клеток.
- Повышение концентрации внимания и памяти: структурированная физическая активность помогает бороться с умственной усталостью и повышает эффективность усвоения нового материала.
- Нормализация сна: качественный сон, который улучшается при регулярных нагрузках, является ключевым фактором для консолидации памяти и восстановления нервной системы.

Таким образом, время, «заимствованное» у учебного процесса для занятий физкультурой, многократно окупается за счет повышения продуктивности обучения.

3. Психологический и социальный аспекты Психологическая нагрузка в вузе крайне высока. Физическая культура является мощным инструментом регуляции психоэмоционального состояния:

- Снижение стресса и тревожности: во время физических упражнений организм утилизирует избыток «гормонов стресса» (кортизола, адреналина) и вырабатывает эндорфины («гормоны радости»).

- Повышение самооценки и уверенности в себе: достижение спортивных целей, улучшение физической формы способствуют формированию позитивного самоощущения.

- Профилактика эмоционального выгорания и депрессивных состояний.

В социальном плане занятия в спортивных секциях, группах или на уроках физкультуры:

- Способствуют расширению круга общения и интеграции в новую среду.

- Формируют навыки командного взаимодействия, лидерства, дисциплины и уважения к другим.

- Предоставляют возможности для самореализации не только в академической, но и в спортивной сфере.

4. Проблемы и пути оптимизации Несмотря на понимание важности, существует ряд проблем:

- Формальное отношение к дисциплине со стороны студентов и, иногда, администрации.

- Недостаточная материально-техническая база многих вузов.

- Отсутствие дифференцированного подхода с учетом состояния здоровья, интересов и физической подготовленности студентов.

В качестве мер оптимизации можно предложить:

- Расширение перечня предлагаемых видов спорта и фитнес-направлений (йога, скалолазание, танцы, единоборства и т.д.).

- Внедрение инновационных технологий (фитнес-трекеры, онлайн-платформы для контроля активности).

- Популяризация ценностей ЗОЖ через внеучебную деятельность: организацию спортивных праздников, турниров, тематических лекций.

- Развитие спортивных клубов при вузах, создающих среду для общения и самореализации.

Физическая культура играет важную роль в жизни студентов, выходя далеко за рамки простого «оздоровления». Она является комплексным инструментом, который напрямую влияет на ключевые аспекты студенческой жизни: качество здоровья, академическую успеваемость, психологическую стабильность и успешную социальную адаптацию. Поэтому переход от обязательных нормативов к созданию целостной, мотивирующей и современной физкультурно-спортивной среды в вузе должен рассматриваться как стратегическая задача, направленная на подготовку не только квалифицированного, но и здорового, гармонично развитого специалиста.

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КИТАЙ И ВЕЛИКИЕ ДЕРЖАВЫ В УСЛОВИЯХ ТРАНСФОРМАЦИИ МИРОВОЙ ПОЛИТИКИ

Аннотация. В статье рассматриваются особенности внешнеполитической стратегии Китая в условиях трансформации мировой политики и анализируются его отношения с ведущими державами — США, Россией и Европейским союзом. Особое внимание уделяется формированию моделей стратегического соперничества, партнёрства и многомерного взаимодействия, а также механизмам управления рисками и минимизации конфликтности. Исследуется влияние экономических, технологических и политико-идеологических факторов на динамику международных отношений и роль Китая как системообразующего актора в формирующемся многополярном мире.

Ключевые слова: Китай, внешняя политика, США, Россия, Европейский союз, стратегическое соперничество, партнёрство.

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CHINA AND THE GREAT POWERS IN THE CONTEXT OF TRANSFORMATION OF WORLD POLITICS

Abstract. The article examines the features of China's foreign policy strategy in the context of the transformation of global politics and analyzes its relations with major powers — the United States, Russia, and the European Union. Special attention is given to the formation of models of strategic competition, partnership, and multidimensional interaction, as well as mechanisms for risk management and minimizing conflict potential. The study explores the influence of economic,

technological, and politico-ideological factors on the dynamics of international relations and China's role as a systemic actor in the emerging multipolar world.

Keywords: China, foreign policy, United States, Russia, European Union, strategic competition, partnership.

В условиях стремительной трансформации мировой политики Китайская Народная Республика выступает в качестве одного из ключевых акторов, определяющих направления глобального развития. Укрепление её экономического и военного потенциала, а также активизация внешнеполитической стратегии привели к формированию новых моделей взаимодействия с ведущими державами.

Особое значение в этом контексте приобретают отношения Китая с Соединёнными Штатами Америки, Российской Федерацией и Европейским союзом, которые различаются по содержанию и динамике, отражая баланс сотрудничества, соперничества и стратегической осторожности.

Отношения между Китайской Народной Республикой и Соединёнными Штатами Америки в начале XXI века получают устойчивую характеристику как «стратегическое соперничество», что отражает системный характер взаимоисключающих интересов в сферах безопасности, экономики и технологий [1]. Данный термин подчёркивает не столько непосредственную военную конфронтацию, сколько долговременное структурное соперничество за влияние в глобальной системе и за установление стандартов технологического и экономического развития [2].

В дипломатическом дискурсе ключевую роль приобрела метафора *establishing guardrails* («установление ограждений»), направленная на формализацию механизмов управления рисками эскалации между двумя великими державами. Под «ограждениями» понимаются комплексы институциональных процедур и практических договорённостей — от восстановления канала военных коммуникаций до двусторонних рабочих групп по управлению новыми технологиями и контролю над наркотрафиком — которые призваны минимизировать вероятность непреднамеренного инцидента и обеспечить прогнозируемость поведения сторон [3]. Практическая реализация этого подхода получила развитие в ходе лидерских встреч конца 2023 г., в котором были достигнуты частичные договорённости по возобновлению военных контактов, кооперации по климату и противодействию поставкам прекурсоров наркотиков, а также по началу специализированных переговоров по рискам, связанным с искусственным интеллектом [4]. Эти шаги свидетельствуют о стремлении обеих сторон создать минимальный набор рабочих механизмов по управлению конфликтогенными факторами при сохранении конкурентной динамики.

Вместе с тем институционализация соперничества посредством механизма «ограждений» не устраняет фундаментальные структурные причины напряжённости. В частности, Тайваньский вопрос, конкуренция за технологическое лидерство и практика применения экспортных ограничений

продолжают оставаться ключевыми факторами системного противостояния, препятствующими рассмотрению текущего состояния отношений как переходного этапа к устойчивой разрядке.

Иная динамика прослеживается во взаимодействии Китая и России, в котором акцент делается не на соперничестве, а на демонстрации союзнической координации. Формула «партнёрство без ограничений», озвученная в феврале 2022 года, отражала стремление обеих стран к формированию альтернативной модели международного порядка, основанной на отходе от западнцентричного подхода [5]. Вместе с тем начало Специальной военной операции на территории Украины оказало влияние на баланс интересов внутри партнёрства, способствуя его постепенной асимметризации.

Современные исследования показывают, что дипломатия Китая в условиях украинского кризиса реализует многоуровневую стратегию, предполагающую сохранение стратегического взаимодействия с Россией при одновременном стремлении к снижению уровня напряжённости в отношениях с западными государствами, что позволяет минимизировать риски введения вторичных санкций [6].

В настоящее время специфика внешнеполитического курса Китая проявляется в различной логике взаимодействия с ключевыми центрами силы. Так, отношения с Соединёнными Штатами характеризуются устойчивыми элементами соперничества, с Россией — акцентом на союзнической близости, тогда как взаимодействие с Европейским союзом отличается большей многомерностью и сочетанием как кооперативных, так и конкурентных компонентов [7]. Такая триединая формула отражает стремление европейских институтов к поддержанию баланса между необходимостью развития взаимовыгодного экономического сотрудничества и задачей защиты ценностно-нормативных оснований европейской интеграции.

При этом экономическая составляющая остаётся фундаментальной: Китай выступает в качестве одного из ведущих торговых партнёров ЕС, обеспечивая значительные объёмы взаимного товарооборота и оказывая влияние на развитие ключевых отраслей европейской экономики [8].

Тем не менее, растущая зависимость ряда ключевых отраслей экономики Европейского союза от производственных цепочек Китая вызывает существенную обеспокоенность со стороны европейских институтов. Наиболее остро эта проблема проявляется в секторах высоких технологий и «зелёной» энергетики, в котором Китай демонстрирует намерение укрепить и закрепить свои лидирующие позиции на международном рынке.

Политико-идеологическая составляющая отношений Китая и Европейского союза характеризуется повышенной конфликтностью. Вопросы соблюдения прав человека, включая ситуацию в Синьцзяне и Гонконге, регулярно становятся объектом критической оценки со стороны европейских

институтов, что придаёт двустороннему взаимодействию дополнительное напряжение. Существенное внимание уделяется также тайваньской проблематике: несмотря на официальное следование политике «одного Китая», отдельные государства-члены ЕС проявляют готовность к расширению неофициальных контактов с Тайбэем, что воспринимается китайской стороной как вызов принципам государственного суверенитета [8].

В совокупности анализ динамики внешнеполитических отношений Китая с ведущими мировыми акторами демонстрирует формирование комплексной и дифференцированной стратегии, учитывающей специфику каждого направления взаимодействия и адаптированной к многоуровневым вызовам международной среды.

Таким образом, Китай выступает системообразующим актором в процессе трансформации мировой политики, формируя новую многополярную архитектуру международных отношений. Стратегия данной страны сочетает элементы сотрудничества и соперничества, что обеспечивает сохранение гибкости внешнеполитического курса и укрепляет позицию страны в глобальной системе в условиях перехода к постбиполярному мировому порядку.

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СОЦИАЛЬНЫЙ СТРЕСС КАК МОДИФИКАТОР МОРФОФУНКЦИОНАЛЬНОГО СОСТОЯНИЯ КЛЕТОК ПОЧКИ ПРИ МЕТАБОЛИЧЕСКОМ СИНДРОМЕ

***Аннотация:** В данной работе рассматривается влияние социального стресса на морфофункциональное состояние клеток почек при метаболическом синдроме. Анализируются изменения метаболических показателей, включая массу тела, уровень гликемии и артериальное давление, а также функциональные параметры почек, такие как клиренс креатинина и уровень альбуминурии. Представлены аспекты взаимодействия нейроэндокринных и метаболических факторов, выявляющие значительное усиление патологических процессов под воздействием хронического психоэмоционального напряжения.*

***Ключевые слова:** Метаболизм, стресс, почка, морфология, функция, апоптоз, фиброз, подоцит, гликемия, гипертензия*

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SOCIAL STRESS AS A MODIFIER OF THE MORPHOFUNCTIONAL STATE OF KIDNEY CELLS IN METABOLIC SYNDROME

***Abstract:** This paper examines the impact of social stress on the morphofunctional state of kidney cells in metabolic syndrome. Changes in metabolic parameters, including body weight, glycemia level and blood pressure, as well as functional parameters of the kidneys, such as creatinine clearance and albuminuria level, are analyzed. Aspects of the interaction of neuroendocrine and metabolic*

factors are presented, revealing a significant increase in pathological processes under the influence of chronic psychoemotional stress.

Keywords: *Metabolism, stress, kidney, morphology, function, apoptosis, fibrosis, podocyte, glycemia, hypertension*

Метаболический синдром представляет собой полиэтиологический комплекс нарушений, включающий ожирение, инсулинорезистентность, артериальную гипертензию и дислипидемию, которые в совокупности формируют высокий риск развития хронических заболеваний. При этом особое внимание уделяется состоянию почек, так как именно этот орган является ключевым звеном в регуляции водно-электролитного баланса, артериального давления и процессов детоксикации. Морфофункциональные изменения в почечной ткани при метаболическом синдроме могут включать гипертрофию клубочков, склероз сосудов, повреждение эпителия канальцев, что ведет к постепенному снижению фильтрационной способности.

Методика комплексной оценки влияния социального стресса на морфофункциональное состояние клеток почки при метаболическом синдроме. Исследование выполняется на взрослых самцах лабораторных крыс линии Wistar с рандомизацией в четыре группы: интактный контроль, метаболический синдром, социальный стресс, сочетание метаболического синдрома и социального стресса. Метаболический синдром индуцируется высококалорийным рационом с повышенным содержанием жиров и фруктозы в течение двенадцати недель; модель социального стресса реализуется через хроническую социальную фрустрацию по типу ежедневной смены партнеров с периодами вынужденного сосуществования и доминирования в течение сорока пяти минут, пять раз в неделю, шесть недель подряд, начиная с шестой недели диеты. Физиологический мониторинг включает оценку массы тела, индекса висцерального ожирения, гликемии натощак, теста толерантности к глюкозе, артериального давления методом непрямой тонометрии, уровня кортикостерона в плазме как интегрального маркера активации гипоталамо-гипофизарно-адреналовой оси. Функция почек оценивается по клиренсу креатинина, уровню альбуминурии и соотношению альбумин креатинин в моче, а также по концентрации NGAL и KIM-1 как ранних биомаркеров тубулярного повреждения.

Морфологический блок включает световую и электронно-микроскопическую оценку коркового вещества почек с количественной морфометрией клубочков и канальцев, анализом толщины базальных мембран и площади мезангиального матрикса. Иммуногистохимически определяются маркеры подоцитов и клубочковой фильтрации нефрин и подоцина, фиброгенез α -SMA и TGF- β 1, протеин токсического стресса 4-гидроксинафеналь, а также ядерная локализация Nrf2 как индикатор антиоксидантного ответа; уровень апоптоза оценивается методом TUNEL. В тканевых гомогенатах определяются активность супероксиддисмутазы и каталазы, содержание восстановленного глутатиона, концентрация

малонового диальдегида и нитротирозина; микроциркуляция оценивается по экспрессии eNOS и количеству перитубулярных капилляров CD31. Статистическая обработка выполняется с использованием многофакторного дисперсионного анализа для выявления основных эффектов диеты и стресса и их взаимодействия, дополненного пост-хок сравнениями с поправкой на множественные проверки; для поиска медиаторов применяется регрессионное моделирование с включением кортикостерона и показателей оксидативного стресса. Этические аспекты соблюдаются согласно национальным руководствам по работе с лабораторными животными и протоколам локального этического комитета.

В результате проведенного исследования установлено, что у животных с метаболическим синдромом наблюдалось повышение массы тела в среднем на 42 процента по сравнению с интактным контролем, уровень гликемии натощак увеличился на 38 процентов, а артериальное давление – на 29 процентов. При сочетании метаболического синдрома и социального стресса данные показатели имели еще более выраженный характер: масса тела превышала контроль на 55 процентов, гликемия – на 52 процента, а артериальное давление – на 44 процента. Концентрация кортикостерона в плазме у животных с изолированным стрессом возросла на 61 процент, а при сочетанной модели на 87 процентов, что подтверждает активацию гипоталамо-гипофизарно-адреналовой системы. Нарушение функции почек проявилось увеличением уровня альбуминурии на 48 процентов при метаболическом синдроме и на 73 процента при сочетании с социальным стрессом, а также снижением клиренса креатинина на 26 и 39 процентов соответственно.

Морфологический анализ выявил гипертрофию клубочков и расширение мезангиального матрикса в группе метаболического синдрома, при этом площадь мезангиального матрикса была увеличена на 34 процента по сравнению с контролем. У животных, подвергавшихся дополнительному социальному стрессу, этот показатель увеличивался уже на 58 процентов, а толщина базальной мембраны клубочков возрастала на 41 процент. Иммуногистохимический анализ продемонстрировал снижение экспрессии нефрина и подоцина на 27 процентов в группе метаболического синдрома и на 46 процентов при сочетании с социальным стрессом, что указывает на повреждение подоцитов. Одновременно отмечалось повышение экспрессии TGF- β 1 и α -SMA более чем на 60 процентов при комбинированном воздействии, что свидетельствует о начале процессов фиброзирования. Уровень апоптоза клеток канальцев, оцененный методом TUNEL, увеличивался в 2,3 раза при метаболическом синдроме и в 3,7 раза при сочетании с социальным стрессом. Полученные результаты подтверждают, что социальный стресс существенно усиливает морфофункциональные нарушения почек при метаболическом синдроме.

Полученные результаты убедительно показывают, что социальный стресс является мощным модификатором патологических процессов в

почечной ткани при метаболическом синдроме. Усиление метаболических нарушений, активация стресс-реализующих систем и нарастание структурных повреждений почек подтверждают необходимость учета психосоциальных факторов в профилактике и терапии метаболического синдрома.

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**МОРФОГЕНЕТИЧЕСКИЕ ОСОБЕННОСТИ ПОВРЕЖДЕНИЯ
НЕФРОНОВ ПРИ СОЧЕТАННОМ ВОЗДЕЙСТВИИ
МЕТАБОЛИЧЕСКОГО СИНДРОМА И СОЦИАЛЬНОГО СТРЕССА**

***Аннотация:** В данной работе рассматриваются морфогенетические особенности повреждения нефронов при сочетанном воздействии метаболического синдрома и социального стресса. Анализируется влияние алиментарного ожирения, инсулинорезистентности и хронической стрессовой нагрузки на структурные изменения почечной ткани. Предоставляются данные гистоморфологического и электронно-микроскопического исследования, которые демонстрируют выраженные патологические изменения клубочкового аппарата, канальцев и интерстиция.*

***Ключевые слова:** стресс, нефрон, морфология, клубочек, канальцы, подоциты, склероз, интерстиций, нефропатия*

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**MORPHOGENETIC FEATURES OF NEPHRON DAMAGE UNDER
COMBINED EFFECTS OF METABOLIC SYNDROME AND SOCIAL
STRESS**

***Abstract:** This paper examines the morphogenetic features of nephron damage under the combined effects of metabolic syndrome and social stress. The influence of alimentary obesity, insulin resistance and chronic stress load on structural changes in renal tissue is analyzed. Histomorphological and electron microscopic data are provided, which demonstrate pronounced pathological changes in the glomerular apparatus, tubules and interstitium.*

Key words: *stress, nephron, morphology, glomerulus, tubules, podocytes, sclerosis, interstitium, nephropathy*

Метаболический синдром и социальный стресс рассматриваются современными исследователями как ключевые факторы, способные оказывать синергетическое негативное воздействие на морфофункциональное состояние почек. Нарушения липидного и углеводного обмена в сочетании с хронической активацией стресс-реализующих систем ведут к структурным перестройкам нефронов, включая повреждение клубочкового аппарата, тубулоинтерстициальные изменения и дисбаланс внутрипочечных регуляторных механизмов. Особый интерес представляет выявление морфогенетических закономерностей данных изменений, так как именно они позволяют глубже понять патогенетические механизмы прогрессирования нефропатий при сочетанном влиянии метаболических и психосоциальных факторов.

Гистоморфологический анализ нефронов при сочетанном воздействии метаболического синдрома и социального стресса представляет собой методику, направленную на изучение структурных изменений почечной ткани с использованием световой и электронной микроскопии. Материалом для исследования служат почечные биоптаты лабораторных животных, у которых моделируются метаболический синдром посредством алиментарного ожирения и инсулинорезистентности, а также хронический социальный стресс через создание конкуренции за территорию и ограничение пространства. Полученные образцы фиксируются в нейтральном формалине, заливаются в парафин и окрашиваются стандартными и специальными гистологическими красителями для выявления структурных повреждений клубочков, канальцев и интерстиция.

Результаты анализа позволяют выявить характерные признаки поражения нефронов, включающие утолщение базальной мембраны, дистрофические изменения эпителия проксимальных канальцев, очаговый склероз и инфильтрацию интерстиция. Электронная микроскопия дает возможность детально проследить степень повреждения подоцитов, эндотелиальных клеток и митохондриальных структур, что обеспечивает объективную оценку морфогенетических изменений. Данный подход формирует основу для установления корреляции между метаболическими и стрессовыми факторами и морфологическими проявлениями нефропатий.

В ходе проведенного гистоморфологического анализа установлено, что у животных с сочетанным воздействием метаболического синдрома и социального стресса повреждения нефронов имели более выраженный характер по сравнению с контрольной группой. У 78 процентов биоптатов выявлено утолщение базальной мембраны клубочков, у 65 процентов зафиксированы дистрофические изменения эпителия проксимальных канальцев, а у 52 процентов отмечены признаки очагового склероза. В контрольной группе аналогичные изменения не превышали 15 процентов, что

подтверждает значимость сочетанного влияния двух факторов в патогенезе структурных нарушений почек.

Электронная микроскопия показала, что у 71 процента животных наблюдалась выраженная дегенерация подоцитов, у 60 процентов обнаружены повреждения эндотелиальных клеток клубочковых капилляров, а у 48 процентов — митохондриальные нарушения в клетках канальцевого эпителия. Уровень поражений в группе только с метаболическим синдромом или только со стрессом был значительно ниже, не превышая 35 процентов по основным показателям. Полученные результаты свидетельствуют о том, что сочетание метаболического дисбаланса и хронического социального стресса усиливает морфогенетические изменения в нефронах, что может рассматриваться как ключевой фактор ускоренного прогрессирования нефропатий.

Полученные результаты позволяют сделать вывод, что сочетанное воздействие метаболического синдрома и социального стресса оказывает выраженное повреждающее влияние на нефроны, приводя к более глубоким и распространенным морфогенетическим изменениям по сравнению с изолированным действием каждого фактора. Выявленные структурные нарушения клубочков, канальцевого аппарата и интерстиция свидетельствуют о синергетическом характере влияния метаболических и психосоциальных нагрузок, что определяет ускоренное прогрессирование нефропатий. Данное заключение подчеркивает необходимость комплексного подхода к профилактике и лечению почечных заболеваний с учетом как метаболических, так и стресс-индуцированных факторов.

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ИНТЕГРАЛЬНАЯ ОЦЕНКА МОРФОФУНКЦИОНАЛЬНЫХ НАРУШЕНИЙ В ПОЧКАХ КРЫС ПОД ДЕЙСТВИЕМ МЕТАБОЛИЧЕСКОГО СИНДРОМА И СТРЕСС-ФАКТОРОВ

***Аннотация:** В данной работе рассматривается влияние метаболического синдрома и стресс-факторов на морфофункциональное состояние почек у крыс. Анализируется динамика биохимических показателей крови, включая уровень креатинина, мочевины и электролитов, что позволяет оценить степень функциональных нарушений. Представляется комплексное исследование морфологических изменений почечной ткани, включающее оценку клубочков, канальцев и интерстициального пространства, что отражает основные аспекты развития нефропатии в условиях метаболических и стрессовых нагрузок.*

***Ключевые слова:** метаболизм, стресс, почки, функция, структура, воспаление, дистрофия, склероз, эксперимент, патология*

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INTEGRAL ASSESSMENT OF MORPHOFUNCTIONAL DISORDERS IN RAT KIDNEYS UNDER THE INFLUENCE OF METABOLIC SYNDROME AND STRESS FACTORS

***Abstract:** This paper examines the impact of metabolic syndrome and stress factors on the morphofunctional state of the kidneys in rats. The dynamics of blood biochemical parameters, including creatinine, urea and electrolytes, are analyzed, which allows us to assess the degree of functional impairment. A comprehensive study of morphological changes in renal tissue is presented, including an*

assessment of glomeruli, tubules and interstitial space, which reflects the main aspects of the development of nephropathy under metabolic and stress loads.

Key words: *metabolism, stress, kidneys, function, structure, inflammation, dystrophy, sclerosis, experiment, pathology*

Современные представления о патогенезе метаболического синдрома свидетельствуют о его системном воздействии на организм, затрагивающем в том числе морфофункциональное состояние почек. Нарушения углеводного, жирового и белкового обмена в условиях инсулинорезистентности и гипергликемии приводят к структурным перестройкам почечной ткани, изменению гемодинамики и нарушению клубочковой фильтрации. В совокупности данные изменения создают предпосылки для формирования хронической нефропатии, что придаёт актуальность изучению почечных проявлений метаболического синдрома в экспериментальных моделях.

Наряду с метаболическими нарушениями существенную роль в повреждении почечной ткани играют стресс-факторы, активирующие гипоталамо-гипофизарно-надпочечниковую систему и усиливающие окислительный стресс. Под действием хронического стресса у крыс усиливаются процессы апоптоза и воспаления, изменяется архитектура клубочков и канальцев, что усугубляет нефропатические изменения на фоне метаболического синдрома. Интегральная оценка морфофункциональных нарушений почек в таких условиях позволяет выявить характер и степень повреждения, определить их патогенетические механизмы и создать научную основу для поиска эффективных подходов к профилактике и коррекции метаболически индуцированной нефропатии.

Методика интегральной оценки морфофункциональных изменений почек у крыс при метаболическом синдроме и стресс-факторах. Для моделирования метаболического синдрома у крыс применяется высококалорийная диета с повышенным содержанием жиров и углеводов на протяжении восьми–десяти недель, что сопровождается формированием ожирения, гипергликемии и гиперлипидемии. В качестве стрессогенного фактора используется иммобилизационный стресс, воспроизводимый ежедневной фиксацией животных в течение одного часа в течение двух недель. Такой комбинированный подход позволяет воспроизвести комплексное влияние метаболических и стресс-индуцированных нарушений на морфофункциональное состояние почек.

После завершения эксперимента проводится забор крови и почечной ткани для последующего анализа. Биохимические показатели оцениваются по уровню мочевины, креатинина и электролитов, что отражает функциональное состояние почек. Морфологическое исследование выполняется на гистологических срезах с окраской гематоксилином-эозином и по методу Маллори, что позволяет выявить степень повреждения клубочков, канальцев и сосудистого русла. Полученные данные сопоставляются в интегральной системе оценки, включающей биохимические и морфологические параметры,

что обеспечивает комплексную характеристику выраженности почечных нарушений при метаболическом синдроме и хроническом стрессе.

Результаты проведенного исследования показали, что у крыс, получавших высококалорийную диету в сочетании с воздействием иммобилизационного стресса, отмечалось выраженное нарушение почечной функции. Уровень креатинина в сыворотке крови увеличился на 38 процентов, а концентрация мочевины – на 42 процента по сравнению с контрольной группой. Анализ электролитного баланса выявил снижение уровня калия на 15 процентов и повышение натрия на 12 процентов, что указывает на нарушение процессов фильтрации и реабсорбции.

Морфологическое исследование почек показало, что у 67 процентов животных опытной группы наблюдалась дистрофия эпителия канальцев, у 54 процентов – склеротические изменения в клубочках, а у 29 процентов – выраженные признаки интерстициального воспаления. Интегральная оценка морфофункциональных параметров продемонстрировала снижение суммарного индекса почечной функции на 35 процентов по сравнению с контролем. Эти результаты подтверждают, что сочетание метаболического синдрома и хронического стресса вызывает комплексные структурные и функциональные повреждения почек, усиливающие развитие нефропатии.

Полученные данные свидетельствуют о том, что сочетанное воздействие метаболического синдрома и стресс-факторов приводит к выраженным нарушениям функционального состояния почек у крыс. Биохимические показатели указывают на снижение фильтрационной способности, а морфологические изменения подтверждают развитие дистрофии и склеротических процессов в почечной ткани. Эти результаты подтверждают патогенетическую взаимосвязь между метаболическими нарушениями и стресс-индуцированными повреждениями почек.

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РОЛЬ СОЦИАЛЬНОГО СТРЕССА В РАЗВИТИИ МОРФОЛОГИЧЕСКИХ ПОВРЕЖДЕНИЙ ПОЧЕЧНОЙ ТКАНИ ПРИ МЕТАБОЛИЧЕСКОМ СИНДРОМЕ

***Аннотация:** В данной работе рассматривается роль социального стресса в развитии морфологических повреждений почечной ткани на фоне метаболического синдрома. Анализируются ключевые механизмы, включающие дисбаланс нейроэндокринной регуляции, активацию провоспалительных цитокинов и усиление процессов оксидативного стресса. Предоставляется характеристика экспериментальной модели, отражающей влияние сочетанного действия метаболических нарушений и стрессовых факторов на почечные структуры. Особое внимание уделяется аспектам изменения клубочковой фильтрации, развитию альбуминурии, формированию интерстициального фиброза и структурной деструкции подоцитарных элементов.*

***Ключевые слова:** почки, фиброз, воспаление, цитокины, подоциты, нефропатия, оксидант, фильтрация*

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THE ROLE OF SOCIAL STRESS IN THE DEVELOPMENT OF MORPHOLOGICAL DAMAGE TO RENAL TISSUE IN METABOLIC SYNDROME

***Abstract:** This paper examines the role of social stress in the development of morphological damage to renal tissue against the background of metabolic syndrome. Key mechanisms, including imbalance in neuroendocrine regulation, activation of proinflammatory cytokines and increased oxidative stress processes,*

are analyzed. An experimental model is described that reflects the effect of the combined action of metabolic disorders and stress factors on renal structures. Particular attention is paid to aspects of changes in glomerular filtration, the development of albuminuria, the formation of interstitial fibrosis and structural destruction of podocyte elements.

Keywords: *kidneys, fibrosis, inflammation, cytokines, podocytes, nephropathy, oxidant, filtration*

Метаболический синдром является комплексом взаимосвязанных нарушений, включающих ожирение, артериальную гипертензию, инсулинорезистентность и дислипидемию, что в совокупности значительно повышает риск развития сердечно-сосудистых и почечных заболеваний. На фоне метаболического синдрома формируются выраженные морфофункциональные изменения в почках, характеризующиеся повреждением клубочков, канальцев и сосудистого русла. Нарушения микроциркуляции, хроническое воспаление и активация фибротических процессов лежат в основе прогрессирующего поражения почечной ткани, что в конечном счёте способствует развитию хронической болезни почек.

Методика моделирования и количественной оценки влияния социального стресса на морфологические изменения почечной ткани при метаболическом синдроме. В экспериментальном блоке используется модель метаболического синдрома у самцов крыс, воспроизводимая на фоне длительного питания с высоким содержанием жиров (16–20 недель) и подтверждаемая параметрами глюкозной толерантности, уровнем инсулина и липидного профиля. Для имитации хронического социального стресса применяют парадигму социальных конфликтов (chronic social defeat) или длительную социальную изоляцию в течение 6–8 недель, при этом в исследование включают четыре группы: контроль, метаболический синдром, социальный стресс и сочетание метаболического синдрома с социальным стрессом. В исходе и через фиксированные интервалы исследуют поведенческие показатели тревожности и депрессоподобного поведения, плазменные концентрации кортикостерона (или кортизола), провоспалительных цитокинов (TNF- α , IL-6), маркеры оксидативного стресса, а также функции почек — уровень креатинина, скорость клубочковой фильтрации и альбуминурию; все измерения выполняются слепым образом относительно групп и стандартизируются по времени суток для исключения суточных колебаний гормонов.

Морфологическая оценка почечной ткани включает световую и электронную микроскопию с применением специальных красителей и иммуногистохимических маркеров. Фрагменты коркового и юкстамедуллярного слоев фиксируют в формалине, встраивают в парафин и окрашивают гематоксилин-эозином для общей морфологии, PAS для выявления изменений базальных мембран и ресничек клубочков, а также трихромом Массонна для оценки фиброза; дополнительно выполняют

иммуноокраску на α -SMA, коллаген I/III, маркеры макрофагальной инфильтрации (CD68) и маркеры апоптоза и оксидативного повреждения (TUNEL, 4-HNE). Для тонкой оценки повреждения подоцитов и щелевидных мембран применяют электронную микроскопию с последующей морфометрией: подсчитывают процент поверхностного покрытия подоцитов, площадь фиброза и число инфильтрирующих клеток на единицу ткани. Статистическая обработка включает проверку нормальности распределения, применение ANOVA или непараметрических аналогов с пост-хок тестами и многофакторный регрессионный анализ для выделения вклада социального стресса независимо от метаболических параметров; работа проводится в соответствии с этическими стандартами в отношении животных и принципами слепой оценки данных.

В результате проведенного исследования было установлено, что у животных с моделью метаболического синдрома отмечалось значительное повышение уровня глюкозы крови на 38 процентов, триглицеридов на 42 процента и снижение скорости клубочковой фильтрации на 27 процентов по сравнению с контрольной группой. У особей, подвергавшихся социальному стрессу без признаков метаболического синдрома, наблюдалось увеличение уровня кортикостерона на 45 процентов и рост концентрации провоспалительных цитокинов TNF- α и IL-6 на 32 и 29 процентов соответственно. Наиболее выраженные изменения были зарегистрированы в группе сочетанного воздействия метаболического синдрома и социального стресса, где уровень альбуминурии превышал показатели контроля в 3,4 раза, а содержание маркеров оксидативного стресса в плазме было выше на 61 процент.

Морфологический анализ почечной ткани подтвердил наличие повреждений различной степени тяжести во всех экспериментальных группах, однако наиболее критические изменения были выявлены у животных с сочетанным воздействием факторов. В этой группе площадь интерстициального фиброза увеличивалась на 52 процента по сравнению с группой метаболического синдрома без стресса, а количество инфильтрирующих CD68-позитивных клеток было выше на 47 процентов. Электронная микроскопия выявила укорочение и уплощение подоцитарных отростков в 74 процентах случаев, что сопровождалось выраженным утолщением базальных мембран. Совокупность данных свидетельствует о синергичном влиянии социального стресса и метаболического синдрома, усиливающим воспаление, фиброз и структурное повреждение почечной ткани.

Проведенное исследование показало, что метаболический синдром сам по себе вызывает значительные метаболические и морфологические нарушения в почечной ткани, включая снижение скорости клубочковой фильтрации, развитие альбуминурии и формирование интерстициального фиброза. Эти изменения сопровождаются активацией воспалительных и оксидативных процессов, что подтверждается ростом уровня цитокинов и

маркеров окислительного стресса. Полученные данные подтверждают ключевую роль метаболического синдрома как одного из ведущих факторов риска развития хронической болезни почек.

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**РОЛЬ КОРПОРАТИВНОЙ КУЛЬТУРЫ В ФОРМИРОВАНИИ
МАРКЕТИНГОВЫХ СТРАТЕГИЙ ПОВЫШЕНИЯ
КОНКУРЕНТОСПОСОБНОСТИ ТЕКСТИЛЬНЫХ ПРЕДПРИЯТИЙ
УЗБЕКИСТАНА**

***Аннотация:** В статье рассматриваются современные маркетинговые стратегии, применяемые предприятиями текстильной отрасли Узбекистана для повышения конкурентоспособности на внутреннем и внешнем рынках. На примере FULL COTTON MChJ и BETLIS TEKSTIL MChJ проведён анализ существующих подходов к продвижению продукции, включая цифровые каналы, ценовую политику, ассортиментное расширение и участие в международных выставках. Особое внимание уделяется влиянию корпоративной культуры на успешность реализации маркетинговых стратегий. Выявлены ключевые тенденции и проблемы, препятствующие устойчивому развитию, а также предложены рекомендации по укреплению бренда, диверсификации каналов продаж, повышению качества продукции и использованию внутренних организационных ресурсов как фактора конкурентных преимуществ.*

***Ключевые слова:** текстильная промышленность, маркетинг, конкурентоспособность, экспорт, бренд, цифровые технологии, корпоративная культура.*

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**"THE ROLE OF CORPORATE CULTURE IN SHAPING
MARKETING STRATEGIES TO ENHANCE THE COMPETITIVENESS
OF TEXTILE ENTERPRISES IN UZBEKISTAN"**

***Abstract:** The article examines modern marketing strategies employed by textile enterprises in Uzbekistan to enhance their competitiveness in domestic and international markets. Using the examples of FULL COTTON LLC and BETLIS TEKSTIL LLC, the study analyzes existing approaches to product promotion, including digital channels, pricing policies, product range expansion, and participation in international exhibitions. Special attention is given to the role of corporate culture in the successful implementation of marketing strategies. The*

study identifies key trends and challenges hindering sustainable development and provides recommendations for strengthening brand positioning, diversifying sales channels, improving product quality, and leveraging internal organizational resources as a source of competitive advantage.

Keywords: *textile industry, marketing, competitiveness, export, brand, digital technologies, corporate culture.*

I. Введение

Текстильная промышленность традиционно занимает ключевое место в экономике Узбекистана, формируя значительную часть экспортных поступлений и обеспечивая занятость в регионах⁴⁸. По данным Ассоциации «Uztextileprom», в 2023 году объём производства текстильной продукции превысил 5,5 млрд долларов США, а экспорт достиг 3,1 млрд долларов, что на 8% выше показателей предыдущего года. При этом около 70% экспортируемой продукции составляют готовые изделия, что свидетельствует о постепенном смещении акцента с сырьевого экспорта на продукцию с высокой добавленной стоимостью.

Однако рост конкуренции на международном рынке, колебания цен на сырьё и изменение потребительских предпочтений требуют от отечественных предприятий активного внедрения современных маркетинговых стратегий⁴⁹. Для успешного позиционирования на внешних и внутренних рынках необходим комплексный подход, включающий продуктовую дифференциацию, брендинг, цифровой маркетинг и развитие экспортной логистики.

В последние годы в Узбекистане реализуются программы государственной поддержки экспортеров, в том числе субсидирование транспортных расходов, упрощение таможенных процедур и стимулирование внедрения международных стандартов качества⁵⁰. Тем не менее, исследования показывают, что многие предприятия текстильной отрасли пока используют ограниченный набор маркетинговых инструментов, преимущественно ориентируясь на ценовую конкуренцию, что снижает их устойчивость к внешним вызовам⁵¹.

В современных условиях эффективность маркетинговых стратегий во многом определяется не только внешними факторами, но и внутренними — прежде всего уровнем корпоративной культуры предприятия. Устойчивые ценности, ориентированные на инновации, качество и

⁴⁸ Ассоциация «Uztextileprom». Статистический обзор текстильной промышленности Республики Узбекистан за 2023 год. — Ташкент: Uztextileprom, 2024. — 48 с.
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⁴⁹ Kotler, P., Keller, K. L. Marketing Management. — 16th ed. — Pearson Education, 2022. — 800 p.
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⁵⁰ OECD. Textile and Clothing Industry in Global Value Chains. — OECD Publishing, Paris, 2023. — 92 p.
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⁵¹ WTO. World Textile and Apparel Trade Report 2023. — Geneva: World Trade Organization, 2024. — 146 p.
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клиентоориентированность, формируют благоприятную среду для внедрения и реализации конкурентных стратегий. Поэтому оценка влияния корпоративной культуры на маркетинговую активность становится важным направлением анализа.

Цель данного исследования-проанализировать существующие маркетинговые подходы в деятельности текстильных предприятий Узбекистана, выявить ключевые проблемы и предложить стратегии, способные повысить их конкурентоспособность на внутреннем и внешнем рынках.

II. Материалы и методы

Исследование основано на данных бухгалтерской и управленческой отчётности ряда предприятий текстильной отрасли Узбекистана, включая FULL COTTON MChJ и BETLIS TEKSTIL MChJ, за 2022–2024 гг. Дополнительно использованы материалы Ассоциации «Uztextileprom»⁵², отчёты Государственного комитета по статистике Республики Узбекистан, а также аналитические обзоры Всемирной торговой организации (WTO) и Организации экономического сотрудничества и развития (OECD).

В целях сохранения конфиденциальности данные отдельных компаний приведены в агрегированном и обезличенном виде. При этом ключевые экономические показатели (объёмы реализации, структура затрат, показатели рентабельности и экспортные объёмы) были интегрированы в аналитическую часть работы в форме описательных характеристик без использования прямых таблиц.

Методологическая основа исследования включает:

- контент-анализ - изучение маркетинговых стратегий, представленных в корпоративных планах и отчётах компаний;
- сравнительный анализ - сопоставление результатов деятельности предприятий с отраслевыми средними значениями;
- метод экспертных оценок - определение перспективных направлений маркетингового развития на основе опроса специалистов отрасли;
- SWOT-анализ - для выявления сильных и слабых сторон, а также возможностей и угроз внешней среды.

В исследовании особое внимание уделено таким аспектам маркетинговой деятельности, как развитие бренда, использование цифровых каналов продвижения, участие в международных выставках, а также формирование долгосрочных партнёрских отношений с зарубежными дистрибьюторами.

Дополнительно была проведена качественная оценка внутренней среды предприятий, включая корпоративные ценности, управленческую мотивацию и элементы организационной культуры, влияющие на эффективность маркетинговой деятельности.

⁵² Ассоциация «Uztextileprom». Статистический обзор текстильной промышленности Республики Узбекистан за 2023 год. — Ташкент: Uztextileprom, 2024. — 48 с.
<https://uztextile.uz/ru/statistika>

III. Анализ и результаты

Анализ маркетинговой активности предприятий текстильной отрасли Узбекистана показал, что в последние годы наблюдается постепенный переход от традиционных форм продвижения к более комплексным и технологичным стратегиям.

На примере FULL COTTON MChJ и BETLIS TEKSTIL MChJ видно, что, несмотря на разницу в масштабах производства, обе компании начали внедрять элементы цифрового маркетинга, включая продвижение продукции через социальные сети и специализированные онлайн-площадки. Однако в структуре маркетинговых расходов по-прежнему доминируют затраты на участие в отраслевых выставках и печатную рекламу.

FULL COTTON MChJ за 2024 год увеличила маркетинговый бюджет на 12% по сравнению с 2023 годом, направив дополнительные средства на развитие фирменного интернет-магазина и сотрудничество с блогерами в нише моды. Это позволило расширить клиентскую базу в странах СНГ и привлечь заказы из Турции и ОАЭ. При этом доля экспортных продаж в общей выручке компании выросла с 42% до 47%.

BETLIS TEKSTIL MChJ сосредоточила усилия на оптимизации ценовой политики и расширении ассортимента. Компания активно использует акции и скидочные программы, что помогло удержать долю рынка на внутреннем рынке при общем росте конкуренции. Экспортная составляющая также увеличилась - с 35% до 39% выручки, главным образом за счёт выхода на рынки Казахстана и Кыргызстана.

Сравнение с отраслевыми средними значениями показывает, что компании, внедряющие интегрированные маркетинговые стратегии (сочетающие цифровые каналы, офлайн-активности и программы лояльности), демонстрируют в среднем на 15–20% более высокие темпы роста выручки, чем предприятия, ограничивающиеся только ценовой конкуренцией.

В ходе исследования выявлено, что одним из ключевых факторов успеха является способность предприятия формировать устойчивый бренд и поддерживать постоянную коммуникацию с целевой аудиторией. Это особенно важно для экспортных направлений, где конкуренция с продукцией из Китая, Турции и Бангладеш требует дополнительной дифференциации за счёт качества, дизайна и уникальных торговых предложений.

IV. Обсуждение

Результаты анализа подтверждают, что текстильные предприятия Узбекистана постепенно адаптируют свои маркетинговые стратегии к требованиям глобального рынка. FULL COTTON MChJ и BETLIS TEKSTIL MChJ демонстрируют схожие направления развития, однако различаются в акцентах: первая компания делает ставку на цифровизацию каналов продаж, вторая - на ценовую гибкость и ассортиментное расширение.

Согласно исследованиям OECD и WTO, интеграция цифрового маркетинга в деятельность текстильных предприятий обеспечивает не только

рост экспортных поставок, но и формирует более устойчивое восприятие бренда на зарубежных рынках. FULL COTTON MChJ, инвестируя в интернет-магазин и работу с лидерами мнений, действует в русле этих тенденций, что уже отражается на увеличении доли экспортных доходов.

В то же время ставка BETLIS TEKSTIL MChJ на ценовую конкуренцию эффективна в краткосрочном периоде, но в долгосрочной перспективе требует дополнения нематериальными преимуществами - качеством, дизайном, сервисом. Как показывают исследования Котлера и Портера⁵³, устойчивое конкурентное преимущество в текстильной отрасли редко строится только на цене.

Отраслевая статистика «Uztextileprom» указывает, что компании, совмещающие ценовые и неценовые методы продвижения, достигают в среднем на 18% более высоких показателей рентабельности продаж, чем предприятия, ориентированные исключительно на ценовую конкуренцию.

При этом важную роль играет внутреннее состояние предприятия — уровень развития корпоративной культуры, мотивационная среда и организационные ценности. Анализ деятельности успешных компаний в отрасли показывает, что именно командная работа, инновационная направленность и открытая управленческая культура способствуют эффективному внедрению маркетинговых новаций и повышают адаптивность к требованиям внешней среды.

Ключевыми вызовами для обеих компаний остаются:

- необходимость усиления брендинга и позиционирования на внешних рынках;
- недостаточная интеграция аналитических инструментов для прогнозирования спроса;
- ограниченное участие в международных отраслевых онлайн-платформах.

Таким образом, анализ показывает, что стратегическое развитие маркетинга в текстильной отрасли Узбекистана должно сочетать цифровые технологии, инновационный подход к продукту и комплексные меры по укреплению бренда.

V. Выводы и предложения

Проведённое исследование показало, что маркетинговые стратегии являются ключевым фактором конкурентоспособности предприятий текстильной отрасли Узбекистана. FULL COTTON MChJ и BETLIS TEKSTIL MChJ демонстрируют положительную динамику в расширении экспортных рынков и адаптации к изменяющейся конъюнктуре, однако их подходы различаются: первая компания делает акцент на цифровые каналы

⁵³ Porter, M. E. Competitive Advantage: Creating and Sustaining Superior Performance. — New York: Free Press, 1998. — 592 p.
<https://www.hbs.edu/faculty/Pages/item.aspx?num=26>

продвижения и формирование бренда, вторая - на ценовую политику и ассортимент.

Для повышения устойчивости и долгосрочного роста рекомендуется:

- **Укрепление бренда** через разработку уникального фирменного стиля, участие в международных модных показах и коллаборации с дизайнерами.

- **Диверсификация каналов продаж**, включая расширение присутствия на международных онлайн-маркетплейсах (Alibaba, Amazon, Zalando).

- **Развитие цифрового маркетинга** с применением аналитических инструментов для прогнозирования спроса и персонализации предложений.

- **Оптимизация продуктового портфеля** с учётом требований целевых зарубежных рынков.

- **Инвестиции в качество и инновации**, что позволит дифференцировать продукцию от массовых товаров конкурентов из Китая и Бангладеш.

Реализация предложенных мер позволит предприятиям не только увеличить экспортные объёмы, но и сформировать устойчивые позиции на мировом рынке, обеспечив долгосрочную конкурентоспособность и рост финансовых показателей.

Дополнительно следует отметить, что формирование эффективных маркетинговых стратегий невозможно без учета особенностей корпоративной культуры предприятия. Именно организационные ценности, стиль управления и внутренняя мотивация персонала во многом определяют успешность внедрения новых подходов к продвижению продукции. В условиях растущей конкуренции корпоративная культура становится важным нематериальным ресурсом, способствующим укреплению рыночных позиций текстильных предприятий Узбекистана.

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МОДЕРНИЗАЦИЯ ИРРИГАЦИОННОЙ ИНФРАСТРУКТУРЫ: ЗНАЧЕНИЕ, ПРОБЛЕМЫ, МЕРЫ

Аннотация. В процессе управления водными ресурсами ирригационная инфраструктура подвергается естественному износу и перестает соответствовать современным требованиям - утрачивает свои технические характеристики, следствием чего является снижение уровня водной, продовольственной и экологической безопасности региона.

Страны Центральной Азии, при дальнейшей деградации водохозяйственной инфраструктуры, могут столкнуться с крупномасштабными социальными волнениями и, возможно, конфликтными ситуациями.

В связи с этим требуется переустройство водных объектов, предусматривающее их модернизацию. Здесь термин модернизация понимается в узком смысле как модернизация инфраструктуры, направленная, главным образом, на управление предложением и осуществляемая техническими твердыми мерами.

Ключевые слова. Модернизация, реконструкция, инфраструктура, меры, водозаборное сооружение; магистральный канал; распределительный канал; гидротехническое сооружение; насосная станция/установка, шлюз-регулятор, поперечный регулятор, перегораживающее сооружение аккумулятивное, транспортировка, водозабор, облицовка.

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MODERNIZATION OF IRRIGATION INFRASTRUCTURE: VALUE, PROBLEMS, MEASURES

Abstract. *In the process of water resource management, irrigation infrastructure is subject to natural wear and tear and ceases to meet modern requirements - it loses its technical characteristics, resulting in a decrease in the level of water, food, and environmental security of the region.*

The countries of Central Asia, with the further degradation of water management infrastructure, may face large-scale social unrest and, possibly, conflict situations.

In this regard, it is necessary to reorganize water bodies, providing for their modernization. Here, the term modernization is understood in a narrow sense as infrastructure modernization aimed mainly at supply management and carried out by technical rigid measures.

Keywords. *Modernization, reconstruction, infrastructure, measures, water intake structure; main canal; distribution canal; hydraulic structure; pumping station/installation, gateway-regulator, transverse regulator, barrier structure accumulation, transportation, water intake, facing.*

Введение

В процессе управления водными ресурсами (УВР) ирригационная инфраструктура подвергается естественному износу и перестает соответствовать современным требованиям - утрачивает свои технические характеристики.

Неудовлетворительное техническое состояние ирригационной инфраструктуры снижает качество услуг по обслуживанию и содержанию ирригационных систем - как государственными водохозяйственными организациями (ВХО), так и объединениями/организациями водопользователей (ОВП) на локальном уровне.

Большая часть ирригационной инфраструктуры в Центральной Азии (ЦА), включая Узбекистан, находится в неудовлетворительном состоянии [1]. Разумный расчетный срок службы некоторых объектов инфраструктуры подходит к концу (например, главные насосы и бетонные лотки) или состояние инфраструктуры настолько плохое, что их эксплуатационные характеристики ограничены из-за отсутствия достаточного бюджета на эксплуатацию и техническое обслуживание.

Высокий износ основных фондов водного хозяйства стран ЦА составляет 70–80%; средний возраст ирригационной межхозяйственной и внутрихозяйственной инфраструктуры достигает 50 лет, а крупные магистральные каналы еще старше. При дальнейшей деградации водохозяйственной инфраструктуры (реальное состояние инфраструктуры меняется со временем вследствие различных явлений, типа эрозии, заиления и коррозии) страны ЦА могут столкнуться с крупномасштабными социальными волнениями и, возможно, конфликтными ситуациями.

Для сокращения социальных трений, вызванных деградацией/изношенностью инфраструктуры и, как следствие, бедностью

населения требуется переустройство водохозяйственной инфраструктуры, предусматривающее ее модернизацию.

Цель статьи систематизировать меры по модернизации некоторых ключевых элементов водохозяйственной инфраструктуры, отразив плюсы и минусы от их применения.

Методы исследования

В статье использованы методы 1) анализа пробелов и 2) сравнения объектов исследования для выявления достоинств и недостатков мер по модернизации водохозяйственной инфраструктуры.

Меры модернизации ирригационной инфраструктуры: требования, результаты

Ирригационная инфраструктура⁵⁴ (рисунок) [2] служит для распределения воды во времени и пространстве⁵⁵. Ниже рассмотрены вопросы модернизации некоторых из вышеперечисленных элементов инфраструктуры.

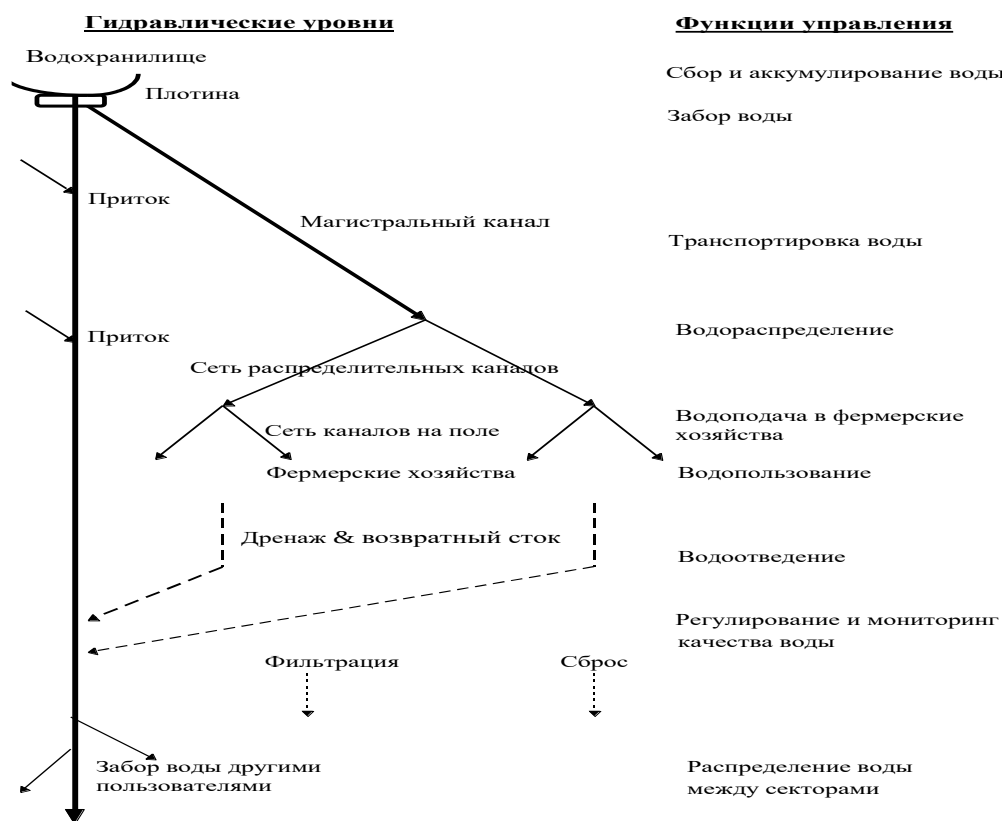


Рисунок. Схема гидромелиоративной системы.

⁵⁴ Здесь имеется в виду обычная (построенная) "серая" ирригационная инфраструктура, хотя зеленая инфраструктура (природные или частично природные системы, например, водно-болотные угодья), тоже могут использоваться в целях управления водными ресурсами.

⁵⁵ Для перераспределения воды во времени предназначены резервуары, бассейны, водохранилища (наливные, системные, суточные, декадные, сезонные, многолетние,...). Для перераспределения воды в пространстве предназначены насосные станции, каналы (открытые, закрытые, магистральные, распределительные, межхозяйственные, внутрихозяйственные, ...); перегораживающие сооружения, затворы, скважины (на орошение, вертикального дренажа), шланги, трубы,...

Модернизация ирригационной инфраструктуры предполагает, что в будущем она должна стать более эффективной и гибкой, чтобы соответствовать требованиям

- *комплексности/многофункциональности*: совместного использования инфраструктуры многими секторами экономики, включая сельское хозяйство, рыболовство, бытовое использование, энергоснабжение, ...;

- *эффективности*: ирригационные системы должны будут создавать большую ценность за каплю воды (повышается физическая и экономическая продуктивность оросительной воды) и позволить фермерам реагировать на проблемы, связанные с изменением климата;

- *безопасности*.

В результате модернизации улучшаются качественные характеристики инфраструктуры, например:

- увеличивается мощность/пропускная способность;
- коэффициент полезного действия (КПД) канала;
- расширяются технические возможности;
- повышается срок службы и т. п.

Улучшение качественных характеристик инфраструктуры дает возможность более эффективно перераспределять оросительную воду во времени и пространстве.

Модернизация инфраструктуры хранения/накопления воды⁵⁶

Промежуточное водохранилище в пределах системы каналов является главным активом для управления водой. Оно дает возможность гибкого управления ирригационной системой с контролируемым и измеряемым расходом, который может соответствовать спросу/квоте в нижнем течении. Для повышения стабильности водопоставки стратегически важным является использование микроводохранилищ (бассейны суточного/декадного регулирования на нижних уровнях водной иерархии).

Модернизация средств аккумуляирования осуществляется путем

- строительства/реконструкции водохранилищ/плотин и т.д.;
- замены проблемных плотин на более эффективные, оснащение их рыбоходами и системами пропуска речных осадков (из-за работы гидроэлектростанций (ГЭС) экосистемы ниже по течению недополучают важный для них ил);

Выбор мер по модернизации должен быть обоснованным с учетом всех их достоинств и недостатков (плюсов и минусов).

Плюсы и минусы мер по модернизации средств аккумуляирования.

Плюсы:

⁵⁶ Промежуточные конструкции: пруды/резервуары/емкости/водохранилища для хранения (сутки/декада/сезон, ...) воды (оросительной/дождевой) и используемые водопользователями по мере необходимости. В ближайшие 10 - 15 лет в Кыргызстане, например, планируется строительство 50 бассейнов/водохранилищ декадного/сезонного регулирования воды.

- повышение зарегулированности источников орошения и, соответственно, повышение потенциала для гибкого управления водой;
- повышение потенциала для борьбы с паводками, снижение рисков наводнений;
- повышение гидроэнергетического потенциала. Гидроэлектростанции входят в число возобновляемых источников энергии. Более того, полученное таким образом электричество обходится гораздо дешевле, чем энергия с теплоэлектростанций, ветряков или солнечных электростанций;

Минусы:

- большие потери воды на испарение с поверхности водохранилищ;
- опасность разрушения/прорыва плотин [3]⁵⁷;
- застоявшаяся вода «цветет» и становится токсичной;
- дамбы преграждают пути миграции рыб, в том числе ценных промысловых видов рыб [4]⁵⁸;
- пробелы: скопление отложений/заиление, проседание стенок, протечки и т.д.;
- эксплуатация плотин может привести к созданию засушливых условий в районах ниже по течению.

Модернизация водозаборных/водовыпускных сооружений

Модернизация водозаборных/водовыпускных сооружений включает

- *усовершенствование их путем*
 - уменьшения чувствительности/уязвимости;
 - регулирования по нижнему бьефу;
 - обеспечению широкого диапазона измерения расходов воды⁵⁹.
- *замену энергоемких насосных станций на более рациональные, работающие на возобновляемых источниках энергии (ВИЭ) (блок 1).*

Блок 1. Использование ВИЭ

Дело в том, что значительная часть средств на ирригацию расходуется на оплату энергоресурсов для обеспечения работы насосных станций. Поэтому масштабное использование ВИЭ - стратегически важно для ирригации. Кроме того использование ВИЭ важно в связи с тем, что стабильность водоподачи сильно зависит от стабильности энергоснабжения насосов, которая в странах ЦА является неудовлетворительной [5].

- *установку резервных насосов для устранения пиковых расходов в каналах;*
- *оснащение обновленными системами/устройствами оповещения и охраны,...;*

⁵⁷ Из-за климатических изменений может повыситься риск разрушения плотин.

⁵⁸ В США при модернизации ирригационных округов зачастую руководствуются экологическими нормами. Во многих странах экологические ограничения также привели к прекращению строительства новых плотин на реках.

⁵⁹ Системам дождевания и капельного орошения не нужны расходы, скажем, 30 л/с, тогда как традиционные системы поверхностного орошения могут функционировать удовлетворительно при таких расходах.

– использование средств самотечного водозабора вместо средств машинного водозабора (насосных станций/установок)⁶⁰.

Плюсы и минусы перехода от машинного водозабора к самотечному

Плюсы:

– сокращение потребления электроэнергии, горюче-смазочных материалов, и, как следствие, сокращение выброса парниковых газов;
– отсутствие затрат на реконструкцию/ремонт насосной станции/установки.

Минусы:

– снижение потенциала для автоматизации водозабора.

Модернизация средств регулирования уровня воды

Модернизация средств регулирования уровня воды осуществляется путем создания автоматизированных систем. Автоматизированные системы оснащены сооружениями, которые регулируют уровни воды в каналах во всём диапазоне расходов. Эти сооружения могут быть устройствами регулирования либо по верхнему, либо по нижнему бьефу.⁶¹

Плюсы и минусы мер по модернизации системы регулирования уровня воды по нижнему бьефу.

Плюсы:

– возможность автоматического реагирования на меняющиеся требования от пользователей ниже по течению.
– повышается качество ирригационного обслуживания.

Минусы:

- является дорогостоящим, поскольку, обычно, требует наличия
- горизонтальных дамб канала (перегораживающих сооружений);
- сооружений автоматизированного регулирования.

Модернизация средств контроля и учета воды

Для ЦА характерно то, что имеется ограниченная информация для планирования, развития и управления водными ресурсами. Необходимо модернизировать системы базы данных и базы знаний, чтобы разработчики стратегий модернизации располагали полной и достоверной информацией по водным ресурсам. В противном случае появится, например, опасность того, что новые водохранилища не заполнятся до проектных объемов и что пересмотренному водораспределению будут присущи черты "маловодья".

⁶⁰ Учитывая то, что 1) основная часть затрат на водный сектор (больше 70%) это затраты на электроэнергию; а также то, что 2) системы орошения, распределяющие воду самотеком, играют решающую роль в снижении выбросов углекислого газа от выработки и использования энергии, а также то, что частые перебои с электроснабжением насосов ведут к снижению стабильности водопоставки, очень важно, где это возможно, перейти от машинной водозабора к самотечному.

⁶¹ Регулирование уровня воды достигается механическими перемещениями скользящих плоских, сегментных и клапанных затворов. Автоматизированные системы различаются по способам эксплуатации затворов. Различают: (i) электроприводные системы с затворами, (ii) затворы, приводимые в движение гидравлическими силами без внешнего источника энергии или вмешательства со стороны человека.

Почти все национальные и международные проекты в водном секторе ЦА содержат планы по улучшению/модернизации контроля/учета воды путем

- обновления измерительных устройств с обеспечением автоматического мониторинга в ключевых точках, включая внедрение автоматизированных систем водоучета;

- преобразования сооружения, работающего в условиях контроля расхода, в сооружение, работающее в условиях контроля уровня воды по верхнему бьефу;

- повышение уровня безопасности через замену сооружений с затворами на автоматические сооружения⁶².

Плюсы и минусы SCADA

Плюсы:

- повышение точности измерения уровней, расходов и минерализации воды, а также открытия затворов гидротехнических сооружений, за счет применения современных технических средств измерения и учета водных ресурсов (снижение погрешности измерения и вычисления по расходу от 5-10% до 2-3%);

- данные доступны в режиме реального времени;

- улучшение информационного обеспечения, за счет непрерывного сбора, хранения и обработки измерительных значений уровней и расходов воды в компьютерах;

- повышение оперативности и точности управления водными ресурсами за счет увеличения скорости получения и обработки информации о технологическом процессе и принятие решения;

- исключает человеческий фактор ошибки;

- повышает оперативность обнаружения и устранения неисправностей оборудования системы управления и гидротехнических сооружений; исключает задержку данных при паводках или нехватке воды [7].

Минусы:

- требуется эксплуатационный персонал более высокой квалификации, обеспечить которым при существующем уровне заработной платы в территориальных водохозяйственных организациях является проблематичным;

- из-за коррупции, которая имеет место временами и местами в водном секторе, поддержание систем SCADA в рабочем состоянии является не простой задачей;

- недостаточный уровень достоверности сведений об эффективности и устойчивости прогресса, достигнутого в результате реализации проекта в сфере водоучета в ЦА, особенно на границе водопользователей.

Модернизация средств транспортировки воды

Модернизация средств транспортировки осуществляется путем

⁶² В настоящее время в ЦА при поддержке международных финансовых организаций внедряются современные системы автоматизации гидротехнических сооружений, так называемые системы SCADA⁶²

- *конструктивных мероприятий* [8]:
 - устройство различных видов антифильтрационных одежд (бетонирование, асфальтирование, пленочное покрытие) ... для снижения первичных потерь воды⁶³.
 - применение подземной сети напорных трубопроводов и подземной самотечной сети;
 - *кольматации* (мероприятие по изменению фильтрационной способности грунта ложа канала);
 - *переустройства*:
 - сокращения протяженности (спрямление) каналов и числа выделов из них. Чем больше протяженность канала и точек выдела из него, тем больше вероятность потерь воды;
 - «закольцевания» каналов;
 - изменения схемы оросительной сети. «Узловая» схема оросительной сети является более предпочтительной по сравнению с «елочной» с точки зрения возможности для контроля и управления водопоставкой и, соответственно, для снижения потерь воды;
 - *строительства закрытых трубопроводных систем* для равнинных и/или пойменных участках с целью уменьшения потерь воды от заболачивания и засоления, вызванных фильтрацией из открытых каналов. В идеале оросительная система для современного сельского хозяйства должна быть закрытой сетью;
 - *строительства каналов для переброски* части стока рек с целью повышения водообеспеченности земель там, где наблюдается дефицит воды;
 - *строительства самотечно-напорной оросительной системы* с целью сокращения энергозатрат (при наличии напора, обусловленного естественным уклоном местности. В таких случаях возникает дополнительное преимущество в виде снижения потребности в регулирующих сооружениях, необходимых в системе открытых каналов);
 - *замены закрытой трубопроводной сети* в системах машинного орошения самотечными открытыми каналами с целью сокращения энергозатрат;
 - *обеспечения напора в системах*, состоящих из закрытых труб, с помощью насосов. Этот вариант является целесообразным, если дополнительные издержки машинного орошения в достаточной мере компенсируют стоимость выращиваемых культур, а также при обеспечении техобслуживания и периодической замены насосов и двигателей.
 - *строительства сооружений по перехвату наносов* для систем, расположенных на склонах (блок 2).

⁶³ Выгоды от устранения первичных потерь: более легкая эксплуатация распределительной системы, повышение урожайности культур; меньшее загрязнение воды удобрениями и пестицидами.

Блок 2. Борьба с наносами.

В некоторых системах серьезную проблему представляет седиментация. Отсутствие сооружений для перехвата и удаления наносов приводит к проникновению в систему каналов большого количества отложений, создавая необходимость затратной процедуры их очистки. В связи с этим необходимо установка/обновление устройств и сооружений (отстойника/успокоительного бассейна) для перехвата/уловления и удаления наносов на головных сооружениях.

- облицовка каналов (блок 3).

Блок 3. Облицовка каналов.

Наиболее широко продвигаемые меры по рациональному использованию водных ресурсов включают облицовку каналов. В ЦА внимание к бетонировке каналов существенно выросло⁶⁴. Облицовка каналов в крупномасштабных оросительных системах является одним из наиболее широко продвигаемых подходов для сокращения потерь в орошении. Подобные вмешательства могут быть разработаны с целью улучшения водного надзора и могут сократить утечку на местах, но необязательно приведут к существенной экономии воды по всей орошаемой площади.

Облицовка канала сокращает затраты на техобслуживание и фильтрацию воды из канала. Однако, учитывая то, что вода теряется не только на фильтрацию, специалисты отмечают, что огромные суммы, потраченные на облицовку, не всегда приводят к ожидаемому эффекту. Это объясняется тем, что модернизация инфраструктуры и системы управления должна проводиться комплексно.

Облицовка каналов может быть экономически оправданной в структуре планов по модернизации ирригации там и тогда, где и когда она необходима для улучшения водного надзора или в местностях, где потери в водопроводящих каналах высоки и восстановление водного стока ниже по течению маловероятно.

Плюсы и минусы антифильтрационных мер.

Плюсы:

- повышают мощность/пропускную способность и КПД канала, благодаря чему снижается/ликвидируется угроза:
 - засоления почвогрунтов и заболачивания местности (вызванных подъемом грунтовых вод из-за фильтрационных потерь воды)⁶⁵;
 - деформации каналов и разрушения сооружений (при просадочных грунтах);
 - опасных обрушений и селей в горных условиях;
- сокращают затраты на техобслуживание.

⁶⁴ В странах ЦА разработаны многолетние программы бетонирования каналов; 2024 год объявлен "ударным годом по бетонированию каналов"...

⁶⁵ Эффективность антифильтрационных мероприятий следует определять не только объемами сэкономленной воды, но и размерами снижения расходов финансовых ресурсов на водоотведение и утилизацию дренажно-сбросных вод.

Минусы.

Потерянная вода до облицовки канала могла выполнять полезную работу:

- часть потерянной воды могла повторно использоваться на орошение (в основном, в зонах, имеющих высокую проточность грунтовых вод при малой их минерализации);
- нередко потерянная вода могла выполнять
 - экологическую функцию по поддержанию флоры и фауны в прилегающей к оросительному каналу территории;
 - социальную функцию (водообеспечение местного населения).

Модернизация системы совместного использования поверхностных и подземных/грунтовых вод

Модернизация/оптимизация системы совместного использования поверхностных и подземных/грунтовых вод включает следующие меры:

- восстановление вышедших из строя и/или строительство новых скважин на орошение;
- использование скважин на орошение с применением более усовершенствованных и дешевых технологий для извлечения подземных вод;
- использование скважин на орошение в качестве основного и/или резервного инструмента для гарантированного орошения ценных сельхозкультур подземной водой на основе системы капельного орошения;
- строительство скважин на орошение в зоне приусадебных участков, теплиц, парников и т.д.;
- создание в зоне приусадебных участков водных резервуаров/хаузов для населения и скота;
- гарантированное энергообеспечение скважин на орошение за счет нетрадиционных источников энергии (солнечные и ветровые генераторы,...) [9]⁶⁶. Использование ВИЭ способствует минимизации углеродного следа путем уменьшения/сохранения низкого уровня издержек машинного орошения.

Модернизация системы энергоснабжения ирригации

Модернизация системы энергоснабжения ирригации включает

- *строительство*
 - гидроэлектростанций (ГЭС)⁶⁷;

⁶⁶ ЕС и ПРООН, работая совместно с правительством Узбекистана, внедрили систему капельного орошения в Аккурганском районе Ташкентской области, регионе, известном своим низким уровнем водоснабжения. По данным ПРООН, система состоит из насоса, который качает воду из скважины глубиной 180 метров, используя электричество от солнечных батарей... приносит пользу 10 домохозяйствам и экономит около 60% воды по сравнению с традиционными методами орошения.

⁶⁷ Гидроэлектростанции входят в число возобновляемых источников энергии. Более того, полученное таким образом электричество обходится гораздо дешевле, чем энергия с ТЭС, ветряков или солнечных электростанций. Однако это не значит, что энергия воды экологична. У нее есть несколько серьезных минусов: 1) из-за большого испарения воды с поверхности водохранилищ мелеют реки; 2) застоявшаяся вода «цветет» и становится токсичной; 3) дамбы преграждают пути миграции рыб, в том числе ценных промысловых видов.

- солнечных и ветровых станций [10]⁶⁸;
- микро и мини ГЭС на оросительных каналах в качестве альтернативного источника электроснабжения в сельской местности для целей использования насосов только в тех случаях, когда использование гравитационного (самотечного) орошения не представляется технически или экономически целесообразным [11]⁶⁹;

- установку солнечных панелей над каналом;
- создание плавучих солнечных станций [12]⁷⁰;
- строительство АЭС⁷¹.

Оросительные системы на ВИЭ должны стать доступной климатически оптимизированной технологией как для крупных, так и для мелких фермеров в странах ЦА. Но ими необходимо правильно управлять и регулировать их использование во избежание рисков нерационального использования воды.

Плюсы и минусы мер по модернизации системы энергоснабжения ирригации.

Плюсы:

- улучшение энергоснабжения и, как следствие, повышение стабильности водопоставки, улучшения водоучета,...;
- снижение потерь воды на испарение с водной поверхности канала, водохранилища;
- сокращение выбросов парниковых газов.
- снижение уровня противоречия между гидроэнергетикой и ирригацией.

Минусы:

- высокие затраты на установку ВИЭ;
- проблемы с утилизацией лопастей ветряков и коллекторов солнечных батарей;
- проблемы с обеспечением экологических требований.

Заключение

1. Большая часть ирригационной инфраструктуры в странах ЦА находится в относительно плохом состоянии и нуждается в масштабной модернизации.

⁶⁸ При выборе мер модернизации следует учитывать альтернативные точки зрения: «на данный момент создание гидроэнергетических объектов экономически не оправдано», «строительство ГЭС примерно в 3 - 4 раза дороже, чем строительство солнечной электростанции», себестоимость энергии, производимой на ГЭС увеличивается, а на солнечной станции — стремительно дешевеет».

⁶⁹ В некоторых областях Республике Узбекистан, например, убрали насосные станции, обеспечив подвод воды самотеком. В Сурхандарье, например, в результате реализации проекта модернизации ирригационных систем были убраны более 400 фермерских насосов, а также 20 малых и 3 крупных насосных станций. Вода стала подаваться самотеком, сократилось потребление электроэнергии, газа, и, как следствие, сократился выброс парниковых газов.

⁷⁰ Установка на поверхности водохранилищ специальных платформ, на которые размещаются солнечные панели, которые преобразуют солнечный свет в электрическую энергию.

⁷¹ Некоторые эксперты (Кыргызстан) считают, что было бы более рационально направить финансы на строительство АЭС малой мощности. Это закрыло бы потребности в электроэнергии, а строительство ГЭС отпало бы само собой, а ниже расположенные соседи и дальше получали бы воду в нужном им объеме.

2. Существует широкий спектр твердых мер модернизации ирригационной инфраструктуры, применение которых может привести к неоднозначным результатам.

3. Эффект от модернизации инфраструктуры зависит от правильного выбора мер по модернизации – он должен быть обоснованным с учетом всех достоинств и недостатков, четкого учета плюсов и минусов, которые могут быть следствием рассматриваемых мер.

4. Для выявления плюсов и минусов мер по модернизации необходимо многократно повысить качество и количество научно-исследовательских работ в области ирригации⁷².

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⁷² Ирригационные специалисты и ученые, из-за пробелов в научно-производственных исследованиях (особенно в последние тридцать лет), сейчас плохо представляют себе реальный уровень эффективности ирригационных систем. Программы/планы модернизации УВР в ЦА могут быть обречены на провал, если не наладить надлежащие научные исследования и качественный, надежный и гибкий учет и контроль аккумуляирования, водопоставки/водопользования/водоотведения.

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МОДЕРНИЗАЦИЯ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ: КЛАССИФИКАЦИЯ И ВЫБОР МЕР

***Аннотация.** Ключевым инструментом адаптации к последствиям изменения климата является улучшенное управление водными ресурсами (УВР) для обеспечения водной и продовольственной безопасности. В статье рассмотрены вопросы классификации мер по модернизации УВР и их приоритизации с учетом различных факторов/признаков, а также того, что модернизация (в широком смысле) включает в себя как модернизацию инфраструктуры с использованием твердых мер, так и модернизацию системы УВР путем создания благоприятной внешней среды и улучшения потенциала: институционального, человеческого, финансового и когнитивного с использованием мягких мер.*

***Ключевые слова.** Модернизация, адаптация, меры, инфраструктура, классификация, выбор/приоритизация, политика, право, институты, финансы, твердые/мягкие меры, предложение, спрос.*

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MODERNIZATION OF WATER RESOURCE MANAGEMENT: CLASSIFICATION AND TANKING OF MEASURES

***Abstract.** A key tool for adapting to the consequences of climate change is improved water and food security management (WMR). The article examines the classification of HRM modernization measures and their prioritization considering various factors/criteria, as well as the fact that modernization (in a broad sense) includes both infrastructure modernization using rigid measures and the*

modernization of the HRM system by creating a favorable external environment and improving potential: institutional, human, financial, and cognitive through soft measures.

Keywords. *Modernization, adaptation, measures, infrastructure, classification, choice/prioritization, policy, law, institutions, finance, hard/soft measures, supply, demand.*

Введение

Ключевым инструментом адаптации к последствиям изменения климата в ЦА является улучшенное УВР для обеспечения водной и продовольственной безопасности путем ее модернизации [1, 2]. Обычно под модернизацией понимается модернизация в узком смысле - как процесс обновления технического потенциала оросительных систем на всех уровнях УВР (от источника орошения до поля) с применением твердых мер.

Что касается модернизации УВР в широком смысле, то ФАО рассматривает ее как процесс обновления технического и управленческого потенциала ВХО с целью улучшения эксплуатации ресурсов (трудовых, водных, экономических, экологических) и оказания услуг по водообеспечению пользователей.

Необходимость рассмотрения модернизации УВР в широком смысле, а не только водохозяйственной инфраструктуры) объясняется тем, что, сосредотачиваясь исключительно на технической стороне модернизации, есть риск того, что 1) формальные дорогостоящие технические процедуры будут задавать тон процессу восстановления, а 2) новые технологии не будут соответствовать существующим социальным и организационным практикам и знаниям водопользователей [3].

Поэтому модернизация УВР в широком смысле включает в себя как модернизацию инфраструктуры, но также модернизацию системы УВР на основе принципов интегрированного управления водными ресурсами (ИУВР) [4, 5, 6] через 1) создание благоприятной внешней среды (политические, правовые и финансово-экономические аспекты) и 2) улучшение водохозяйственного потенциала: институционального (организации, правила, стимулы); человеческого (кадры); финансового (зарплата, вознаграждения); когнитивного (компетентность, знания, навыки).

Цель статьи заключается в том, чтобы классифицировать меры по модернизации УВР с учетом ключевых факторов/признаков (масштабность, срочность, ...) и рассмотреть факторы, определяющие их правильный выбор.

Методы исследования

В статье использованы методы систематизации и классификации объектов исследования для структуризации и разделения исследуемых мер по модернизации УВР в целях адаптации к последствиям изменения климата в зависимости от ключевых факторов/признаков.

Классификация мер по модернизации: факторы/признаки, примеры мер

Улучшение УВР достигается путем применения широкого ряда мер по модернизации, которые можно условно классифицировать с учетом различных факторов/признаков:

- *временной масштаб* (долгосрочные, среднесрочные и краткосрочные меры)⁷³;
- *важность/срочность* (меры большой важности/срочности, меньшей важности/срочности, не важные/срочные);
- *специфика* (меры политические, правовые, финансово-экономические, институциональные, технические, когнитивные);
- *уровень управления* (меры для различного уровня: международного, регионального, национального, бассейнового, локального/местного);
- *тип управления* (меры по управлению 1) предложением/ресурсом; 2) спросом на ресурс/воду);
- *уровень «жесткости»* (меры твердые/структурные, мягкие/неструктурные);
- *расположение* в зоне бассейна реки (меры для верховий, среднего течения и низовий реки);
- *сложность*: меры варьируют от простых конкретных действий до более сложных/комплексных,...

Простые и сложные меры.

Примеры конкретных простых мер/действий включают

- сопровождение планов программой мониторинга и оценки;
- обеспечение общественного доступа к соответствующей информации;
- укрепление советов постоянным секретарем и ресурсами/финансированием.

Примеры более сложных мер включают реформирование организации водного сектора на основе бассейнового принципа и принципа субсидиарности (т.е. поручение задач наименее централизованному органу, способному эффективно решать задачи), а также реформирование финансовой структуры на основе системы платного водопользования (СПВ), принципов «загрязнитель/пользователь платит» (возмещение затрат);

Меры по управлению предложением и спросом на воду.

Ирригационные системы должны быть эффективными и гибкими/многофункциональными (улучшенное управление предложением/ресурсом), чтобы соответствовать требованиям, потребности многих секторов экономики, включая сельское хозяйство, рыболовство, бытовое использование и энергоснабжение (улучшенное управление спросом/требованием на воду). Эти улучшенные системы должны будут

⁷³ Общей проблемой является акцент на краткосрочные меры. Средне- и долгосрочное планирование должно поощряться, хотя часто это затруднительно вследствие коротких избирательных циклов, ограниченности финансирования и высокой степени неопределенности, связанной со среднесрочными и долгосрочными прогнозами. Необходимо увязывать кратко-, средне- и долгосрочное планирование для гарантии того, что, например, краткосрочные меры не будут противоречить более долгосрочным мерам.

создавать большую ценность на каплю воды и позволить фермерам реагировать на проблемы, связанные с нестабильной рыночной конъюнктурой и изменением климата. Традиционным в водном хозяйстве ЦА является акцент на управление предложением/ресурсом, при котором, как правило, используются твердые меры модернизации. Тогда как при модернизации управления спросом на воду, как правило, используются мягкие меры.

Твердые меры.

Твердые меры направлены на модернизацию физической водохозяйственной инфраструктуры и включают

- строительство средств аккумулирования/накопления воды (для повышения гибкости водопоставки);
- установка новых насосных установок/станций; строительство/усовершенствование отстойников (для улучшения системы водозабора и борьбы с наносами);
- бетонировка каналов; переход от открытых каналов к закрытым (напорным/безнапорным) трубопроводам (для снижения/ликвидации потерь воды на испарение и инфильтрацию при ее транспортировке;
- установка новых/современных гидропостов/расходомеров; оснащение ирригационных систем системой SCADA⁷⁴ (для повышения уровня водоучета и контроля над распределением водных ресурсов)...

Мягкие меры.

Несмотря на очевидную потребность в модернизации инфраструктуры, все усилия правительств будут безуспешными до тех пор, пока они не дополнят ее нетехническим/мягкими мерами. Мягкие меры (политические, правовые, институциональные, финансовые, когнитивные, ...) направлены на коренное преобразование водного сектора с ориентацией на улучшение системы водопоставки, водопользования и водоотведения путем внесения изменений/улучшений в системы 1) стимулов и правил; 2) оплаты труда персонала (водников/мирабов, поливальщиков,...); 3) оказания ирригационных, консультативных и тренинговых услуг; 4) материально-технического и информационного обеспечения; 5) финансирования водного сектора (государственно-частное партнерство (ГЧП), аутсорсинг).

Мягкие меры включают

- создание информационных систем;
- изменение оперативных режимов;
- подходы регуляторного характера;
- применение систем управления;
- внесение изменений/улучшений в системы стимулов и правил;
- оплаты труда водников/мирабов, поливальщиков;
- оказание консультативных и тренинговых услуг;
- материально-технического и информационного обеспечения;
- финансирование водного сектора (ГЧП, аутсорсинг),...

⁷⁴ SCADA (аббр. от англ. Supervisory Control And Data Acquisition) - диспетчерское управление и сбор данных.

Политико-правовые меры:

– переориентация основной функции правительства на создание стимулирующей политики и нормативно-правовой базы для инклюзивного и устойчивого развития водного сектора и на предоставление высококачественных водных услуг;

– разделение/разграничение между регулирующей и деловой/хозяйственной функцией правительства, требующее приватизации нестратегических государственных водохозяйственных организаций (ВХО).

Финансово-институциональные меры:

– вовлечение заинтересованных сторон (ЗИС) в процесс принятия решений по руководству водой;

– вовлечение частного сектора в водное хозяйство: широкое и надлежащее внедрение подходов ГЧП, аутсорсинга⁷⁵,...

Очевидно, что в ЦА было бы уместен, например, опыт Австралии по использованию операционного вида аутсорсинга для организации надлежащего водоучета (передача функций водоучета) на оросительных системах.

Когнитивные меры:

– модернизация системы наращивания кадрового потенциала;

– модернизация системы распространения знаний и консультационных услуг;

– проведение научно-производственных исследований (например, изучение опыта использования микро- и мини-ГЭС на оросительных каналах в качестве альтернативного источника электроснабжения в сельской местности, включая для целей использования насосов только в тех случаях, когда использование гравитационного/самотечного орошения не представляется технически или экономически целесообразным);

– разработка и внедрение новых более эффективных методов УВР;

– применение инновационных информационно-аналитических технологий (систем поддержки принятия решений (СППР)) и информационно-коммуникационных технологий (ИКТ), ...

Без научно-исследовательского сопровождения принимаемых решений при УВР, без постоянного мониторинга и оценки климатических воздействий, без модернизации инструментов анализа, планирования, управления - надлежащая упреждающая адаптация к изменениям климата не получится.

В процессе модернизации УВР прямая передача инновационной технологии (механическое копирование чужого опыта) редко дает ожидаемый эффект, поэтому в большинстве случаев для трансфера технологий требуется

⁷⁵ Аутсорсинг (outsourcing) – метод/ситуация, когда организация-заказчик (ВХО, ОВП, ...) привлекает внешние фирмы для выполнения каких-либо работ, которые являются частью ее основной деятельности. Заказчик только формулирует задачи перед поставщиком услуг. Право контроля, способ достижения задачи, ответственность за достигнутый результат ложатся на поставщика услуг. Различают три вида аутсорсинга: 1) функциональный (передача функций управления); 2) операционный (передача функций производства); 3) ресурсный (отказ от собственных ресурсов и приобретение их на стороне).

некоторая адаптация к местным условиям через прикладные/производственные исследования, обеспечивающие процесс получения/внедрения надлежащей информации в надлежащем месте и в надлежащие сроки.

Научно-производственные исследования должны быть сосредоточены на изучении междисциплинарных (режим орошения, техника полива, инженерное и гуманитарное мышление, на стыке науки и политики) и интегрированных структур для поддержки лиц, принимающих решения, в УВР перед лицом меняющихся климатических условий будущего.

Появление кластеров дает надежду на то, что ситуация постепенно будет меняться и ученые станут более востребованными со стороны практиков/производственников. Совершенно очевидно, что в первое время кластеры начнут с решения очевидных, понятных им, лежащих на поверхности, проблем: приводить в порядок каналы (ремонт, очистка, ...) и налаживать элементарный водоучет. На следующем этапе, есть надежда, что лица, принимающие решения, в кластерах, обратят внимание и на другие проблемы: управленческие, эксплуатационные, институциональные, ...

Выбор/приоритизация мер

Выбор/приоритизация мер по модернизации зависит от многих факторов и, учитывая разнообразие местных условий, набор мер не может быть одинаковым для всех стран, областей и районов. Из большого множества мер/рекомендаций важно определиться с ключевыми/приоритетными мерами и сконцентрироваться на их реализации.

Выбор/приоритизация мер по модернизации должен осуществляться таким образом, чтобы модернизация отвечала ключевым принципам управления УВР:

- экономической эффективности;
- социальной справедливости;
- экологической устойчивости.

При выборе/приоритизации мер по модернизации необходимо учитывать

- *особенности каждой оросительной системы*: каждая оросительная система уникальна в силу различных климатических и физических условий, методов растениеводства и земледелия;

- *уровень системы управления*: реальную ситуацию на региональном, национальном, бассейновом и местном уровнях. Распределение имеющихся водных ресурсов между пятью странами ЦА неравномерное. Государства, расположенные ниже по течению рек (Туркменистан и Узбекистан) находятся в сильной зависимости от региональных трансграничных соглашений в дополнение к собственным внутренним возобновляемым источникам воды;

- *потребности сельского хозяйства, социальной и институциональной сфер*;

- *показатели эффективности*;

– *крайнюю степень неопределенности*, обусловленной изменениями (географическими, временными, ...) спроса и предложения: изменение роста и территориального распределения населения, структуры потребления воды, климата;

– *все плюсы и минусы различных мер/технологий*. Нет гарантии, что меры/технологии, которые хорошо работают в одной стране (бассейне, системе), дадут ожидаемый результат в другой;

– *техническую приемлемость тех или иных мер/технологий*. А затем выбрать из них наиболее целесообразную экономически:

- оценка технической эффективности/целесообразности применения меры модернизации устанавливается с учетом природно-хозяйственных факторов и/или климатических условий, почвенных, рельефных, гидрогеологических, а также дефицита испаряемости, скорости ветра, глубины залегания пресных и минерализованных грунтовых вод;

- оценка экономической эффективности/целесообразности применения модернизирующих мер устанавливается сопоставлением ряда технико-экономических показателей, важнейшие из которых следующие: размер капитальных вложений и срок их окупаемости.

Заключение

1. Ключевым инструментом адаптации к негативным последствиям изменения климата является улучшенное УВР.

2. Модернизацию УВР может быть осуществлена путем использования широкого ряда мер, которые важно систематизировать и классифицировать в зависимости от различных ключевых факторов/признаков.

3. Становится общепризнанным подход, при котором термин модернизация понимается в широком смысле и включает в себя использование мер как по модернизации инфраструктуры, так и мер по модернизацию системы управления водными ресурсами путем создания благоприятной внешней среды и улучшения потенциала.

4. Эффективность модернизации УВР зависит от правильного выбора/приоритизации мер.

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К ВОПРОСУ О НАРАЩИВАНИЕ ПОТЕНЦИАЛА В СФЕРЕ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ В ЦЕНТРАЛЬНОЙ АЗИИ

Аннотация: Одним из направлений совершенствования системы управления водными ресурсами (УВР) в Центральной Азии (ЦА) является наращивание потенциала водохозяйственных организаций (ВХО) через систему переподготовки и повышения квалификации (СППК) персонала водных структур. Чем интенсивней будет проходить процесс наращивания потенциала, тем лучше будет осуществляется процесс адаптации к последствиям изменения климата (АПИК).

В статье рассмотрены 1) существующие проблемы СППК кадров ВХО как в плане количества, так и в плане качества; 2) ключевые причины традиционно плохого состояния дел с кадровым потенциалом; 3) вопросы стратегического планирования в сфере наращивания потенциала и применения единых подходов к формированию СПКК в водном секторе стран ЦА.

Ключевые слова. Центральная Азия, управление водными ресурсами, кадровый/человеческий потенциал, водник, компетентность/профессионализм, умение/навыки, национальное водное агентство, организация, благоприятная среда, семинар/тренинг, учебный модуль, ролевая игра, дискуссия, брейнсторминг, системы повышения квалификации кадров.

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ON THE QUESTION OF POTENTIAL GROWTH IN THE SPHERE WATER MANAGEMENT IN CENTRAL ASIA

Abstract: *One of the directions for improving the Water Resources Management System (WMS) in Central Asia (CA) is to enhance the capacity of water management organizations (WMO) through a system of retraining and professional development for water management personnel. The more intensive the capacity building process, the less damage will be caused by the negative impacts of climate change.*

The article examines: 1) the existing problems of the CPC of the Ministry of Higher and Secondary Specialized Education in terms of both quantity and quality; 2) the main reasons for the traditionally poor state of personnel potential; 3) issues of strategic planning in the field of capacity building and application of unified approaches to the formation of the CPC in the water sector of the CA countries.

Keywords. *Central Asia, Water Resources Management, Personnel/Human Potential, Water Worker, Competence/Professionalism, Skill/Ability, National Water Agency, Organization, Favorable Environment, Seminar/Training, Training Module, Role-Playing, Discussion, Brainstorming, Personnel Training Systems.*

Введение

Состояние водного сектора зависит от технического состояния водохозяйственной инфраструктуры и кадрового/человеческого потенциала, в связи с чем, одним из направлений совершенствования УВР в ЦА является укрепление человеческого потенциала водных структур через подготовку кадров в высших учебных заведениях, переподготовку и повышение квалификации персонала водных структур. Фундаментальной основой эффективного функционирования водной отрасли является компетентность/профессионализм людей, работающих в ней. Адаптация к последствиям изменения климата происходит эффективнее при высокой подготовленности и компетентность специалистов различных отраслей. Чем интенсивней будет проходить процесс наращивания потенциала, тем меньше будет ущерб от негативного воздействия изменения климата. Настоящая работа посвящена СПКК, которая является одной из форм наращивания потенциала.

Кадровый потенциал в водном секторе определяется количеством сотрудников и их интеллектуальным потенциалом: идеи, информация, компетенция/квалификация и умение/навыки (блок 1.)

Блок 1. Интеллектуальный потенциал

Интеллектуальный потенциал ВХО включает две составляющие: творческий потенциал и профессионально-квалификационный потенциал. Творческий потенциал - это совокупность способностей работников организации к постановке и решению новых творческих задач, созданию чего-то качественно нового, отличающегося неповторимостью и уникальностью, а также к созданию условий в организации для проявления этих творческих способностей. Профессионально-квалификационный потенциал - это совокупность способностей, профессиональных навыков работников ВХО, необходимых для выполнения ими своих профессиональных обязанностей, и создание условий в ВХО для совершенствования и развития навыков и умений персонала. Его можно оценить при помощи следующих показателей: половозрастной состав; образовательный уровень персонала; стаж работы; квалификация рабочих.

В настоящее время в водном секторе ЦА существуют проблемы с кадровым потенциалом ВХО как в плане количества, так и в плане качества. Хуже всего обстоят дела с уровнем творческого потенциала работника из-за его невостребованности в силу того, что преобладает чрезмерно централизованный реактивный стиль УВР, при котором местная инициатива не приветствуется. Результатом резкого снижения финансирования водной отрасли явилось ухудшение кадрового потенциала в количественном и качественном плане (блок 2). Для водной отрасли в постсоветский период характерны процессы депрофессионализации и снижения престижности профессии водника.

Блок 2. О снижении кадрового потенциала.

К 2029 году дефицит специалистов в области водных ресурсов в Казахстане достигнет 800 человек. Об этом говорится в Концепции развития системы управления водными ресурсами на 2023-2029 годы. ...«Из-за низкого уровня оплаты труда, сложности трудоустройства, нежелания хозяйствующих субъектов принимать на работу молодых специалистов, большинство работников водохозяйственных организаций составляют люди до пенсионного возраста. Возникает опасная тенденция нарушения принципа преемственности поколений. Потому что на подготовку и формирование высококвалифицированного специалиста уходит не менее 10-15 лет» [1].

Проф. В.А. Духовный в связи с этим отмечал, что «Специалист водного хозяйства должен снова быть поднят на высокий уровень с необходимым универсальным охватом знаний, приличной зарплатой, с особым престижем и уважением к этой жизненно важной профессии, какой она обладала ранее. В древние времена не финансисты были первыми визирями у правителей Востока, а МИРАБЫ!!! Великие Алишер Навои и Ахмад Фаргани тому примеры, хотя они служили в чужих государствах...» [2]. Следует добавить

также, что в советский период, например, в Узбекистане большинство руководителей сельских районов и областей были водниками, а теперь: строители, юристы, экономисты. Цель статьи заключается в том, чтобы на основе анализа пробелов в УВР и СППК персонала ВХО с учетом проблем АПИК сформулировать ключевые меры/деятельности для плана по наращиванию потенциала и требования к стратегии компетенциям специалистов-водников.

Методы исследования

В статье использованы методы 1) анализа пробелов, 2) систематизации и обобщения мер по наращиванию потенциала в СППК.

Проблемы наращивания потенциала

В ЦА работа по наращиванию потенциала проводится постоянно как рамках международных проектов (преимущественно), так и в рамках плана работ по «мягкому» компоненту национальных водных агентств/администратий (НВА). В последнее время ситуация постепенно изменяется в лучшую сторону как в плане финансирования водного сектора, повышения статуса НВА, так и в плане повышения внимания к проблеме наращивания потенциала (блок 3).

Блок 3. Опыт улучшения СПКК

Казахстан. Недавно созданное Министерство водных ресурсов и ирригации РК планирует начать процесс по переподготовке и повышению квалификации работников водной отрасли. Для этого при Министерстве был создан Департамент науки, который будет заниматься вопросами подготовки кадров. Планируется, что переподготовка и повышение квалификации работников водной отрасли будет проходить на базе Казахского научно-исследовательского института водного хозяйства (КазНИИВХ), а также других организаций.

Узбекистан. В целях дальнейшего совершенствования СПКК по непосредственной инициативе главы государства при сотрудничестве АКБ «Агробанк», Министерства сельского хозяйства, Национального исследовательского университета «Ташкентский институт инженеров ирригации и механизации сельского хозяйства» образована «Школа водников».

Проблемы УВР и АПИК требуют усиления и координации работ по наращиванию потенциала⁷⁶ во всех странах ЦА, причем, важно, чтобы эта работа проводилась на единой региональной основе и при поддержке ФАО. Необходимо, в связи с этим, возобновление региональной СПКК на основе распространения передового опыта и создание системы подготовки «будущих

⁷⁶ Наращивание потенциала, согласно предложению Организации Экономического Сотрудничества и Развития (ОЭСР) и другими международными организациями, включает в себя три взаимосвязанных уровня потенциала:

1) индивидуальный уровень (знания, навыки, отношения); 2) организационный уровень (управленческие функции, производственные мощности, людские, финансовые и информационные ресурсы, знания и инфраструктура); 3) благоприятная среда (политическая, правовая и экономическая, основы, бюджет, стимулы и т.д.).

водных лидеров». Формирование единой СПКК в водохозяйственном секторе стран ЦА по аналогии с тем, что было в советский период⁷⁷, требует значительных усилий со стороны различных национальных и региональных организаций, особенно в части создания благоприятной среды: финансовых, правовых и административных условий для преобразований. Определенный опыт в этом плане в ЦА уже есть (блок 4).

Блок 4. НИЦ МКВК и СПКК

НИЦ МКВК совместно с Институтом водного образования ЮНЕСКО (IHE-UNESCO) при активном участии представителей водохозяйственных организаций и образовательных учреждений стран ЦА на основе опыта по наращиванию потенциала в рамках проекта «Наращивание потенциала интегрированного планирования и управления водными ресурсами ЦА» (2009-2012гг) выявлены имеющиеся проблемные вопросы и сформулированы основные направления совершенствования СПКК водохозяйственного сектора стран ЦА на региональном и национальном уровнях.

В частности, было предложено преобразовать региональный тренинговый центр (РТЦ) НИЦ МКВК в орган координации усилий стран региона в этой сфере, который был бы, наряду с национальными тренинговыми центрами (НТЦ) востребован в качестве постоянно действующего института повышения потенциала специалистов в водном секторе ЦА с современной и периодически обновляемой учебно-методической базой и высококвалифицированными тренерами.

Идеи, предложенные проектом «Наращивание потенциала интегрированного планирования и управления водными ресурсами ЦА» не потеряли сейчас свою актуальность: одним из необходимых условий дальнейшего развития кадрового потенциала и успешной реализации кадровой политики в сфере УВР и АПИК на региональном уровне могло бы стать создание постоянно действующего органа по повышению квалификации специалистов водного сектора стран региона. Таким органом мог бы стать РТЦ НИЦ МКВК ЦА.

Проблемы/пробелы наращивания потенциала в странах ЦА заключаются в следующем:

- недостаток внимания и финансовой поддержки со стороны правительств стран ЦА для обеспечения системного и долгосрочного подхода к подготовке, переподготовке и повышению квалификации специалистов водного хозяйства. В результате, превалирует практика периодического или эпизодического обучения (разные курсы) вместо непрерывного образования и обновления знаний;

- низкий уровень координации между национальными, региональными и международными организациями, приводящий к дублированию работ в одних областях и недостатку внимания в других;

⁷⁷ В советский период в водном секторе ЦА функционировал Среднеазиатский филиал (САФ) Всесоюзного института повышения квалификации (ВИПК).

- отсутствие четких нормативов по периодичности проведения курсов и численности специалистов, подлежащих направлению для повышения квалификации, и по созданию учебно-производственной и иной базы повышения квалификации;

- отсутствие действенных стимулов для специалистов водного хозяйства в повышении квалификации. В целом наблюдается несоблюдение принципа преемственности образования и низкая заинтересованность многих слушателей в повышении квалификации вследствие отсутствия взаимосвязи между результатами обучения (полученной квалификацией) и должностным (карьерным) ростом и зарплатой;

- пробелы в подготовке квалифицированных кадров, особенно эксплуатационников и управленцев.

- препятствия на пути обмена информацией: 1) недостаточное количество сетей обмена опытом среди специалистов в прибрежных странах, 2) устаревшая система передачи данных, 3) различные форматы данных и терминологии.

Стратегия наращивания потенциала

Наращивание потенциала должно осуществляться путем разработки и реализации стратегического плана и включает следующие процессы:

- оценка потенциала на всех уровнях (индивидуальном, организационном, внешнем - благоприятная среда);

- выявление 1) потребностей в наращивании потенциала на индивидуальном и организационном уровнях и 2) пробелов в создании благоприятной среды.

- удовлетворение потребностей в наращивании потенциала на индивидуальном и организационном уровнях;

- восполнение пробелов в создании благоприятной среды.

- мониторинг и оценка прогресса в наращивании потенциала (посредством, например, тестов для контроля знаний).

Несмотря на имеющиеся сложности, потребность в повышении квалификации в сфере водного хозяйства достаточно высока во всех странах региона. Это связано с тем, что в годы независимости система получения базового специального (профильного) образования в водном секторе стран ЦА претерпела существенные изменения, что особенно негативно отразилось на СПКК. Так, некогда единая СПКК в водохозяйственном секторе практически перестала функционировать, вследствие изменения законодательства об образовании в странах региона, недостатка финансирования и ряда других причин. Вместе с тем, не подлежит сомнению, что удовлетворение потребности в наращивании потенциала должно быть в числе первоочередных приоритетов для повышения устойчивости УВР и АПИК на национальном и трансграничном уровне.

Формирование СПКК в водном секторе стран ЦА

В настоящее время имеется насущная необходимость в закреплении, наметившейся в ходе реализации совместного проекта с IHE-UNESCO,

тенденции применения единых подходов к формированию СПКК в водном секторе стран ЦА. Наращивание потенциала предполагает осуществление, в частности, следующих видов деятельности.

1. Определение целевой аудитории («кого учить?»):

- оценка потребности в обучении/повышении квалификации (количество);
- оценка потребности в национальных тренерах (количество) для покрытия потребности в обучении;
- конкретизация категорий специалистов водной отрасли (целевых групп):
 - по специфике (функциональной направленности);
 - по уровням обучения (высший уровень – работники министерств и руководители бассейновых организаций, средний уровень – работники бассейновых и системных управлений водного хозяйства; низовой уровень – работники объединений водопользователей и аналогичного типа организации, водопользователи).

2. Определение предмета обучения («чему учить?»).

Следующие направления обучения, разработанные в рамках совместного проекта НИЦ МКБК и IHE-UNESCO, могут быть положены в основу развития деятельности по повышению квалификации:

- 1) Интегрированное управление водными ресурсами (ИУВР) [3];
- 2) Совершенствование орошаемого земледелия;
- 3) Международное водное право и политика;
- 4) Региональное сотрудничество на трансграничных реках.

В настоящее время есть потребность дополнительно включить следующее направление обучения: «Изменение климата и водные ресурсы (адаптация к последствиям изменению климата в водохозяйственном секторе; управление климатическими рисками, борьба с опустыниванием и засухой и др.)».

Характерным для учебного и научно-исследовательского процессов является многолетняя практика обособления предметов, расчленения и выделения отдельных тем и проблем, формирование сугубо специализированных структур и направлений. В итоге это приводит к тому, что большинство специальных вопросов рассматриваются в отрыве друг от друга и, как результат, это приводит к потере взаимосвязей и отрыву профессиональных вопросов от реальной жизни.

СПКК в ЦА должна быть нацелена не только на передачу новых навыков и знаний, но и на формирование у лиц, принимающих решение, системного образа мышления, сочетающего инженерное и гуманитарное мышление. Важно донести до слушателей ключевые идеи, например, такие:

- проблемы УВР и АПИК следует рассматривать во взаимосвязи между ресурсами (водными, земельными, человеческими, энергетическими) и изменением климата: например, субсидируемые цены на воду могут привести к росту спроса на воду, что может привести к уменьшению количества воды в

окружающей среде, что приведет к увеличению концентрации загрязняющих веществ и снижению качества воды;

- вода, являясь ничем не заменимой субстанцией, которая вполне может служить в геополитике как причиной водных войн, так и средством укрепления доверия и условием сохранения мира;

- существует различие между «реальной» экономией воды и «очевидной» экономией [4-6];

- политика и право/законодательство важны в том плане, что устанавливают “правила игры”, а институциональные роли/меры определяют "игроков" и что они должны делать, в то время как инструменты управления – «компетентность и профессионализм игроков” определяют/характеризуют качество/уровень игры;

- ориентация на опыт передовых в технологическом отношении стран (Израиль, Австралия), выживающих в условиях водного дефицита, вселяет уверенность в то, что при надлежащем руководстве и управлении водными ресурсами, строгом следовании водному праву, человечеству воды хватит.

Требования к компетенциям специалистов-водников могут быть следующие:

- требования к навыкам, умениям, способности действовать включают умение принимать управленческие решения в сфере УВР, умение применять знания в ситуациях, связанных с использованием и охраной водных ресурсов, изменением климата;

- требования к личным компетенциям включают умение ясно выражать свои мысли и объяснять суть проблем УВР, умение определить личные ценности в сфере УВР и разъяснить свои ценностные установки другим;

- требования к умению работать в команде включает в себе умение действовать на локальном уровне, принимая во внимание глобальный контекст проблемы УВР, умение вести переговоры и добиваться консенсуса и умение распределять обязанности в группе.

3. Определение контингента преподавателей (тренеров) на региональном и национальном уровне («кто учит?»):

- региональные тренеры обучают национальных тренеров из стран ЦА.

- национальные тренеры обучают местных специалистов.

4. Выбор места обучения («где учить?»):

- обучение национальных тренеров проводится в региональном тренинговом центре (РТЦ);

- обучение местных специалистов/слушателей проводится в национальных.

Заключение

1. Устойчивое развитие экономик стран ЦА зависит от качества УВР и надлежащей АПИК на национальном и трансграничном уровне, что непосредственно связано с состоянием СПКК в водной отрасли. В последнее время ситуация с наращиванием потенциала постепенно изменяется в лучшую сторону как в плане финансирования, повышения статуса

национальных водных агентств, так и в плане повышения внимания к этой проблеме.

2. Проблемы УВР и АПИК требуют дальнейшего существенного усиления и координации работ по наращиванию потенциала во всех странах ЦА, причем, важно, чтобы формирование единой СПКК в водном секторе стран ЦА проводилось на единой региональной основе.

3. Эффективность мер по наращиванию потенциала зависит от, во-первых, темпов повышения уровня финансирования водной отрасли и, во-вторых, от внедрения действенных моральных и материальных стимулов для того, чтобы 1) специалисты водного хозяйства были существенно заинтересованы в повышении квалификации (путем увязки результатов обучения (полученной квалификации) с должностным (карьерным) ростом и зарплатой); 2) региональные и национальные тренеры были существенно заинтересованы в повышении качества обучения как в теоретическом, так и в практическом плане.

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ПАТРИОТИЗМ КАК ЦЕННОСТНАЯ ОСНОВА ФОРМИРОВАНИЯ ЛИЧНОСТИ В СИСТЕМЕ ОБРАЗОВАНИЯ

Аннотация: В статье дана информация о понятии «Патриотическое воспитание» – о воспитании гражданина и патриота, обладающего высокой социальной активностью, гражданской ответственностью, духовностью, и обладает положительными ценностями и качествами, способен проявлять их во благо Родины.

Ключевые слова: Духовность, гражданственность, патриотизм, Родина, любовь, патриотизм, ответственность, образование, воспитание.

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PATRIOTISM AS A VALUE BASIS FOR PERSONALITY DEVELOPMENT IN THE EDUCATION SYSTEM

Abstract: The article provides information about the concept of "Patriotic education" - about the education of a citizen and patriot who has high social activity, civic responsibility, spirituality, and has positive values and qualities, is able to show them for the good of the Motherland.

Keywords: Spirituality, , patriotism, responsibility, education.

«Нет человека без чувства собственного достоинства и любви к своей Родине, и эта любовь дает образованию верный ключ к сердцу человека и мощную опору для борьбы с дурными природными, личными, семейными и наследственными наклонностями».

В условиях многонациональности нашего государства вопросы воспитания у подрастающего поколения как чувства уважения к другим народам, так и любви к своей Родине приобретают все большую актуальность в системе образования.

Патриотизм (от греч. πατριώτης — соотечественник, πατρίς — родина) — морально - политический принцип, общественное чувство, содержанием которого является любовь к своей Родине и готовность подчинять свои личные интересы интересам страны.

Патриотизм подразумевает гордость за достижения и культуру своей страны, стремление сохранить ее характер и культурные особенности,

идентификацию с другими членами нации, готовность защищать интересы своей Родины и народа.

Патриотизм — любовь к Родине, преданность своему Отечеству, стремление служить его интересам и готовность пожертвовать даже собой ради его защиты. На личностном уровне патриотизм выступает как важнейшая и устойчивая характеристика личности, находящая отражение в ее мировоззрении, нравственных идеалах и нормах поведения.

Патриотизм выражается в поступках и деятельности человека. Он берет начало из любви к родному краю и, пройдя несколько стадий на пути зрелости, поднимается до уровня национально-патриотического самосознания и осознанной любви к своей стране. Понятие «Патриотическое воспитание» — воспитание гражданина и патриота, проявляющего высокую социальную активность, гражданскую ответственность, духовность, обладающего положительными ценностями и качествами и способного проявлять их в интересах Родины.

В современных условиях патриотическое воспитание представляет собой целенаправленный, нравственно обусловленный процесс подготовки подрастающего поколения к функционированию и взаимодействию в демократическом обществе, к активной трудовой деятельности, участию в управлении общественно значимой деятельностью, реализации прав и обязанностей, а также укреплению ответственности за политический, моральный и правовой выбор, максимальному развитию своих способностей для достижения успешной жизненной цели.

Быть патриотом — значит ощущать себя неотъемлемой частью Родины. Это сложное чувство возникает в раннем детстве, когда закладываются основы ценностного отношения к окружающему миру, и постепенно развивается у ребенка через воспитание любви к близким, к своему детскому саду, к родным местам, к своей Родине.

В сегодняшнее время общественной нестабильности назрела необходимость возвращения к лучшим традициям нашего народа, к вековым корням, к таким вечным понятиям, как род, семья, Родина. Одной из главных задач современного образования, важнейшим приоритетом общества и государства является воспитание нравственного, ответственного, инициативного и грамотного гражданина.

Патриотическое воспитание младших школьников определяется как целенаправленная деятельность, направленная на формирование у детей ценностных ориентаций, качеств и норм поведения как граждан и патриотов. Важно воспитывать у детей чувство доброты, любви, верности, долга, искренности, скромности, отзывчивости, гуманности, доброжелательности.

Обязательным условием формирования эмоционально богатой и интеллектуально развитой личности, способной к само рефлексии и критическому осмыслению мира, является приобщение к гуманистическим культурным ценностям и развитию творческих способностей. Одной из наиболее значимых проблем духовно-нравственного развития в современных

социокультурных условиях является формирование ценностных ориентаций. Целенаправленная и систематическая работа по гражданско-патриотическому воспитанию дает устойчивые положительные результаты: дети приобретают знания о родном крае, проявляют интерес к культуре, традициям и обычаям своего народа, идентифицируют себя как граждан своей Родины. Они стремятся к самообразованию и самореализации. У детей формируется активное отношение к Родине, проявляющееся в умении заботиться о близких, совершать добрые дела для других, бережно относиться к достижениям человеческого труда и природы, ответственно выполнять поставленные задачи. Возникновение социальных мотивов в их деятельности становится основой формирования нравственных качеств личности.

Технология патриотического воспитания должна быть направлена на создание условий для национального возрождения страны. Неотъемлемой частью патриотического воспитания является военно-патриотическое воспитание, направленное на подготовку личности к военной службе как особой форме государственной службы. На современном этапе развития нашего общества достижение цели патриотического воспитания осуществляется путем решения следующих задач:

- формирование в сознании и чувствах граждан общественно значимых патриотических ценностей, взглядов и убеждений, воспитание уважения к культурно-историческому прошлому страны, ее традициям, повышение престижа государственной службы, особенно военной;
- создание и обеспечение реализации возможностей для более активного участия граждан в решении социально-экономических, культурных, правовых, экологических и иных вопросов;
- воспитание граждан в духе уважения к конституции, закону, нормам общественной и коллективной жизни, создание условий, обеспечивающих реализацию конституционных прав и обязанностей граждан, а также гражданского, профессионального и воинского долга;
- воспитание у граждан чувства гордости, глубокого уважения и почтения к таким символам, как Герб, Флаг, Гимн и другие государственные символы;
- создание условий для усиления патриотической направленности телевидения, радио и других средств массовой информации в освещении событий и явлений общественной жизни, активное противодействие антипатриотизму, манипулированию информацией, пропаганде массовой культуры, основанной на культе насилия, искажении и фальсификации истории Родины, формирование расовой, национальной и религиозной толерантности, укрепление дружественных отношений между народами

Реализация задач патриотического воспитания достигается через постановку более конкретных целей, учитывающих особенности субъектов и объектов воспитания, условия, в которых оно осуществляется, а также конкретные подходы к решению этих задач в экономической, социальной, правовой, политической и духовной сферах.

Таким образом, целью патриотического воспитания является развитие высокой социальной активности, гражданской ответственности, духовности, формирование граждан, обладающих позитивными ценностями и качествами, которые они могут проявить в созидательном процессе на благо Родины, укрепления государства, обеспечения его жизненно важных интересов и устойчивого развития.

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ИННОВАЦИОННЫЙ МАРКЕТИНГ В ТЕХНОЛОГИЧЕСКОМ ПРЕДПРИНИМАТЕЛЬСТВЕ

***Аннотация:** В статье рассмотрены основы маркетинга инноваций. Изучена концептуальная модель маркетинга инноваций. Представлены свойства инновационного продукта. Проанализирована роль маркетинга инноваций в сфере технологического предпринимательства.*

***Ключевые слова:** маркетинг, инновации, предпринимательство, инновационный продукт, услуга.*

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INNOVATIVE MARKETING IN TECHNOLOGY ENTREPRENEURSHIP

***Abstract:** The article discusses the fundamentals of innovation marketing. It examines the conceptual model of innovation marketing. The properties of an innovative product are presented. The role of innovation marketing in the field of technological entrepreneurship is analyzed.*

Keywords: *marketing, innovation, entrepreneurship, innovative product, service.*

Маркетинг инноваций представляет собой разновидность маркетинга, целью которой является оценка и внедрение результатов инновационной деятельности компании, а также контроль успешности инновационного продукта. Таким образом, по сути один из основных инструментов системы управления предприятием, позволяющий внедрить инновационный продукт, технологию или услугу на рынок. Маркетинг трансформирует идею или изобретение в успешный инновационный продукт. Концептуальная модель маркетинга инноваций представлена на рисунке 1 [1].

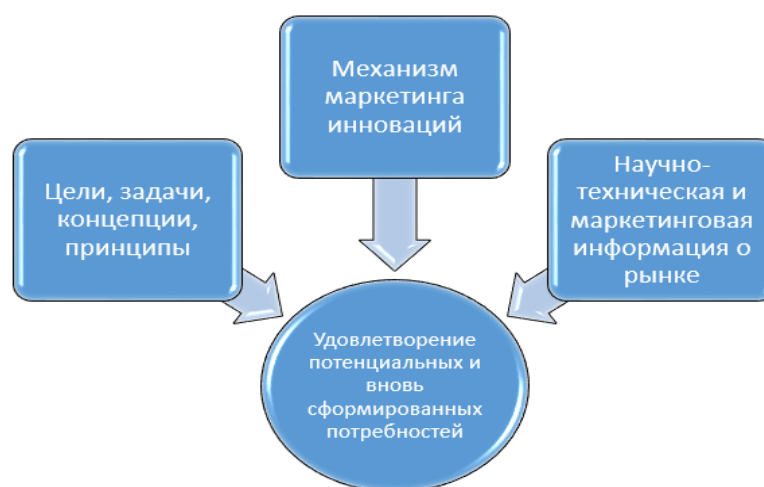


Рисунок 1 – Концептуальная модель маркетинга инноваций

Современные концепции управления маркетингом инноваций позволяют обеспечить взаимодействие между источниками спроса на инновационную продукцию и иными субъектами рынка инноваций, с учетом стратегических задач компании-разработчика [2].

Маркетинг инноваций целесообразно представить, как процесс, целью которого является удовлетворение потенциальных и вновь сформированных потребностей. Наглядно, это представлено на рисунке 2.

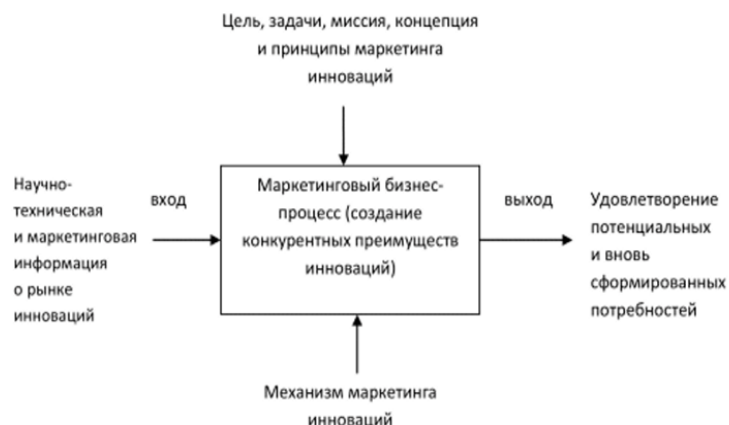


Рисунок 2 – Маркетинг инноваций как процесс

Одной из глобальных задач маркетинга является определение потребностей целевой аудитории и формирование плана по их удовлетворению. В последнее время, для того, чтобы максимально удовлетворить потребности современного покупателя, необходимо предложить ему принципиально новый продукт. Новые продукты, технологии, услуги - это всегда результаты инновационной деятельности, которая определяет место компании в конкурентной среде. Инновации могут затрагивают как сам продукт, придавая ему новые свойства, так и технологию его изготовления [3].

К инновационным продуктам относят товары или услуги, предлагаемые на рынке для удовлетворения потребности в инновациях, способствующие развитию научно-технического прогресса, а также экономии затрат труда при сохранении потребительской ценности продуктов. Комплекс свойств, отличающих инновационный продукт от традиционного, представлен на рисунке 3 [4].



Рисунок 3 – Свойства инновационного продукта

Схема маркетинга инноваций в сфере технологического предпринимательства приведена на рисунке 4 [5].



Рисунок 4 – Схема маркетинга инноваций в сфере технологического предпринимательства

На сегодняшний день маркетинг – это комплекс инновационных технологий по созданию и продвижению высококачественных товаров для формирования целевых сегментов сбыта. Инновации позволяют компании получить конкурентное преимущество, поэтому все больше предприятий выбирают стратегию, направленную на создание инновационных продуктов, освоение новых рынков, выбор новых способов продвижения товаров.

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ГЕОГРАФИЧЕСКИЕ ОСОБЕННОСТИ РЕЛЬЕФА КАШКАДАРЬИНСКОЙ ОБЛАСТИ

Аннотация: В статье анализируются географические особенности орографического строения Кашкадарьинской области. Приводятся сведения о геоморфологических районах бассейна Кашкадарьи: горном, предгорно-низменном и равнинном. Особое внимание уделено формированию рельефа Кашкадарьинской области в результате длительных сложных геолого-тектонических процессов, основным типам рельефа и их генетическому происхождению.

Ключевые слова: Геологические эры и периоды, горообразовательный процесс, аллювиальные отложения, пролювиальные отложения, аллювиальный, конический вынос, предгорная впадина, хребет, терраса, пролювиальный, вынос, делювиально-пролювиальные отложения, межгорная впадина, ступенчатый песчаный массив, неотектонические движения, денудация, литологический

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GEOGRAPHICAL FEATURES OF THE OROGRAPHY OF THE KASHKADARYA REGION

Abstract: The article analyzes the geographical features of the orographic structure of the Kashkadarya region. Information is provided about the geomorphological regions of the Kashkadarya basin: mountainous, foothill and lowland, and the plain region. More attention is paid to the fact that the relief of the Kashkadarya region was formed as a result of long-term complex geological and tectonic processes, the main types of relief, and their genetic origin.

Keywords: Geological eras and periods, mountain formation process, alluvial deposits, proluvial deposits, alluvial, conical spread, foothill depression, ridge, terrace, proluvial, spread, deluvial-proluvial deposits, intermountain depression, stepped sand massif, neotectonic movements, denudation, lithological

Большая часть Кашкадарьинской области расположена в пределах Кашкадарьинской тектонической впадины, окруженной горами Зеравшанского и Гиссарского хребтов, образующих восточные отроги Алой-Гиссарской (Южный Тянь-Шань) горной системы. Кашкадарьинская тектоническая впадина имеет на западе открытую полукруглую форму и примыкает к пустыням Кызылкум.

В геоморфологическом отношении Кашкадарьинская впадина, по мнению О.Я. Пославской (1959), разделена на три основных геоморфологических района:

- 1) горный район;
- 2) предгорно-низменный район;
- 3) равнинный район.

Горная система включает средневысокие и высокие горы, относящиеся к Зарафшанскому и Гиссарскому хребтам, расположенным между Зарафшанской, Кашкадарьинской и Сурхан-Шерабадской долинами. Особенности геологического строения этих хребтов и расслоение новейших (нео)тектонических движений обусловили разнообразие их рельефа. Для них характерны различные типы структурных, денудационных и аккумулятивных форм горного рельефа.

Несмотря на разнообразие рельефа Зеравшанского и Гиссарского хребтов, в их развитии можно выделить определённые закономерности. В этих хребтах наблюдается сложная взаимосвязь орографических форм с их структурно-литологическими характеристиками: крупным тектоническим зонам соответствуют орографические элементы, проявляющиеся в рельефе в виде горных хребтов и вогнутых расширений речных долин. С неотектоническими движениями связано также формирование в этих горных районах купольных террас, глубоких и серокаменистых русел рек, искажение продольных профилей террас и денудационных поверхностей.

Зеравшанский хребет – скалистый, сильно расчленённый хребет с крутыми склонами и множеством острых вершин – разделяет впадины рек Кашкадарьи и Зарафшана в пределах Узбекистана. Кашкадарьинская котловина ограничена горами Чакилкалон и Коратепа, которые сходятся на перевале Тахтикарача высотой 1630 м. Горы Чакилкалон и Коратепа – умеренно расчленённые горы с рельефом, сформированным на палеозойских отложениях, глубина расчленения в них достигает 600 м. Этот показатель является средним, и, по данным М. Абдужаббарова (1986), глубина вертикального расчленения составляет на западе гор Коратепа 300 м, в восточной части – 600–700 м, в горах Чакилкалон – 700–1100 м.

Южные склоны гор Чакилкалон в пределах Кашкадарьинской впадины крутые и сложены известняками, аргиллитами, сланцами и прослоями магматических пород верхнего палеозоя. Самая высокая из гор Чакилкалон, со средней высотой 1800–2000 м, – гора Зебон (2836 м).

Участок Зеравшанского хребта от перевала Тахтикарача до Джамского коридора, соединяющего долины Зеравшана и Кашкадарьи на западе, образован горами Коратепа со средней высотой 1000–2000 м. Самая высокая точка этих гор – гора Камкутан (2196 м). Склоны гор Коратепа расчленены и круты, а верхняя часть имеет платообразный волнистый равнинный рельеф. Для этих плоских поверхностей характерно широкое распространение эоловых форм рельефа.

Горы Каратепа также сложены интрузивными породами и известняками палеозоя. Карстовые формы рельефа, включая пещеры, довольно широко развиты в известняках девонского периода. Пещера Темир, общей протяженностью более 400 м, является самой длинной и крупной среди них.

Горы Зиёвуддин-Зирабулак образуют самую западную часть Зеравшанского хребта от Джамской впадины. Самая высокая гора в этих горах – Зиндонтог (1116 м). Горы Зиёвуддин-Зирабулак относятся к категории низкогорий, и вертикальная глубина разлома в горах Зиёвуддин составляет 100–200 м, а в горах Зирабулак – 150–300 м (Абдуджабборов, 1986).

На крайнем северо-востоке Кашкадарьинского бассейна горная система Зарафшана соединяется с горами Гиссарского хребта через горы Сумсар-Шертаг и Тагиматмон. Гиссарский хребет в системе Памиро-Алая образует его самый западный хребет. Гиссарский хребет и его отроги образуют водораздел между бассейнами рек Зарафшан, Кашкадарья и правыми притоками Амударьи (Кофирнихан, Шерабад, Сурхандарья).

Гиссарский хребет — самый высокий горный хребет Узбекистана, большинство его вершин превышают 4000 м. Высота пика Ходжа Парирах, расположенного на нём, составляет 4654 м, что делает его самой высокой горой нашей страны (в Сурхандарьинской области). Гора Гова (4145 м), расположенная в Кашкадарьинском районе Гиссарского хребта, является самой высокой горой нашего региона и пятой по высоте вершиной Гиссарского хребта.

Гиссарский хребет состоит из хребтов Сумсар-Шертог (2500–2800 м), Хазратисултан (4000 м), Яккабог (Осмонтарош, Бешнов, Эшакмайдон, Хонтахти, Тойталаш, Курек, Майдонок), Гузар и Бойсун, расположенных в пределах бассейна Кашкадарьи. Средняя глубина вертикального распада Гиссарского хребта достигает 600 м в горах его западной части и 1200 м в горах восточной части.

Хазратисултанские горы – самая северная и высокая отрог Гиссарского хребта, образующая водораздел рек Аксув и Топалангдарья. Склоны этих гор крутые и скалистые, а самые высокие участки покрыты снегом и ледниками. Горы Осмонталаш, Бешнов, Эшакмайдон, Хонтахти, Тойталаш, Курек и Майдонок (3500–3700 м), отделенные друг от друга глубокими речными ущельями и долинами, образуют общее название Яккабогских гор. Породы, слагающие эти горы, относятся к докембрию, нижнему и верхнему палеозою. Верхняя часть их выровнена в результате денудационных процессов и имеет платообразную поверхность. На этой платообразной поверхности возвышаются остроконечные горные обрывы высотой 2800–3000 м (Арратош, Москара, Чакмонкуйди и др.).

Между верховьями Яккабогдарьи и Большой Урадарьи возвышаются горы Чакчар (гора Ходжа Ахчабурун, 3700 м). Горы Чакчар сложены преимущественно мезозойскими известняками. Реки размывали известняковые пласты, образовав узкие ущелья. В котловине Калайшерона расположена одна из самых длинных пещер Узбекистана – знаменитая пещера Амира Темура

(общая длина 815 м). Между Большой Урадарьей и Лянгаром расположены горы Лянгар-Караэл, которые фрагментарно расположены, имеют плоский рельеф в верхней части и сложены палеогеновыми меловыми известняками.

Часть юго-западной ветви Гиссарского хребта образуют горы Бобосурхан-Карасырт, которые ограничены долиной Большой Урадарьи на севере и долиной Малой Урадарьи на юге. В геологическом строении гор Бобосурхан-Карасырт участвуют породы мезозоя, палеогена, неогена и четвертичного возраста. Породы мезозоя представлены песчаниками, известняками, гипсом, соленосными, алевролитистыми глинами и конгломератами юрского и мелового возраста (Екшибаров, 1959). Эти породы служат высококачественным строительным материалом. Породы палеогена и неогена представлены известняками, доломитами, гипсом, песчано-глинистыми конгломератами, гравелитами и лёссами.

Средневысотный район гор Бобосурхан-Карасырт образован горами высотой 1500-2600 м. Они расположены к востоку от перевала Сотвабулок. В этом районе волнистые плоские овраги, седловидные, крутосклонные скалистые ущелья, карстовые воронки и пещеры образуют разнообразные формы рельефа. Низкогорный район гор Бобосурхан-Карасырт включает часть, расположенную к западу от перевала Сотвабулок, высотой 900-1500 м. Восточнее гор Яккабог и прилегающие к ним простираются высокие горы Байсун (4424 м), северо-восточная часть которых называется Коштанг (3273 м), центральная часть - Кетмончопди (3168 м), а южная часть - массив Сувсизтог. Юго-западную часть Байсунских гор образуют горы Кохитан со средней высотой 2100 м и максимальной 3137 м. Эти невысокие и сильно расчленённые горы образуют водораздел между реками Сурхандарья и Кашкадарья.

На юго-западе долины Малой Урадарьи расположен средневысотный Акбаштог. Его максимальная высота достигает 2172 м. Горный хребет Адамташ (1279 м) к западу от города Дехканабад – самый высокий из невысоких гор (Модин, Карабаланд, Элликбаш, Тепакутон, Кесик, Малик, Сакиртма, Аккултог и др.), начинающихся к востоку от гор Кохитан и постепенно спускающихся к Каршинской пустыне.

О. Я. Пославская (1959) в горной области различает области (районы) с: а) ледниковыми формами рельефа и б) неледниковыми формами рельефа. В области с ледниковыми формами рельефа почти сплошь распространены палеозойские породы (известняки, мраморы, кристаллические сланцы, граниты, кварцитодиориты). Долины главных рек имеют корытообразную форму, а долины впадающих в них второстепенных рек — V-образную. Высокие части гор с вершинами имеют острые края, которые глубоко и сильно расчленены цирками. Широкое использование речных русел характерно для высокогорных районов. С. И. Клунников (1937), верхняя часть бассейна Кашкадарьи в прошлом относилась к бассейну Мадьяндарьи, а западная часть бассейна Мадьяндарьи имела юго-западное течение.

В высокогорьях и среднегорьях заметно большое количество долин, простирающихся поперек складки. Особенно ярко эта ситуация выражена на юго-востоке горного района, образуя долины рек Гузордарья, Лангардарья, Кызылсув и Танхоздарья. Образование долин, поперечных складке, О. Я. Пославская (1959) объясняет предшествованием рек, а в некоторых случаях и эпигенетическим расположением. Например, по данным П. П. Чуенко, Яккабогдарья имеет эпигенетическую по своему происхождению долину. Продольная отличается более широкой и вогнутой формой (верховья Кашкадарьи, продольная долина среднего течения Большой Урадарьи и др.). Долины этого района имеют множество (до 6) высоких, очень узких и плохо сохранившихся террас. По мере приближения к равнинам террасы становятся ниже, но шире.

В горном районе развиты также карстовые процессы (провалы, карстовые пещеры). Особенно ярко они выражены на северо-западе гор Чакилкалон. Однако в горах Коратепа и в горах Гиссарского хребта они несколько менее распространены. Карстовые процессы связаны с девонскими и каменноугольными известняками. Карстовые процессы наблюдаются также и в юрских известняках. В нижних частях гор, где отсутствуют ледниковые образования, широко распространены мезозойские и кайнозойские породы, коренные породы образуют обрывы, а выходы пород (осилы) встречаются повсеместно.

В некоторых частях горной области физические свойства горных пород являются основным фактором формирования рельефа. Породы, устойчивые к выветриванию и эрозии, образуют выпуклые элементы рельефа; долины образуются в местах выхода на поверхность пород, подверженных выветриванию и эрозии. В засушливых климатических условиях известняки разного геологического возраста также образуют устойчивые породы. В северо-восточной и восточной частях впадины распространены довольно мощные, устойчивые к выветриванию и эрозии известняки силура и девона. Из форм рельефа, которые О.Я. Пославская назвала структурными, выделяются антиклинали и склоны, бронированные устойчивым слоем.

В горной области, наряду с поверхностями, защищёнными отпорными слоями, изредка встречаются выровненные поверхности, залегающие между слоями различных пород. Выровненные поверхности утрачены в результате новейшего эрозионного разрушения. Абсолютная высота выровненных поверхностей колеблется от 1500–2000 м до 2500–3000 м, они характеризуются волнистым рельефом. Формирование этих поверхностей произошло в донеогеновый период (конец верхнего мела) (Пославская, 1959).

Среди рельефообразующих процессов Кашкадарьинского бассейна важное место занимают процессы физического выветривания. Следы интенсивного проявления этих процессов наблюдаются повсеместно.

В горных районах выветривание весьма эффективно и образует огромные обломочные сланцы, потоки крупных щебнистых масс, крупные трещины в скальных породах и т. д. В наиболее высоких частях гор (выше

3000 м) важное значение в формировании рельефа имеет холодное выветривание, происходящее за счет замерзания воды в трещинах.

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ПЕРСОНАЛИЗИРОВАННОЕ ОБУЧЕНИЕ С ИИ: КАК АДАПТИРОВАТЬ ОБРАЗОВАНИЕ ПОД КАЖДОГО СТУДЕНТА

Аннотация: Статья посвящена исследованию потенциала искусственного интеллекта (ИИ) в создании персонализированного обучения, адаптированного под индивидуальные потребности каждого студента. Рассматриваются ключевые механизмы ИИ, такие как адаптивные платформы, анализ данных и рекомендательные системы, которые позволяют выстраивать уникальные образовательные траектории. Приводятся примеры существующих ИИ-решений в образовании, анализируются их преимущества, включая повышение мотивации и доступности, а также вызовы — конфиденциальность данных, цифровое неравенство и этические дилеммы.

Ключевые слова: персонализированное обучение, искусственный интеллект, адаптивные образовательные платформы, цифровые технологии, инклюзивное образование, конфиденциальность данных, образовательные траектории.

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PERSONALIZED LEARNING WITH AI: HOW TO TAILOR EDUCATION TO EACH STUDENT

Abstract: This article explores the potential of artificial intelligence (AI) in enabling personalized learning tailored to the individual needs of each student. It examines key AI mechanisms, such as adaptive platforms, data analysis, and recommender systems, which facilitate the creation of customized educational pathways. The study highlights examples of existing AI solutions in education, analyzing their benefits, including enhanced motivation and accessibility, as well as challenges, such as data privacy, digital inequality, and ethical dilemmas.

Keywords: *personalized learning, artificial intelligence, adaptive educational platforms, digital technologies, inclusive education, data privacy, educational pathways.*

Введение

Образование — это краеугольный камень прогресса человечества, мост, соединяющий поколения, и катализатор открытий, которые меняют мир. Однако традиционная система обучения, сформированная в эпоху индустриальной революции, все чаще сталкивается с вызовами современности. В классах, где один учитель пытается удовлетворить потребности десятков учеников с разными способностями, интересами и темпом обучения, индивидуальный подход нередко остается недостижимой мечтой. Одни студенты теряют мотивацию, скучая от слишком простых задач, другие отстают, не успевая за общим ритмом, а третьи так и не находят ответ на вопрос: «Зачем мне это учить?». В то же время мир стремительно меняется: технологии проникают во все сферы жизни, а профессии будущего требуют не только знаний, но и гибкости, креативности и умения учиться всю жизнь [1].

ИИ в образовании использует алгоритмы машинного обучения, обработку больших данных и адаптивные технологии для создания индивидуальных образовательных траекторий. Вот ключевые механизмы, которые делают это возможным:

1. Анализ данных и профилирование

ИИ собирает информацию о студенте: результаты тестов, предпочтения в обучении (визуальный, аудиальный или кинестетический стиль), скорость выполнения заданий, области интереса и даже эмоциональное состояние (например, через анализ поведения на платформе) [3]. На основе этих данных создается цифровой профиль, который постоянно обновляется.

2. Адаптивные учебные платформы

Платформы, такие как Khan Academy, DreamBox или Smart Sparrow, используют ИИ для подбора заданий, соответствующих уровню знаний студента. Если ученик быстро справляется с задачей, система предлагает более сложные вопросы; если возникают трудности, ИИ предоставляет подсказки или упрощенные материалы.

3. Рекомендательные системы

Подобно тому, как Netflix рекомендует фильмы, ИИ в образовании предлагает учебные материалы — статьи, видео, интерактивные задания, — которые соответствуют интересам и потребностям студента. Это помогает поддерживать мотивацию и делает обучение более увлекательным.

4. Автоматизированная обратная связь

ИИ способен мгновенно анализировать ответы студента и давать подробные комментарии, указывая на ошибки и предлагая пути их исправления. Это особенно важно для предметов, требующих практики, таких как математика или программирование.

Реальные примеры и достижения

Персонализированное обучение с ИИ — это не фантазия, а реальность, которая уже внедряется по всему миру. Рассмотрим несколько примеров:

• Duolingo

Популярное приложение для изучения языков использует ИИ, чтобы адаптировать уроки под уровень знаний пользователя. Алгоритмы анализируют, какие слова или грамматические конструкции вызывают трудности, и предлагают дополнительные упражнения для их закрепления.

• Century Tech

Британская платформа Century Tech создает индивидуальные учебные планы для школьников, анализируя их прогресс в реальном времени. Учителя получают отчеты о сильных и слабых сторонах каждого ученика, что позволяет эффективно распределять внимание в классе.

Преимущества персонализированного обучения с ИИ

1. Индивидуальный подход

ИИ позволяет каждому студенту учиться в своем темпе, что особенно важно для детей с особыми образовательными потребностями или тех, кто значительно опережает сверстников.

2. Повышение мотивации

Когда учебный материал соответствует интересам и уровню студента, он с большей вероятностью будет вовлечен в процесс. Игровые элементы и интерактивные задания, поддерживаемые ИИ, усиливают этот эффект.

3. Доступность образования

ИИ-платформы могут работать в удаленных регионах, где нет квалифицированных учителей, предоставляя доступ к качественным учебным материалам [6].

Вызовы и риски

Несмотря на очевидные преимущества, внедрение ИИ в персонализированное обучение сопряжено с рядом проблем:

1. Конфиденциальность данных

ИИ-системы собирают огромные объемы информации о студентах — от результатов тестов до предпочтений и поведения. Утечка данных или их использование в коммерческих целях может подорвать доверие к технологиям.

2. Цифровой разрыв

Не все школы и семьи имеют доступ к высокоскоростному интернету и современным устройствам. Без решения этой проблемы ИИ-образование рискует усилить неравенство.

3. Риск алгоритмической предвзятости

Если ИИ обучается на необъективных данных, он может предлагать стереотипные рекомендации — например, направлять девочек к гуманитарным наукам, а мальчиков к техническим дисциплинам [7].

Заключение

Персонализированное обучение с использованием искусственного интеллекта — это не просто очередной этап в эволюции образования, а фундаментальный сдвиг в том, как мы понимаем процесс обучения и развития личности [9]. ИИ открывает двери в мир, где образование перестает быть стандартизированным продуктом, одинаковым для всех, и становится уникальным путешествием, созданным с учетом индивидуальных особенностей каждого студента.

Использованные источники

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ПРИМЕНЕНИЕ ИНТЕЛЛЕКТУАЛЬНЫХ ДАТЧИКОВ В ПРОИЗВОДСТВЕ

Аннотация: в данной статье рассматриваются различные интеллектуальные датчики, используемые в производстве. Рассматриваются примеры использования датчиков для контроля параметров, а также описываются интеллектуальные датчики фирмы SICK. Также рассматривается возможность применения датчиков для повышения эффективности работы контрольно-измерительных и оптимизации их работы.

Ключевые слова: датчик, точность, эффективность, применение, система, интеллектуал, микропроцессор, технология, измерения, алгоритм.

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APPLICATION OF INTELLIGENT SENSORS IN PRODUCTION

Abstract: this article discusses various intelligent sensors used in manufacturing. Examples of using sensors to monitor parameters are considered, as well as SICK smart sensors. The possibility of using sensors to increase the efficiency of control and measuring systems and optimize their operation is also being considered.

Keywords: sensor, accuracy, efficiency, application, system, intelligent, microprocessor, technology, measurements, algorithm.

Интеллектуальные датчики — это высокотехнологичные устройства, которые отличаются от традиционных датчиков своей способностью к самостоятельной обработке и интерпретации данных. Интеллектуальная сенсорная техника - это ключ для постоянного роста эффективности почти во всех отраслях промышленности.

Интеллектуальные датчики представляют собой новое поколение измерительных устройств, которые способны не только фиксировать различные параметры, но и обрабатывать полученную информацию, адаптироваться к изменяющимся условиям и взаимодействовать с другими системами, представляют собой перспективное направление в области измерительной техники, которое обеспечивает высокую эффективность и точность работы в различных сферах применения.

Преимущества интеллектуальных датчиков – это высокая точность измерений т.е. благодаря встроенной обработке данных и возможности калибровки, надежность т.е. меньше вероятность ошибок из-за уменьшения внешних факторов, влияющих на измерения, экономия времени т.е. быстрая обработка и передача данных уменьшает время реакции системы на изменения параметров, гибкость т.е. способность адаптироваться к различным условиям эксплуатации и интегрироваться с разнообразными системами, долгий срок службы т.е. за счет высокой стабильности и надежности компонентов.

Современные датчики, являющиеся важнейшими частями микропроцессорных систем управления технологическими объектами и производством в целом, из однофункциональных средств определения текущих значений измеряемых величин постепенно превращаются в многофункциональные средства автоматизации, которые решают еще целый ряд задач по диагностике, преобразованию измерительной информации, выполнению простых алгоритмов управления и т.д. Такая многофункциональность стала возможна после оснащения датчиков встроенным микропроцессором. Быстрое развитие микропроцессорной техники, рост мощности микропроцессоров при одновременном их резком удешевлении делают экономически выгодным включение их в датчики любых типов.

Современные интеллектуальные датчики, которые выполняют, кроме процесса измерения, преобразования измеряемых сигналов в типовые аналоговые и цифровые значения, самодиагностику своей работы, дистанционную настройку диапазона измерения, первичную обработку измерительной информации, иногда еще ряд достаточно простых, типовых алгоритмов контроля и управления. Они имеют интерфейсы к стандартным/типовым цифровым сетям, что делает их совместимыми с практически любыми современными средствами автоматизации, и позволяет информационно общаться с этими средствами и получать питание от блоков питания этих средств.

Измерения, проводившиеся с использованием ручных инструментов и заключающиеся, как правило, в сравнении фактических размеров с шаблонными, в настоящее время практически полностью упразднены контактными средствами измерений (такими как координатно-измерительные машины). Теоретически контактные методы в состоянии обеспечить высокую точность в самых различных приложениях. Вместе с тем такие измерения

славятся крайне низкой производительностью, поскольку требуют физического перемещения детали из одного замерного пункта в другой. Результирующий набор данных получается крайне ограниченным, многие критические параметры остаются неопределенными. Кроме того, координатно-измерительные машины для крупногабаритных объектов и сами отличаются немалыми размерами. К тому же такие машины необходимо устанавливать в специально оборудованных помещениях, где обеспечена стабильность температуры и защита от вибраций.

Являясь мировым лидером в области промышленных датчиков, фирма SICK поставила для себя задачу претворения в жизнь идеи „Интеллектуальная сенсорная техника“. Эта идея является программой будущего, с помощью которой можно оптимизировать автоматизированные процессы производства

Более быстрые технологические процессы и более высокая эксплуатационная готовность оборудования увеличивают производительность машин и производства. Существенный вклад в это вносят инновационные технологии от SICK, предлагая множество преимуществ для автоматизации производства.

Промышленные датчики, системы промышленной безопасности, системы автоматической идентификации - SICK предлагает инновационные сенсорные технологии как поставщик полного спектра датчиков и систем для производства.

ПРОМЫШЛЕННЫЕ ДАТЧИКИ



Индуктивные датчики

Ёмкостные датчики

Магнитные датчики

Магнитные датчики для пневмоцилиндров

Фотоэлектрические датчики

ДАТЧИКИ С РАСШИРЕННЫМИ ВОЗМОЖНОСТЯМИ



Датчики контраста, цвета, люминесцентные датчики, щелевые датчики

Датчики расстояния, системы передачи данных, позиционеры

Световые датчики

Ультразвуковые датчики

Системы машинного зрения

ЭНКОДЕРЫ



Вращательные энкодеры

Линейные энкодеры

Помимо промышленности, интеллектуальные датчики широко используются в здравоохранении, “умных” домах, в сельском хозяйстве и “умных” городах, что свидетельствует об их универсальности. Интеллектуальные датчики объединяют в себе функции зондирования, обработки и связи, обеспечивая данные в режиме реального времени для таких отраслей, как производство, здравоохранение и мониторинг окружающей среды, повышая точность и оперативность реагирования.

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МНОГОГРАННАЯ РОЛЬ ВОСПИТАТЕЛЬНИЦЫ В СИСТЕМЕ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ

***Аннотация:** Воспитательница в детском саду играет ключевую роль в развитии и социализации детей. Она обеспечивает эмоциональный комфорт, организует обучающую и игровую деятельность, способствует формированию навыков общения, самостоятельности и дисциплины, закладывая основы успешного будущего ребёнка.*

***Ключевые слова:** воспитательница, детский сад, развитие ребёнка, социализация, обучение, игра, воспитание, педагог, дошкольное образование, забота.*

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THE MULTIFACETED ROLE OF A KINDERGARTEN TEACHER IN THE PRESCHOOL EDUCATION SYSTEM

***Abstract:** A kindergarten teacher plays a key role in the development and socialization of children. She ensures emotional comfort, organizes educational and play activities, and contributes to the formation of communication skills, independence, and discipline, laying the foundation for a child's successful future.*

***Keywords:** kindergarten teacher, preschool, child development, socialization, learning, play, upbringing, pedagogue, preschool education, care.*

Воспитательница в детском саду — это не просто специалист, присматривающий за детьми в течение дня. Это педагог, который закладывает фундамент будущего развития личности, помогает детям адаптироваться к социуму и формирует у них первичные представления об окружающем мире. В период дошкольного возраста ребёнок особенно восприимчив к обучению и эмоциональному взаимодействию, поэтому именно в это время важно создать благоприятную среду для формирования базовых навыков — общения, самообслуживания, познания и творчества.

Роль воспитательницы многогранна и требует не только профессиональных знаний, но и высокой личной ответственности, терпения, эмпатии и умения находить подход к каждому ребёнку. Она является для детей примером поведения, источником заботы и понимания, а также первым авторитетным взрослым вне семьи. Именно через ежедневное взаимодействие

с воспитателем дети учатся дружить, соблюдать правила, выражать свои чувства и уважать других.

Кроме того, воспитательница играет важную роль в сотрудничестве с родителями, помогая выстроить единый подход к воспитанию ребёнка. Она наблюдает за развитием детей, своевременно замечает возможные трудности и помогает их преодолевать, взаимодействуя с другими специалистами — психологами, логопедами и дефектологами, если это необходимо.

В результате изучения темы «Роль воспитательницы в детском саду» были выявлены основные направления её деятельности и определено значение этой профессии в системе дошкольного образования. Прежде всего, установлено, что воспитательница выполняет не только педагогическую, но и воспитательную, организационную, коммуникативную и эмоционально-поддерживающую функции. Она оказывает большое влияние на формирование личности ребёнка, развитие его речи, мышления, навыков общения и поведения в коллективе.

Наблюдение за работой воспитателей показало, что успешная социализация детей напрямую зависит от профессионализма педагога, его личностных качеств, а также способности создавать тёплую, дружелюбную атмосферу в группе. Воспитательница становится для ребёнка первым авторитетом за пределами семьи, формирует у него представление о правилах поведения, учит сотрудничеству, уважению к другим и самостоятельности. Особое внимание было уделено взаимодействию воспитательницы с родителями. Анализ анкет и бесед с семьями показал, что тесное сотрудничество между воспитателем и родителями помогает выстраивать единый подход к воспитанию, решать возникающие трудности и достигать лучших результатов в развитии ребёнка. Также было выявлено, что эффективная деятельность воспитательницы требует постоянного профессионального роста, изучения современных методик и применения индивидуального подхода к каждому ребёнку.

Воспитатели, активно использующие инновационные педагогические технологии, добиваются более высоких результатов в обучении и развитии детей. Анализ научной и методической литературы по теме позволил определить, что роль воспитательницы в детском саду рассматривается как многогранная и ключевая в системе дошкольного образования. В работах Л.С. Выготского подчёркивается значение взрослого в развитии высших психических функций ребёнка, где воспитатель выступает как активный участник социализации. А.В. Запорожец и Д.Б. Эльконин подчёркивали значение игры как ведущей деятельности в дошкольном возрасте, в которой воспитатель выступает организатором и партнёром.

Современные авторы, такие как Н.Е. Веракса, Т.И. Бабаева и О.А. Ушакова, рассматривают воспитателя как носителя педагогической культуры, способного создавать развивающую среду, применять современные методы и технологии, а также учитывать индивидуальные особенности детей. Особое

внимание в литературе уделяется личностным качествам педагога — терпению, эмпатии, ответственности и способности к саморефлексии.

Методологическую основу исследования составили следующие подходы: системный, деятельностный и личностно-ориентированный. Системный подход позволил рассматривать деятельность воспитателя как целостную структуру, включающую педагогические, коммуникативные и организаторские функции. Деятельностный подход был важен для анализа практической работы воспитателя с детьми, а личностно-ориентированный — для оценки взаимодействия с каждым ребёнком с учётом его индивидуальных особенностей.

В рамках исследования были использованы следующие методы: анализ литературы, наблюдение за педагогической деятельностью воспитателей, анкетирование родителей и педагогов, а также беседы с детьми старшего дошкольного возраста. Эти методы позволили получить объективные данные о роли воспитательницы в формировании психологического климата в группе, развитии детей и взаимодействии с родителями. Литературный и методологический анализ подтвердил актуальность темы и позволил определить научную и практическую базу для дальнейшего изучения роли воспитательницы в детском саду.

На основе наблюдений и анализа можно сделать вывод, что успешная работа воспитательницы напрямую зависит от её личностных и профессиональных качеств. Такие качества, как доброжелательность, терпение, ответственность, способность к эмпатии и умение выстраивать доверительные отношения с детьми, являются важнейшими условиями формирования благоприятной атмосферы в группе. Особое внимание следует уделить индивидуальному подходу к каждому ребёнку. Дети в дошкольном возрасте отличаются по уровню развития, характеру и темпераменту. Воспитательница, умеющая учитывать эти особенности, способствует более гармоничному развитию личности ребёнка и формированию его позитивной самооценки. Не менее важным аспектом является взаимодействие воспитательницы с родителями. Эффективное сотрудничество между семьёй и детским садом позволяет создать единое образовательное пространство, в котором ребёнок чувствует себя уверенно и комфортно. Обратная связь, открытость и участие родителей в жизни группы положительно сказываются на общем развитии ребёнка.

Кроме того, в условиях современного общества возрастает необходимость в постоянном профессиональном развитии воспитателей. Использование инновационных педагогических технологий, участие в методических объединениях, повышение квалификации — всё это способствует повышению качества образовательного процесса.

Проведённое исследование показало, что воспитательница является центральной фигурой в процессе дошкольного образования. От её профессионализма, личностных качеств и умения взаимодействовать с детьми

и родителями зависит успешность воспитания, обучения и социализации ребёнка.

Современная воспитательница — это не только педагог, но и наставник, психолог, организатор и партнёр в развитии детской личности. Её роль невозможно переоценить, так как именно она помогает ребёнку адаптироваться к коллективу, развивает коммуникативные и познавательные навыки, формирует нравственные и социальные установки.

Таким образом, можно сделать вывод, что воспитательница в детском саду выполняет важнейшую миссию — она закладывает основы будущего успешного развития каждого ребёнка. Роль воспитательницы в детском саду является ключевой в системе дошкольного образования. От её профессионализма, доброжелательности и педагогического мастерства во многом зависит успешное развитие и благополучие каждого ребёнка.

Роль воспитательницы в детском саду выходит далеко за рамки простого наблюдения и ухода за детьми. Она становится важной фигурой в жизни ребёнка, закладывая основу для его успешного развития, социализации и подготовки к школьному обучению.

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ГИСТОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ПЕЧЕНИ И ЩИТОВИДНОЙ ЖЕЛЕЗЫ ПРИ ФИБРОЗЕ, ЦИРРОЗЕ И ТИРЕОИДНЫХ НАРУШЕНИЯХ С УЧЁТОМ ВЛИЯНИЯ НА ИММУННУЮ СИСТЕМУ

***Аннотация:** В статье проведён гистологический анализ печени и щитовидной железы при норме и патологии. Используются стандартные и иммуногистохимические методы, выявлены морфологические изменения, влияющие на функции органов и иммунную систему. Результаты подчёркивают важность гистологии для диагностики и терапии хронических заболеваний.*

***Ключевые слова:** Гистология, печень, щитовидная железа, фиброз, тиреоидные нарушения*

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HISTOLOGICAL FEATURES OF THE LIVER AND THYROID GLAND IN FIBROSIS, CIRRHOSIS, AND THYROID DISORDERS WITH CONSIDERATION OF THEIR IMPACT ON THE IMMUNE SYSTEM

***Annotation:** The article presents a histological analysis of the liver and thyroid gland in normal and pathological conditions. Standard and immunohistochemical methods were used to identify morphological changes*

affecting organ function and the immune system. The results highlight the importance of histology for the diagnosis and treatment of chronic diseases.

Key words: *Histology, liver, thyroid gland, fibrosis, thyroid disorders*

Актуальность. Гистологический анализ печени и щитовидной железы важен для оценки нормальной и патологической структуры при фиброзе, циррозе и тиреоидных нарушениях с функциональными и системными осложнениями. Ранняя диагностика микроскопических изменений улучшает терапию. Из-за высокой распространённости заболеваний и влияния на иммунитет, особенно у детей и женщин, морфологические исследования остаются актуальными.

Цель исследования. Изучить морфологию и гистологию печени и щитовидной железы в норме и при патологиях (фиброз, цирроз, тиреоидные нарушения) с учётом влияния на иммунную систему и функции организма для улучшения диагностики и терапии.

Методы исследования. В исследовании применяли гистологический анализ биоптатов печени и щитовидной железы с использованием стандартных красителей. Проводился морфометрический анализ гепатоцитов, синусоидов, пространства Диссе, фолликулов и клеточного состава с акцентом на фиброз, капилляризацию и дезорганизацию тканей. Результаты сопоставлялись с данными по морфогенезу иммунной системы при гепатитах и тиреоидных нарушениях.

Результаты исследования.

В ходе гистологического анализа выявлены характерные изменения печени и щитовидной железы при патологии. В печени при фиброзе и циррозе отмечены избыточное отложение коллагена, капилляризация синусоидов, нарушение структуры долек, формирование регенераторных узлов и ослабление связей с лимфоидной тканью. В щитовидной железе обнаружены изменения формы и размера фолликулов, признаки гиперплазии или атрофии тироцитов, а также морфологические отклонения, связанные с тиреоидной дисфункцией у потомства. Сопоставление с литературными данными подтверждает наличие универсальных механизмов тканевой перестройки при хронических заболеваниях.

Вывод.

Гистологический анализ позволяет выявлять специфические морфологические особенности печени и щитовидной железы, связанные с патологическими состояниями. Установлена связь между морфологическими изменениями и функциональными нарушениями. Влияние патологий печени и щитовидной железы на иммунную систему особенно выражено в постнатальном и пренатальном периодах, что подтверждается исследованиями отечественных и зарубежных авторов.

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**СОВРЕМЕННЫЕ АСПЕКТЫ КОМПЛЕКСНОЙ ПОДГОТОВКИ
ПРОФЕССИОНАЛЬНЫХ ВРАТАРЕЙ В ФУТБОЛЕ**

Аннотация: В статье рассматриваются современные подходы к подготовке профессиональных вратарей в футболе. Анализируется эволюция роли вратаря в игре, которая требует от спортсмена не только высокого уровня развития специфических физических качеств, но и исключительных психофизиологических и когнитивных способностей. Доказывается, что эффективная подготовка вратаря должна быть многокомпонентной, индивидуально ориентированной и построенной на основе данных современной спортивной науки. Статья предназначена для тренеров по вратарям, специалистов в области спортивной подготовки, а также исследователей в области теории и методики футбола.

Ключевые слова: футбол, вратарь, подготовка вратарей, техническая подготовка, тактическая подготовка, физическая подготовка, психологическая подготовка, спортивная наука, тренировочный процесс, анализ игровой деятельности.

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**MODERN ASPECTS OF COMPREHENSIVE TRAINING OF
PROFESSIONAL GOALKEEPERS IN FOOTBALL**

Abstract: The article examines modern approaches to the training of professional goalkeepers in football. It analyzes the evolution of the goalkeeper's role in the game, which requires from the athlete not only a high level of development of specific physical qualities, but also exceptional psychophysiological and cognitive abilities. It is proved that effective goalkeeper training should be multi-component, individually oriented and based on data from modern sports science. The article is intended for goalkeeper coaches, specialists in the field of sports training, as well as researchers in the field of football theory and methodology.

Key words: football, goalkeeper, goalkeeper training, technical training, tactical training, physical training, psychological training, sports science, training process, analysis of game activity.

Роль вратаря в современном футболе претерпела значительные изменения. Если ранее основной функцией «стража ворот» была исключительно надежная игра на линии ворот, то сегодня от вратаря требуются активные действия в качестве последнего защитника, инициация атакующих комбинаций точным первым пасом и эффективный контроль штрафной площади [1]. Эта трансформация диктует необходимость разработки и внедрения инновационных, научно обоснованных методик подготовки, выходящих далеко за рамки традиционных упражнений на реакцию и ловкость.

1. Многокомпонентная модель подготовки вратаря Подготовка вратаря высшего класса представляет собой сложный, круглогодичный процесс, включающий четыре взаимосвязанных компонента: технический, тактический, физический и психологический.

1.1. Техническая подготовка Технический арсенал современного вратаря включает:

- Техника игры руками: ловля, отбивание, перевод мяча на угловой (в т.ч. в падении).
- Техника игры ногами: удары с рук и от земли, игра в пас с партнерами (короткие и средние передачи, обводка прессингующего соперника), игра по скидкам.
- Техника перемещений: стартовая скорость, работа ног (footwork), выбор позиции.
- Техника отражения пенальти и выходов один на один.

Тренировочный процесс должен быть организован таким образом, чтобы моделировать игровые ситуации с максимальным уровнем неопределенности и дефицитом времени.

1.2. Тактическая подготовка Тактическая грамотность является критически важным качеством. Она включает:

- Позиционный play: умение правильно выбрать позицию относительно ворот, мяча и соперника, сокращая угол обстрела.
- Организация обороны: командование линией защиты, подсказки партнерам.
- Инициация атаки: принятие решения о методе введения мяча в игру (длинная передача на нападающего, короткий пас защитнику, игра от ворот).
- Чтение игры: способность предугадывать развитие атаки соперника, действия нападающих.

Для развития тактического мышления активно применяется видеоанализ как собственных действий, так и игр соперников.

1.3. Физическая подготовка Специфика деятельности вратаря требует развития особого набора физических качеств [2]:

- Взрывная сила и мощь: для быстрых перемещений, прыжков и бросков.
- Скоростно-силовые качества: особенно важны для ног при игре на выходах и рук при мощных бросках.

- Реакция и ловкость: способность мгновенно реагировать на изменяющуюся ситуацию и выполнять сложнокоординационные движения.
- Гибкость и подвижность в суставах: для выполнения saves на предельной растяжке.
- Координационные способности.

Тренировки должны быть направлены на развитие именно этих качеств, с акцентом на короткую, интенсивную работу с длительными паузами для отдыха, что соответствует игровому ритму вратаря.

1.4. Психологическая подготовка Психическая устойчивость—ключевой фактор успеха. Работа ведется по следующим направлениям:

- Концентрация и внимание: способность сохранять фокус в течение всего матча, несмотря на редкие моменты вмешательства в игру.
- Устойчивость к стрессу и ошибкам: вратарь не имеет права на ошибку, а каждая допущенная ошибка часто ведет к голу. Важно научиться быстро «перезагружаться».
- Лидерство и коммуникация: уверенность в себе для командования защитой.
- Мотивация и уверенность.

2. Интеграция современных технологий Современная подготовка немыслима без использования технологий:

- Системы видеоанализа (например, Hudl Sportscode, Nacsport): для разбора технико-тактических действий.
- Тренажеры с реактивными мячами и световыми сигналами (Lightsout Training, BlazePod): для развития реакции и периферического зрения.
- VR-тренажеры (Virtual Reality): позволяют имитировать сотни игровых ситуаций (выходы один на один, пробитие пенальти) в контролируемых условиях.
- GPS-трекеры и датчики нагрузки: для мониторинга физического состояния и управления тренировочной нагрузкой.

Закключение Подготовка профессионального вратаря в современном футболе представляет собой комплексный, многогранный процесс. Устаревшие модели, сфокусированные только на отработке сэйвов, не соответствуют требованиям современной игры. Успешная подготовка требует интеграции технической, тактической, физической и психологической составляющих в единую систему, основанную на данных спортивной науки и индивидуализированную под конкретного спортсмена.

Использование современных технологий (видеоанализ, датчики, VR-тренажеры) позволяет значительно повысить эффективность тренировочного процесса, моделируя игровые ситуации и предоставляя объективные данные для анализа. Дальнейшие исследования должны быть направлены на разработку точных метрик для оценки эффективности вратарей и создание алгоритмов для персонифицированного планирования нагрузки с учетом всех компонентов подготовки.

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КЛАССИФИКАЦИЯ ПРОТИВОРАКОВЫХ ПРЕПАРАТОВ НА ОСНОВЕ ИХ ХИМИЧЕСКОГО СОСТАВА И ИХ ВЗАИМОДЕЙСТВИЕ С МЕТАЛЛОКОМПЛЕКСАМИ

Аннотация: Проблема злокачественных новообразований, несмотря на значительные успехи, достигнутые в области изучения опухолевого процесса, разработки методов профилактики, диагностики и лечения, и до настоящего времени является одной из важнейших в современной медицине. Среди причин смертности злокачественные опухоли и опухолевые заболевания кроветворной и лимфоидной тканей, по данным мировой статистики, занимают второе место в высокоразвитых странах. Хотя имеются существенные успехи в диагностике и лечении опухолей, количество онкологических больных довольно велико.

В данной статье рассматривается классификация противораковых препаратов по их химическому составу.

Ключевые слова: противораковые препараты, металлокомплексы, металлосодержащих средств, опухоль, карбоплатин, оксалиплатин.

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CLASSIFICATION OF ANTICANCER DRUGS BASED ON THEIR CHEMICAL COMPOSITION AND THEIR INTERACTION WITH METAL COMPLEXES

Abstract. Notwithstanding considerable progress in the study of tumour processes and the development of methods for the prevention, diagnosis and treatment of malignancies, malignant neoplasms remain a significant challenge in contemporary medicine. According to global statistics, malignant tumours and tumour diseases of the haematopoietic and lymphoid tissues are the second leading cause of death in highly developed countries. Despite considerable progress in the diagnosis and treatment of tumours, the number of cancer patients remains significant.

This article discusses the classification of anticancer drugs according to their chemical composition.

Keywords: anticancer drugs, metal complexes, metal-containing agents, tumor, carboplatin, oxaliplatin.

В настоящее время научные исследования, связанные с комплексным использованием противораковых препаратов и металлов и их производных приобретают все большее значение. Эффективность этой связи уже экспериментально доказано и все еще проводятся успешные опыты в России, США, Японии и во многих странах Европы.

Эффективность этого метода связано с тем, что некоторые металлы обладают радиоактивными свойствами и свойством останавливать клеточный рост. Как вы знаете рак – это заболевание, обладающее непрерывным прогрессирующим ростом клеток органа, подвергнутого данному заболеванию. В этой системе лечения применяются медикаменты, содержащие противоопухолевые препараты вместе металлокомплексами, биологические препараты активизирующие иммунитет и бактериальные препараты, восстанавливающие здоровую кишечную флору.

Данное исследование будет способствовать рациональному использованию противораковых препаратов, повышению показателя выздоровления, снижению побочных действий, правильному взаимодействию лекарственных средств и целенаправленному лечению, а также новых методов синтеза противораковых препаратов.

В настоящее время научные исследования, связанные с комплексным использованием противораковых препаратов и металлов и их производных приобретают все большее значение. Эффективность этой связи уже экспериментально доказано и все еще проводятся успешные опыты в России, США, Японии и во многих странах Европы.

Применение металлосодержащих средств для противораковой терапии открывает уникальные возможности для борьбы с теми видами опухолей, которые не поддавались лечению известными препаратами.

Наиболее часто используемые металлы для синтеза противоопухолевых препаратов: платина, кобальт, никель, медь.

Механизм противоопухолевого действия производных платины (карбоплатин, оксалиплатин) связан со способностью к бифункциональному алкилированию нитей ДНК, ведущему к длительному подавлению биосинтеза нуклеиновых кислот и гибели клеток.

Производные платины не обладают специфичностью в отношении клеточного цикла, действуют в фазе G₀, на первом этапе тормозят синтез ДНК, РНК и белка, а на втором образуются метаболитические продукты, действующие только на синтез ДНК.

Появление платиновых производных в конце 70-х годов прошлого века значительно изменило представление о возможностях химиотерапии злокачественных новообразований.

При применении хлорэтиламинов, платиновых производных часто наблюдается тошнота, рвота, потеря аппетита, диарея. Для купирования данных эффектов используют антагонисты серотониновых 5-HT₃-рецепторов и блокаторы дофаминовых D₂-рецепторов. При попадании на кожу и

слизистые оболочки возможно раздражающее действие и развитие абсцессов, при введении растворов под кожу возможна некротизация тканей.

Одной из характерных особенностей противоопухолевых препаратов является их иммунодепрессивное действие, которое может ослабить защитные силы организма и облегчить развитие инфекционных осложнений. Для предупреждения возможных инфекций, обусловленных подавлением иммунитета, возможно использование антибиотиков.

Наибольшее значение в терапии опухолей желудочно-кишечного тракта имеет производное цисплатина – оксалиплатин (элоксантин), в котором платина образует комплекс с оксалатом и 1,2-диаминоциклогексаном. Важность препарата обусловлена достаточно высокой его эффективностью при колоректальном раке. Несмотря на значительные различия в спектре активности цисплатина и оксалиплатина, существенных различий в механизмах действия этих препаратов не выявлено. Подобно цисплатину оксалиплатин в организме подвергается биотрансформации с образованием положительно заряженного иона, который алкилирует ДНК, вызывая образование меж- и внутрицепочных сшивок и подавление синтеза ДНК. Довольно значительные различия между этими препаратами заключаются в разной кинетике связывания с ДНК. Цисплатин имеет двухфазную кинетику с быстрой начальной фазой, анимрующей 15 минут и медленной конечной фазой, длящейся от 4 до 8 часов. Связывание оксалиплатина завершается полностью в течение первых 15 минут. Цисплатин и оксалиплатин связываются с одними и теми же участками молекулы ДНК.

При раке матки, молочной железы, мочевого пузыря и лимфомах содержание меди в крови повышается, лечение рака уменьшает содержание меди до нормальной величины. Фармакотерапия опухолевой патологии, наряду с лучевой терапией и хирургией, является наиболее важной составляющей борьбы с онкологическими заболеваниями. За последние годы она обогатилась многочисленными новыми препаратами, повысившими ее эффективность и безопасность.

Все противоопухолевые препараты разделяют на ряд групп, исходя из их химической структуры: синтетические, полусинтетические и растительного и животного происхождения, радиоактивные нуклеиды, которые в свою очередь тоже состоят из нескольких групп.

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ЭЛЕКТРОМАГНИТ НУРЛАНИШ ВА УЛАРНИНГ ОДАМ ОРГАНИЗМИГА ТАЪСИРИ

Аннотация. *Ҳозирги пайтда ҳар бир уйда компьютер ва шунингдек телевизор ҳам бор. Ўқувчилар уйга вазифаларини янги информацион технологияларни қўллаб бажараяптилар. Жуда кўп инсонлар интернетнинг глобал тармоғи орқали муомалада бўладилар. Ўргатиш дастурлари, ўйинлар яратилади. Болалар ва катталар ўзларининг сеvimли ўйинларини компьютер олдида соатлаб ўтириб ўйнашади ёки телевизор олдида сеvimли сериалларини кўришади. Биз бу цивилизация мевасининг ортида ҳар кунги мурожаатдан кейин қанчалик хавфлар ётишини унутиб қўямиз. Телевизор ва монитор пайдо бўлишидан бошлаб олимлар унинг таъсиридан қандай ҳимояланиш ҳақида ўйлайдилар. Монитор учун ҳимоя экранлари давлат стандартлари яратилди. У ёки бу телевизорларни сотиб олишга чақирадиган реклама роликлари бизни уларнинг хавфсизлиги тўғрисида ишонтиришади.*

Калим сўзлар: *электромагнит нурланиш, частоталар, тўлқин узунлиги, инфрақизил ва ультра кўк нурланишлар, спектр, оптика, диапазон, радиотўлқин, тебранишлар, линзалар, дифракция, импульс, синапс.*

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ELECTROMAGNETIC RADIATION AND ITS EFFECTS ON THE HUMAN BODY

Abstract: *Nowadays, every home has a computer as well as a television. Students complete their homework using new information technologies. Many people communicate through the global Internet network. Educational programs and games are being developed. Children and adults spend hours playing their favorite games in front of the computer or watching their favorite TV series. We often forget that behind this fruit of civilization lie potential dangers associated with daily use. Since the appearance of televisions and monitors, scientists have been concerned about how to protect people from their effects. Protective screens for monitors have been developed in accordance with state standards. Commercial advertisements encouraging us to purchase certain televisions assure us of their safety.*

Keywords: *electromagnetic radiation, frequencies, wavelength, infrared and ultraviolet radiation, spectrum, optics, range, radio waves, vibrations, lenses, diffraction, impulse, synapse.*

Электромагнит нурланиш турлари.

Электромагнит нурланиш частоталар бўйича диапазонларга бўлиш қабул қилинган. Диапазонлар орасида сезиларли ўтиш ораликлари йўқ, баъзан улар бир бирларини ёпиб кетади, шунинг учун улар орасидаги чегаралар шартли ҳисобланади. Нурланишни тарқалиш тезлиги қанчалик доимий бўлмасин, ўша частотанинг тебраниши вакуумдаги тўлқин узунлиги билан қаттиқ боғланган.

Радиотўлқинлар - электромагнит нурланишлар тўлқин узунлиги 5×10^{-5} - 10^{10} метргача ва частотаси 6×10^{12} Гц дан бир неча Гц гача. Радиотўлқинлар радиотармоқларида маълумотларни узатиш учун қўлланилади. Радиотўлқинлар ўзгарувчан токнинг маълум бир частотаси ўтказгичлар бўйича ўтиши натижасида пайдо бўлади. Ва аксинча бўшлиқда ўтаётган электромагнит тўлқин ўтказгичдаги маълум ўзгарувчан токни қўзғатади. Бу хусусият радиотехникада антенналарни яратишда ишлатилади. Диапазонларнинг табиий тўлқин манбаи мамақалдироклар ҳисобланади.[1]

Спектрнинг оптик жойлашуви кўринувчи, инфрақизил ва ультра кўк нурланишлардан иборат. Бундай жойлашувнинг ажратилиши фақатгина спектр қисмининг яқинлиги билан эмас, балки уларни текшириш учун қўлланиладиган ускуналарнинг ва кўринувчи ёруғликни ўрганиш учун ишлаб чиқилган тарихий ускуналарнинг ўхшашлигидандир. (Нурланишни қайтариш учун ойна ва линзалар, нурланишнинг спектрал таркибини текшириш учун интерференцион ускуналар, призмалар, дифракцион панжаралар ва ҳақозо).

Спектрнинг оптик жойлашув тўлқини частоталари атом ва молекулалар хусусий частоталари билан тенг бўлиб, уларнинг узунлиги молекуляр ўлчамлар ва молекулалараро масофалар билан белгиланади. Модданинг атомистик тузилиши шартига кўра аниқ кўринишлар шу жойлашувда туради. Шу сабабли тўлқинлар билан бирга ёруғликнинг таркиби ҳосил бўлади.

Оптик нурланишнинг энг таниқли манбаси қуёш ҳисобланади. Унинг юзаси (фотосфера) 6000 ҳароратгача қиздирилади ва тиниқ оқ рангда (қуёш нурланишининг юқори узлуксиз спектри “яшил” ҳудудда 550 нмда кўз сезгирлигининг энг юқори нуктасида жойлашади) ёруғлик беради. Айнан шунинг учун биз шундай юлдуз олдида туғилганмиз. Электромагнит нурланиш спектрининг бу ҳудуди бизнинг органларимиз орқали бевосита қабул қилинади. Оптик нурланишлар диапазони, хусусан тана қизиганда (инфрақизил нурлар иссиқлик нурлари ҳам деб аталади) атомлар ва молекулалар ҳаракатининг исишидан келиб чиқади. Тана қанча кучли қизиса, унинг нурланиш спектри юқорига кўтарилади ва частотаси юқори бўлади.[1]

Оптик нурланишлар кимёвий ва биологик реакцияларда ҳосил бўлиши ва қайд қилиниши мумкин. Машҳур кимёвий реакциялардан бири оптик нурланишларни қабул қилишидан ҳосил бўладиган реакция бўлиб, фотографияда қўлланилади. Ердаги кўпчилик тирик жонзотлар учун энергия манбаи бўлиб фотосинтез ҳисобланади, яъни қуёшнинг оптик нурланитириши натижасида ўсимликларда кечадиган биологик реакциядир.

Инфрақизил нурлар – электромагнит нурланишларнинг спектрал соҳада эгаллаган кўринувчи нурнинг қизил учи (тўлқин узунлиги $\lambda = 0,74$ мкм) ва микротўлқинли нурланиш ($\lambda \sim 1—2$ мм) орасида жойлашган.[2]

Инфрақизил нурлар 1800 йилда инглиз олими У. Гершел томонидан очилган. Ҳозирда барча инфрақизил нурланишлар диапазони таркиби учга бўлинади: · қисқа тўлқинли соҳа: $\lambda=0,74 - 2,5$ мкм; · ўрта тўлқинли соҳа: $\lambda=2,5 - 50$ мкм; · узун тўлқинли соҳа: $\lambda=50 - 2000$ мкм; Охирги вақтларда бу диапазоннинг узун тўлқинли қирраси алоҳида электромагнит диапазонга боғлиқ бўлмаган терагерцли (субмиллиметрли нурланиш) нурланишга ажратилади.

Инфрақизил нурлар “иссиқлик” нурланиши ҳам деб аталади, яъни бутун тана, қаттиқ ва суюқ жисмларни маълум ҳароратгача иситилиши, инфрақизил нурланишлар энергияси ҳисобидан пайдо бўлади. Бунда танани нурланитрувчи тўлқин узунлиги иситиш ҳароратига боғлиқ бўлиб: ҳарорат қанча юқори бўлса, тўлқин узунлиги қисқа бўлади ва нурлантириш жадаллиги юқори бўлади. Нурлантириш спектри абсолют қора танада нисбий юқори (бир неча минг Кельвингача) бўлмаган ҳароратда айнан шу диапазонда ётади.

Ультра кўк нурланишлар – электромагнит нурланишларнинг кўринадиган нурланишлар ва рентген нурланишлар орасида жойлашади. (380 — 10 нм, $7,9 \times 10^{14} — 3 \times 10^{16}$ Гц). Бу диапазон шартли равишда яқин (380—200 нм) ва узоқ ёки вакуумли (200—10 нм) ультракўк нурларга бўлинади. Охиргиси атмосфера орқали жадал ютилади ва фақат вакуумли ускуналар билан текширилади. Ерда ультра кўк нурланишларнинг асосий манбаи қуёш ҳисобланади. Ультракўк нурларнинг узоқ вақт таъсири меланомаларнинг, турли хил турдаги тери ўсмаларини риволанишига мойиллик туғдиради. Ионланган нурланиш – умумий фикр қилганда моддаларнинг турли хил микроқисм ва физик майдонларини моддаларда ионлашиш хусусиятидир. Рентген нурлари – электромагнит тўлқинлар бўлиб, энергия фотонлари энергетик шкаланинг ультракўк нурлар ва гамма нурлар орасида бўлиб тўлқин узунлиги 10-14дан 10⁻⁸ м га тўғри келади. Рентген нурлари зарядланган қисмларнинг кучли тезлашиши ёки молекула ва атомларнинг электрон қобикларда юқори энергетик ўтиши натижасида келиб чиқади. Иккала самара ҳам рентген найларида қўлланилиб катод орқали чиқарилган электронлар катод ва анод орасидаги (бу пайтда рентген нурлари чиқарилмайди, яъни тезлашиш жуда ҳам кам бўлади) электрик потенциаллар ҳар хиллиги таъсирида тезлашади ва у ерда бирдан секинлашадиган анодга урилади(бу пайтда рентген нурлари чиқарилади, яъни секинлашиш нурланиши) ва шу пайтда аноднинг атом ички электрон қобикларидан электронлар чиқади.[2]

Рентген нурлари ионланган ҳисобланади. Улар тирик организмлар тўқималарига таъсир этиб, нурланиш касаллиги ва ёмон сифатли ўсма касаллигини чақириш сабаблари бўлиши мумкин.кўрсатилган сабаблар туфайли рентген нурлари билан ишлаганда ҳимоя чораларинг риоя қилиш

зарурати туғилади. Рентген нурлари моддалар орқали тўғридан тўғри ўтади. Ҳар хил моддалар рентген нурларини турлича ютади ва ўтказди.

Гамма нурланиш, гамма нурлар (γ -нурлар) – электромагнит нурланишлар тури бўлиб, тўлқин узунлиги ҳаддан зиёд кичкина бўлиб ($< 5 \times 10^{-3}$ нм), бунинг натижасида корпускуляр таркибнинг ёрқин кўриниши бўлади. Гамма нурланиш квантлари энергияси 105-109 эВ диапазонида ётади. Электромагнит тўлқин шкаласида улар рентген нурланишлари билан чегараланади ва анча юқори частотали диапазонни эгаллайди. Гамма нурлар ядро элементларининг қўзғалган ҳолати орасида ўтишда гамма нурлар чиқариб юборилади. Ядро реакцияларида ядро атомларининг радиоактивликка айланишида ҳосил бўлади: гамма нурлар альфа ва бета нурлардан фарқи электрик ва магнит майдонларида оғмайди ва юқори ўтказувчанлик мойиллиги билан характерланади. Гамма нурланиш γ -дефектоскопияда, буюмларни γ -нурлар билан ёритиб назоратга олишда ва бошқаларда ишлатилади.[2]

Электромагнит нурланишларнинг одам организмига биологик таъсири.

Маҳаллий ва хориж текширувчиларининг маълумотларига кўра, электромагнит майдоннинг (ЭММ) барча частота диапазонлари юқори биологик фаолликдан дарак беради. Электромагнит майдоннинг нисбатан юқори бўлган нурлантирувчи таъсирининг замонавий назарияси иссиқликни таъсир этиш механизми деб тан олинган. Электромагнит майдоннинг нисбатан паст бўлган таъсири (масалан 300 МГц радиочастотадан юқори бўлган, бу 1 мВт/см² дан паст) организмга иссиқ бўлмаган ёки информацион характерга эга деб қабул қилинган.[2]

Электромагнит майдоннинг таъсир механизмлари бу ҳолатда кам ўрганилган. Электромагнит майдоннинг биологик таъсири соҳасида кўпчилик текширишларда одам организмига анча сезгир тизим деб, яъни асаб, иммун, эндокрин ва жинсий тизимлар қаралади. Бу тизимлар организмда ҳавфли ҳисобланади. Бу тизимларнинг реакцияси аҳолига электромагнит майдонларнинг салбий таъсирини баҳолашда албатта ҳисобга олиниши керак.

Электромагнит майдонларнинг биологик самараси кўп йиллар давомида узоқ таъсир этиши натижасида алоҳида асоратларга, марказий асаб тизимининг дегенератив жараёнлари, қон раки (ўсмаси), гормонал касалликларни ривожланишига олиб келиши мумкин. Электромагнит майдонлар болалар, ҳомиладорлар (эмбрион), марказий асаб тизими касалликлари, гормонал, юрак қон томир касалликлари, аллергияси бор ва иммунитет кучсиз бўлган инсонлар учун ўта ҳавфли бўлиши мумкин.

Асаб тизимига таъсири.

Кўп сонли текширувларни умумлаштирганда электромагнит майдоннинг одам организми тизимларидан анча сезгири асаб тизими деган асоси беради. Асаб ҳужайралари асаб импульсларини (синапс) узатиш бўйича структурали ҳосила бўлиб, жадаллиги кичик бўлган электромагнит майдонларнинг чегараланган асаб структураларига бевосита таъсири келиб

чиқади. Электромагнит майдони билан алоқада бўлган одамларда олий асаб фаолияти, хотира ўзгаради. Бу инсонлар стресс реакциялар ривожланишига мойил бўладилар. Бош миянинг баъзи ҳосилалари электромагнит майдон таъсирига юқори сезувчан бўлади. Гематозэнцефалик тўсиқни ўтказувчанлигининг ўзгариши кутилмаган ножўя белгиларни келтириб чиқаради. Электромагнит майдонга ўта юқори сезгирлик эмбрион асаб тизимида кўринади.[3]

Иммун тизимга таъсири.

Ҳозирги вақтда электромагнит майдоннинг организм иммун тизими реактивлигига салбий таъсир кўрсатувчи маълумотлар етарлича тўпланган. Олимларнинг текширув натижаларига кўра электромагнит майдон таъсирида иммуногенез жараёни бузилиб, улар функцияларининг пасайиши томонига ўзгаради. Электромагнит майдон таъсирида нурланган ҳайвонларда инфекцион жараённинг характери ўзгаради ва инфекцион жараённинг кечиши оғирлашади. Аутоиммунитетнинг келиб чиқиши тўқималар структурасидаги ўзгаришлар билан боғлиқ бўлмасдан, иммун тизимдаги патологиялар билан боғлиқ бўлади ва бунинг натижасида нормал тўқима антигенларига қарши таъсир қилади. Мана шу концепцияга мувофиқ барча аутоиммун ҳолатларнинг асоси биринчи навбатда лимфоцитлар популяциясининг тимус бўйича ҳужайрага боғлиқ иммунодефицитидан иборат бўлади. Юқори жадалликка эга электромагнит майдоннинг организм иммун тизимига таъсири ҳужайра иммунитети Т-tizими самарасининг пасайишида кўринади.[3] Электромагнит майдон иммуногенезнинг носпецифик пасайишига, ҳомила тўқималарига антителалар ҳосил қилишнинг тезлашишига ва ҳомиладор организмда аутоиммун реакцияни стимуляциялашга мойилликни чақиритиши мумкин.

Эндокрин тизимга ва нейрогуморал реакцияга таъсири.

Ўтган асрнинг 60 –йилларида собиқ совет олимларининг ишларида электромагнит майдон таъсирида функционал бузилиш механизми трактовкасида бошланғич ўринни гипофиз-буйрак усти бези тизимидаги ўзгаришларга қаратилган. Текширишлар шуни кўрсатдики, электромагнит майдон таъсирида гипофизар-адреналин тизими стимуляцияси юз бериб, қонда адреналин миқдорининг ошиши, қон ивиш жараёнининг фаоллашиш жараёни кузатилган. Ташқи муҳитнинг турли хил таъсирларига организмнинг жавоб беришига эрта ва тенг ҳолатда кириб борадиган тизим гипоталамус-гипофизбуйрак усти бези қобиғи тизими ҳисобланади деб тан олинган.[3] Бу ҳолатни текшириш натижалари тасдиқлади.

Жинсий функцияларга таъсири

Жинсий функциянинг бузилиши одатда унинг асаб ва нейроэндокрин тизим регуляциясининг ўзгариши билан боғлиқ. Бу электромагнит майдон таъсирининг гипофиз гонадотроп ҳолати фаолияти бўйича ўрганилган ишларнинг натижаси билан боғлиқ. Электормагнит майдон билан кўп марта нурланиш олиш гипофиз фаолиятининг пасайишини чақиради.

Аёл организмига ҳомиладорлик вақтида ва эмбрионал ривожланишда таъсир этувчи ташқи муҳитнинг ҳар қандай омили тератоген ҳисобланади. Кўпчилик олимлар электромагнит майдонни шу гуруҳ факторларига киритишади.

Электромагнит майдон таъсир этадиган ҳомиладорлик босқичларида тератогенезни текшириш биринчи даражали аҳамиятга эга. Электромагнит майдон ҳомиладорликнинг турли хил босқичларига таъсир этиб, масалан нуқсонларни чақиради деб қабул қилинган. Электромагнит майдонларга босқичларнинг максимал сезгирлиги бўлади. Босқичларнинг бунга боғлиқлиги ҳомила ривожланишининг эрта босқичлари, имплантация давлари ва эрта органогенез босқичлари ҳисобланади.[3]

Электромагнит майдоннинг аёллар жинсий функцияларига, эмбрионга специфик таъсири имкониятлари ҳақида айтилган. Электромагнит майдоннинг таъсирига тухумдонлар, уруғдонлар юқори сезгирликка эга эканлиги аниқланган. Электромагнит майдонга эмбрионнинг сезгирлиги она организми сезгирлигига қараганда анча юқори бўлиб, ҳомиланинг бачадон ичидаги шикастланиши, у ривожланишининг ҳар қандай босқичида юз бериши мумкин. Ўтказилган эпидемиологик текширувларга кўра хулоса қилиш мумкинки, аёлларнинг электромагнит нурланишлар билан алоқаси (контакт) муддатидан олдинги туғруқларга, ҳомила ривожланишига таъсири ва ниҳоят туғма нуқсонлар ривожланиш ҳавфи кўпайишига олиб келади. Японияда персонал электрон ҳисоблаш машиналарида ишлашнинг энг қатъий нормалари қабул қилинган бўлиб, болалар ва ёшлар учун (20 дақиқадан икки марта ҳафтасига) белгиланган. 20-30 ёшдаги нурланганларнинг касалланиш эҳтимоли, уларнинг персонал электрон ҳисоблаш машиналарида ишламаган тенгдошларига нисбатан 5,5 марта юқори бўлади.[3]

Персонал электрон ҳисоблаш машиналарида ишловчиларда дискомфорт ёки салбий ҳислар пайдо бўлса, маъмурият уларга шахсий иш жадвали (графи) қилиб бериши ёки персонал электрон ҳисоблаш машиналари (ПЭХМ) билан боғлиқ бўлмаган ишга ўтказилиши таъминланиши керак. Ҳомиладор аёллар ва кўкрак сути билан озиқлантирувчи оналар компьютерда ишлаши қатъиян ман этилади.

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КУЧЛИ ТАЪСИР ЭТУВЧИ ЗАҲАРЛИ МОДДАЛАРНИНГ АҲОЛИГА ТАЪСИРИ

Аннотация: мақолада кучли таъсир этувчи заҳарли моддалар ҳақида тушунча берилиб, унинг турлари, заҳарли моддаларнинг хусусиятлари, заҳарловчи хусусиятлари, заҳарли моддаларнинг тарқалиши, заҳарланиш юз берганда олиб бориладиган тадбирлар тўғрисида, шунингдек, атроф муҳитга, инсон ва ҳайвонларга таъсир кўрсатадиган салбий омиллари ҳақида ва бу борада ўтказилган тадқиқотлар, уларнинг босқичлари ёритилган ва тегишли тавсиялар берилган.

Калим сўзлар: кимёвий хавфли моддалар, заҳарланиш, кимёвий авариялар, буғланиш, хлор, аммиак, симоб, углерод оксиди, заҳарли моддалар, ингаляцион ва нейротроп таъсирлар, кимёвий тадбирлар.

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”THE IMPACT OF HIGHLY TOXIC SUBSTANCES ON THE POPULATION”

Abstract: The article provides an overview of highly toxic substances, their types, properties, toxic effects, and distribution. It also discusses measures to be taken in case of poisoning, as well as the negative impacts of toxic substances on the environment, humans, and animals. Furthermore, it covers research conducted in this field, its stages, and provides relevant recommendations.

Keywords: hazardous chemical substances, poisoning, chemical accidents, evaporation, chlorine, ammonia, mercury, carbon monoxide, toxic substances, inhalation and neurotropic effects, chemical measures.

Кириш

Кучли таъсир этувчи заҳарли моддалар кимёвий бирикмалар бўлиб, юқори заҳарли таъсир этиш хусусиятига эга бўлиб, маълум шароитларда (асосан кимёвий хавфли объектлар аварияларида) инсонлар ва ҳайвонларнинг оммавий заҳарланишларини ва атроф муҳитнинг ифлосланишини чақиради. Ҳозирги вақтда кучли таъсир этувчи заҳарли моддалар атамаси авария “хавфли кимё моддаси” атамасига алмаштирилган. Фуқаро муҳофазасида “кучли таъсир этувчи заҳарли моддалар” атамаси ўтган асрнинг 60-йиллар ўрталарида киритилган. “Кучли таъсир этувчи заҳарли моддалар” атамасининг қўлланилиши натижасида фавқулодда вазиятларда аҳолини

ҳимояси бўйича амалий вазифаларни ечиш мақсадида хавфли кимёвий моддаларнинг рўйхатини аниқлашга ҳаракат қилинди.

Ўтган асрнинг 80-йилларида собиқ совет иттифоқи томонидан 107 номланишдаги заҳарловчи кимёвий моддалар рўйхати ишлаб чиқилган. Аммиак ва хлор билан бир қаторда метанола, дихлорэтан ва бошқа ичга қабул қилинганда организм учун анча хавфли бўлган моддалар ва ингаляцион таъсир қилганда оммавий шикастланиш ўчоқларини ҳосил қилишга мойил бўлмаган моддалар ҳам киритилган. Бундан ташқари бу моддалар ва улар билан ишлаганда меҳнат муҳофазаси томонидан назоратда бўлган. Шунинг учун 80-йилларнинг охирларида кучли таъсир этувчи заҳарли моддаларга кирувчи заҳарли кимёвий моддаларнинг янги мезонлари ишлаб чиқилиши, кучли таъсир этувчи моддаларнинг рўйхати қисқаришига олиб келди ва 34та моддани ташкил қилди.

Аммо 1991-йилда кучли таъсир этувчи заҳарли моддалар рўйхати қайта кўриб чиқилиб уларнинг рўйхат 21 тага туширилди.

1994-йил кучли таъсир этувчи заҳарли моддалар атамаси ўрнига “хавфли кимёвий моддалар” атамаси киритилди.

Хавфли кимёвий моддалар – бу инсон организмига тўғридан тўғри ва билвосита таъсири натижасида одамларда ўткир ва сурункали касалликлар ва уларнинг ўлимини чақирадиган кимёвий моддалардир.

Бу атама жуда ҳам тўғри бўлмади, яъни саноатда қўлланиладиган бу синфга кирадиган барча зарарли моддаларнинг бир қисми авария ҳолатлари юз берганда ҳам хавф туғдирмайди.

Охирги йилларда кимёвий хавфли объектларда юз берадиган авариялар шуни кўрсатдики, заҳарловчи кимёвий моддаларнинг атмосферага тарқалиши натижасидан ташқари, истеъмол қилинадиган сув манбаларига уларнинг тушишидан ҳам фавқулодда вазиятлар келиб чиқади. Олдин бу муаммолар иккинчи даражали деб қаралган. Шундай қилиб янги гуруҳ моддаларини ажратиш зарурати туғилди, ўзининг таърифланишига кўра кучли таъсир этувчи заҳарли моддалар гуруҳидан фарқ қиладиган, бу ҳолатда юқори қайнаш ҳароратига ва сувда яхши эриш хусусиятига эга бўлган заҳарловчи кимёвий моддалар анча хавфли ҳисобланади.

Юқорида қайд этилганлардан, заҳарловчи кимёвий моддалар гуруҳидан шундай хавфли моддалар ажратиб олиш зарурати туғилдики, улар авария пайтида фавқулодда вазиятларни келтириб чиқариши керак. Шунинг учун замонавий ҳалқаро атамаларни ҳисобга олиб янги “авария кимёвий хавфли модда” атамаси киритилди.[5]

Авария кимёвий хавфли модда – хавфли кимёвий модда бўлиб, саноатда ва қишлоқ хўжалигида қўлланиладиган, авария бўлганда ташқарига чиқарилиб (куйилиш) атроф муҳитни зарарланишига ва юқори концентрациялари тирик организмни шикастланишига олиб келувчи моддалардир.

Шундай қилиб авария кимёвий заҳарловчи моддалар маълум бир гуруҳни қамраб олмасдан авария ҳолатларида хавф туғдириши мумкин.

Авария кимёвий заҳарловчи моддалар ишлаб чиқарадиган, қўллайдиган ва сақлайдиган кимёвий хавфли объектлар аварияларида инсонларнинг, ҳайвонларнинг ёки ўсимликларнинг оммавий шикастланишини келтириб чиқариши мумкин.

Буларга қуйидагилар киради:

- Кимёвий, нефтни қайта ишловчи, нефткимёвий ва бошқа шуларга ўхшаш ишлаб чиқариш соҳаларининг ташкилотлари;
- Совутиш сифатида аммиак қўлланиладиган совутиш қурилмаларига эга ташкилотлар;
- Хлор қўлланиладиган сув ва тозалаш иншоотлари;
- Темир йўл станцияларида авария кимёвий заҳарловчи моддалари билан турадиган цистерналар;
- Заҳарли химикатлар захиралари бор омборлар ва базалар.

Кучли таъсир этувчи заҳарли моддалар (КТЗЭМ) турлари:

Инсон организмга кириш йўллари бўйича КТЗМлар қуйидагиларга бўлинади:

- Ингаляцион таъсир – нафас йўллари орқали организмга тушиши;
- Перорал таъсир – озиқ-овқат ва сув орқали тушиши;
- Тери-резорбтив таъсири – тери ва шиллиқ қаватлар орқали тушиши.[4]

Шикастланишларнинг клиник кўринишлари бўйича қуйидаги КТЗМларга бўлинади:

1. Бўғувчи хусусиятга эга моддалар (хлор, трихлорли фосфор, фосген, хлорпикрин, олтингугурт хлорид).

2. Умумий заҳарланиш таъсирига эга моддалар (углерод оксиди, синил кислотаси, динитрофенол, этиленхлорид и бошқалар).

3. Бўғувчи ва умумий заҳарланиш хусусиятига эга моддалар (акрилонитрил олтингугурт водород, азот оксиди, олтингугурт ангидрид).

4. Нейротроп заҳарлар (асаб импульсларининг ўтказишига, марказий ва периферик тизимини бузилишига таъсир қилувчи моддалар): фосфорорганикбирикмалар, олтингугурт углероди.

5. Бўғувчи ва нейротроп таъсир хусусиятига эга моддалар (аммиак).

6. Метаболик заҳарлар (бромли метил, этиленоксид, метилхлорид, диметилстльфат, диоксин).

Организмга физиологик таъсири бўйича фарқланади:

- асабни фалажловчи (зарин, зоман, табун, v-газы);
- терини шикастловчи (иприт, азотистый иприт, люизит);
- умумий заҳарловчи (синил кислотаси, хлорциан, мышьякли ва фосфорли водородлар, углерод оксиди, металллар карбониллари, фторорганик бирикмалар);
- бўғувчи (фосген, дифосген);
- психо-кимёвий (бизет, ДЛК-диэтиламид лизергил кислоталари ва б);
- таъсирловчи авария кимёвий заҳарловчи моддалар ва заҳарловчи моддалар (хлорацетофенон, хлорпикрин, адамсит ва б.).

Шикастланиш таъсирининг тезлиги бўйича фарқланади:

- тез таъсир этувчи заҳарли моддалар, яширин таъсир даврига эга бўлмаган бир неча дақиқада одамларнинг шикастланишига ва ўлим оқибатига олиб келади. Буларга асабни фалажловчи (зарин, зоман) ва умумий заҳарловчи (синил кислотаси, хлорциан) киради;

- секин таъсир этувчи заҳарли моддалар, яширин таъсир этиш даврига эга бўлиб бир қанча вақт давомида шикастланишга олиб келади (бўғувчи ва терини шикастловчи таъсир). Шикастланиш таъсирининг тезлиги заҳарловчи модданинг агрегат ҳолатига (аэрозоль, буғсимон, суюқ -томчи), таъсир йўллари (нафас йўллари, тери қопламлари, ошқозон ичак тракти) ва модданинг организмга тушиш дозасига боғлиқ бўлади.

КТЗМнинг шикастланиш таъсирининг давомийлигини сақланиб қолиши икки гуруҳга бўлинади:

- турғун – уларнинг шикастловчи таъсири бир неча соатдан бир неча суткагача давом этади (зоман, терини шикастловчилар);

- турғун бўлмаган - уларнинг шикастловчи таъсири бир неча дақиқа давом этади (бўғувчи, таъсирловчилар).[3]

Энг кўп тарқалган кучли таъсир этувчи заҳарли моддалар таснифи ва уларнинг организмга таъсир этиш хусусиятлари.

Хлор- сариқ-яшил рангли, ўткир ҳидли газ. У пахта-қоғоз ишлаб чиқариш комбинатларида матоларни оқартириш, қоғоз ишлаб чиқариш, резина тайёрлашда ва сув узатиш станцияларида сувни зарарсизлантириш учун ишлатилади. Бутун бўлмаган идишдан хлорни куйганда тутайди. Хлор ҳаводан оғир бўлади, шунинг учун атмосферанинг пастки қисмида яъни биноларнинг пастки қаватлари ва ертўлаларида тўпланади. Хлор нафас олиш органларини, кўз ва терини кучли таъсирлайди. Хлор билан заҳарланиш белгилари: кўкрак қафасида тўсатдан оғриқ, қуруқ йўтал, қусиш, кўзда кесувчи оғриқ ва ёш оқиши.

Аммиак – нашатир спиртининг ўткир ҳидли рангсиз газ. У совутиш қурилмалари бўлган объектлар (гўшт комбинатлари, озиқ-овқат базалари)да, минерал ўғитлар ишлаб чиқариш ва бошқа кимёвий маҳсулотларни ишлаб чиқаришда ишлатилади. Аммиак ҳаводан енгил. Аммиак билан ўткир заҳарланиш нафас олиш органлари ва кўзни шикастлантиради. Аммиак билан заҳарланиш белгилари: бурун оқиши, йўтал, бўғилиш, кўздан ёш оқиши, юракнинг тез уруши.

Синил кислотаси - рангсиз ўта суюқ, аччиқ бодом ҳиди келади. Синил кислотаси кимёвий ташкилотлар ва заводларда пластмасса, саноат ойналари ва сунъий тола ишлаб чиқаришда ишлатилади. У яна қишлоқ хўжалигида зараркунандаларга қарши курашиш воситаси сифатида ҳам ишлатилади. Синил кислотаси сув ва бошқа органик эритмалар билан енгил аралашади. Синил кислота аралашмаси буғлари ҳаво билан аралашганда портлаши мумкин. Синил кислота билан заҳарланиш белгилари: оғиздан металл ҳидининг келиши, ҳолсизлик, бош айланиши, безовталиқ, қорачиқларнинг кенгайиши, пульснинг секинлашиши, талваса.

Фосген – рангсиз ўта заҳарли газ. У чириган меваларнинг ширин хиди бўлиши билан фарқланади. Саноатда турли хил эритмалар, бўёқлар, дори моддалари ва бошқа моддаларни ишлаб чиқаришда қўлланилади. Заҳарланганда нафас олиш йўллариининг таъсирланиши, оғиздан ёқимсиз хид келиши, сўлак оқиши ва йўтал пайдо бўлади.

Углерод оксиди - рангсиз, хидсиз газ, ҳаводан бироз енгил, сувда ёмон эрийди. Саноатда турли хил углеводородлар, спиртлар, альдегидлар ва карбон кислоталарини олиш учун кенг қўлланилади. Углерод оксиди нефт, кўмир ва биомассаларнинг қўшимча моддаси бўлиб, углероднинг тўлиқ оксидланмаганлиги ва етарли ҳаво етишмаслиги шароитида ҳосил бўлади. Углерод оксиди билан заҳарланиш белгилари: бош оғриғи, бош айланиши, ҳаракат мувозанатининг ва рефлектор соҳасининг бузилиши, психик фаолиятнинг бир қатор ўзгаришларини эслатадиган (алкоголли мастлик, ўзини бошқаришни йўқотиш ва бошқалар) ҳолатлар. Шикастланган терининг қизариши, кейинчалик талваса, ҳушнинг йўқолиши ривожланади. Агар зудлик билан чора кўрилмаса инсон нафас олиш ва юрак ишининг тўхташи натижасида вафот этиши мумкин.

Симоб - суёқ, кумушранг оқ металл. Люминисцент ва симобли лампалар, ўлчов асбоблари (термометр, барометр, манометрлар) ишлаб чиқаришда, саноатда тахталарнинг чиришини тўхтатадиган воситалар, амальгамалар (бошқа металл билан қоришмалари), лаборатория ва тиббиёт амалиётида ишлатилади. Симоб билан заҳарланиш белгилари 8-24 соатдан кейин умумий ҳолсизлик, бош оғриши, ютинганда оғриқ, тана ҳароратининг кўтарилиши пайдо бўлади. Кейинроқ милкларнинг оғриши, қоринда оғриқ, ошқозон бузилиши, баъзан ўпка шамоллаши юз беради. Сурункали заҳарланиш яширин ва узоқ вақт давомида аниқ белгиларсиз кечади. Кейинчалик юқори даражадаги чарчоқ, ҳолсизлик, уйқучанлик, апатия, ҳиссиётни жиловлай олмаслик, бош оғриши, бош айланиши пайдо бўлади. Бир вақтда қўл, тил, қош қалтираши оғир ҳолатларда оёқ ва бутун тана қалтирайди.

Кучли таъсир этувчи заҳарли моддаларнинг аварияларда ташқарига тарқалиши.

Кучли таъсир этувчи заҳарли моддаларнинг сақланиши белгиланган санитар меъёрлари, қурилиш қоидалари ва соҳа ҳужжатлари бўйича моддаларнинг агрегат ҳолатига асосан сақланади.

Ишлаб чиқариш корхоналарида кучли таъсир этувчи заҳарли моддаларнинг минимал захираси ўртача уч суткага, минерал ўғитлар ишлаб чиқарувчи корхоналарда 10-15 суткага мўлжалланади. Саноат шаҳарлари яқинида жойлашган катта ишлаб чиқариш корхоналарида бир вақтда минг тонналаб кучли таъсир этувчи заҳарли моддалар сақланиши мумкин.[2]

Кучли таъсир этувчи заҳарли моддалар ишлаб чиқариш майдонларида ёки транспорт воситаларида, одатда стандарт идишларда сақланади. Булар кўрсатилган сақлаш тартибига мос келадиган шароитларни яратувчи алюминли, темир-бетонли ёки темирли идишлар бўлиши мумкин.

Идишларнинг шакли ва қоплама типи кучли таъсир этувчи заҳарли моддалар таркибидан, ишлаб чиқариш кўлами ва ташиш шароитидан келиб чиқиб танланади. Цилиндр шаклидаги ва шарсимон идишлар кенг тарқалган.

Ер усти идишлари одатда гуруҳ-гуруҳ қилиб жойлаштирилади. Ҳар бир гуруҳда кучли таъсир этувчи заҳарли моддаларни идишлардан сизиб чиққанда бошқа идишга ўтказиш учун кўшимча идиш кўзда тутилади. Ҳар бир ер усти идишлари гуруҳи атрофи бўйлаб тупроқ билан кўмилади ёки ёнмайдиган ва коррозияга чидамли материаллардан баландлиги 1 метрдан кам бўлмаган чегараловчи девор билан жиҳозланади. Кўмилган ҳудуднинг ички ҳажми гуруҳ идишларининг тўлиқ ҳажмига ҳисобланади.[2]

Кучли таъсир этувчи заҳарли моддалар ишлаб чиқариш корхоналарида сақланади:

- юқори босимли идишларда (сиқилган газлар);
- атмосфера ҳавоси босимиغا яқинлаштирилган изотермик омборларда (сунъий совутиладиган идишларда);
- атроф муҳит ҳароратидаги ёпиқ идишларда.

Кучли таъсир этувчи заҳарли моддаларнинг сақлаш усуллари аварияларда уларнинг хусусиятини аниқлаб беради. Кучли таъсир этувчи заҳарли моддалар сақланадиган босим остидаги идишлар қобиғининг бузилиши ва кейинчалик кўп миқдордаги суюқликнинг атмосферага чиқиши узоқ вақт давом этади. Бундай ҳолатда буғланиш жараёни уч фазага бўлинади:

Биринчи фаза - Кучли таъсир этувчи заҳарли моддалар тўйинган буғларининг турличалиги ҳисобидан бир зумда тез (максимал 1-3 дақиқада) буғланишидир. Бу вақтда атмосферага модданинг асосий миқдоридаги буғлари тушади (бирламчи булут ҳосил бўлади). Бундан ташқари кучли таъсир этувчи заҳарли моддаларнинг бир қисми суюқликнинг иссиқлик таркибининг ўзгариши, атрофдаги ҳаво ҳароратига ва қуёш радиациясининг таъсири натижасида буғга айланади. Натижада суюқликнинг ҳарорати қайнаш ҳароратигача пасаяди. Яъни кўрсатилган вақтда авария кимёвий заҳарловчи моддаларнинг кўринарли буғланиши, кучли таъсир этувчи заҳарли моддалар концентрацияси билан булут ҳосил бўлиши мумкин. Бу ўлим ҳолатини ошириши мумкин.

Иккинчи фаза – авария кимёвий заҳарли моддаларнинг юзалардаги (кўмилган тупроқ юзаси, идишлар остига қўйиладиган мосламалар) иссиқлик ҳисобига турғун бўлмаган буғланиши, суюқлик иссиқлик таркибининг ва атроф муҳитдаги иссиқлик оқимининг ўзгариши натижасида юзага келади. Бу давр буғланишнинг бирдан жадал равишда тушиши билан бир вақтда суюқлик қаватининг қайнаш ҳароратидан ҳам пастга тушиб кетиши билан тавсифланади.

Учинчи фаза – авария кимёвий заҳарли моддаларнинг атроф муҳитдаги иссиқ ҳисобига стационар буғланиши бўлиб, бунинг тарқалиши соатлаб ва суткалаб тарқалиши мумкин (иккиламчи булутнинг ҳосил бўлиши).

Бу даврларнинг энг хавфлиси биринчи 10 дақиқа ҳисобланиб, авария кимёвий заҳарловчи моддалар буғланиши жадаллик билан юз беради. Бунда

биринчи пайтда босим остида бўлган сиқилган газ чиқишидан оғир турдаги аэрозолли булут ҳосил бўлиб, бир зумда тахминан 20 метр баландликка чиқади. Кейин тортишиш кучи таъсирида тупроққа ттшади. Булутнинг чегараси олдин аниқ бўлади, яъни у катта оптик зичликка эга бўлади ва 2-3 дақиқадан кейин чегаралари тарқалиб бошлайди. Бу зонанинг радиуси 0,5-1,0 км ва ундан кўпроққа бориши мумкин.

Изотермик сақланувчи қобикнинг бузилиши натижасида ва кейинчалик авария кимёвий захарловчи модданинг кўп миқдорда чиқиши олдин стационар бўлмаган фазага таллуқли бўлиб, кейин стационар фазага ўтади. Бунда бирламчи булутга ўтадиган модда миқдори ҳарорати 3-5%дан атрофдаги ҳаво ҳарорати 25-30 градусдан ошмайди.[2]

Суюқлик қобикларининг бузилиши, юқори ҳароратда қайнаши, бирламчи (агар қобикнинг исиши бўлмаса) булут ҳосил бўлиши юз бермайди. Суюқликнинг буғланиши стационар жараён бўйича амалга ошиб, авария кимёвий захарловчи модданинг физик-кимёвий таркибига ва атроф муҳит ҳавосининг ҳароратига боғлиқ. Юқори даражада қайнайидиган авария кимёвий захарловчи моддалар буғланиш тезлиги кичик бўлиб, уларни бевосита авария ҳудудида бўлган инсонлар учун хавфли қилиб қўяди.

Ҳар қандай авария ҳолати учун келиб чиқиш босқичи, ривожланиши ва хавфнинг пасайиши ҳарактерлидир. Кимёвий хавфли объектлар аварияларида бир нечта шикастловчи омиллар таъсир қилиши мумкин: ёнғин, портлаш, ҳавонинг ва жойнинг зарарланиши ва бошқалар. Объектдан ташқарида эса атроф муҳитнинг зарарланишидир.

Кимёвий хавфли объектлар аварияларида ўтказиладиган тадбирлар.

Кимёвий хавфли объектлар авариялари оқибатларининг кўлами бир қатор омилларга таъсир қилади. Улардан асосийлари авария кимёвий захарли моддаларнинг атмосферага чиқиш тезлиги ҳисобланади. Шунинг учун авария оқибатларининг бартараф қилишда биринчи бўлиб бажариладиган иш авария кимёвий захарли моддаларнинг суюқ фазасининг тарқалиш тезлигини чегаралаш ва унинг буғланиш тезлигини пасайтириш ҳисобланади.

Авария кимёвий захарли моддаларнинг суюқ фазасини идишлардан чиқишини чегаралаш учун оқаётган жойни бартараф қилиш чоралари кўрилади агар у мумкин бўлса ёки суюқликни авария бўлган идишдан захира идишга ўтказиш керак бўлади. Суюқликни ўтказиш саноатда қабул қилинган усуллар ва воситалар билан амалга оширилади.

Авария кимёвий захарли моддаларнинг буғланиш майдонини камайитириш мақсадида ҳудудда моддаларнинг оқишини чегаралаш учун инженерлик воситалари ёрдамида (бульдозерлар, скреперлар, экскаваторлар) амалга оширилади. Бу захарловчи ҳудудда тупроқлар уюми ҳосил қилинади. Суюқ авария кимёвий захарли моддаларнинг оқим йўналишини табиий чуқурликларга буриш мумкин. Зарурий ишлар олиб борилаётганда биринчи навбатда моддаларнинг дарёларга, кўлларга, ер ости коммуникацияларига,

биноларнинг ертўлаларига ва иншоотлар ва бошқаларга тушишини тўхтатиш керак.

Айрим ҳолатларда суяқ фаза махсус идишларга йиғилиб, кейинчалик нейтрализация қилиниши мумкин. Агар авария кимёвий заҳарли моддалар ёнувчан бўлса ва атроф муҳит шароити имкон туғдирса, зарарланган ҳудудларни ёқиб юбориш мумкин. Авария кимёвий заҳарли моддаларнинг суяқ фазасини кўпик билан изоляция қилиш, буғларнинг атмосферага чиқишини камайтириш мақсадида амалга оширилади. Бунинг учун кўпикка нейтралловчи қўшимчалар қўшилади. Бу авария кимёвий заҳарли моддалар билан кимёвий таъсирга киришади ва натижада заҳарсиз ёки кам заҳарли моддага айланади.[2]

Авария кимёвий заҳарли моддаларнинг буғланиш тезлигини пасайтиришнинг асосий ва мақбул усулларида суяқ фазага сувни ёки нейтралловчи моддалар эритмасини қўшиш ҳисобланади.

Кимёвий хавфли объектлар аварияларида аҳолини, хизматчиларни ва ишчиларни ҳимоя қилишнинг асосий тадбирлари:

- Кимёвий хавфли объектлар авариялари ҳақида хабар бериш;
- Одамларни вақтинча эвакуация қилиш ва ҳимоя иншоотларига жойлаштириш;
- Заҳарланиш ҳудудида аҳолини олиб чиқиш ва киришини чегаралаш;
- Кимёвий хавфли объектлар аварияларида жабрланганларга тиббий ёрдам кўрсатиш;
- Шахсий ҳимоя воситаларидан фойдаланиш;
- Зидди зардобларни (антидот) қўллаш;
- Кимёвий ҳимоя тартибини аниқлаш ва риоя қилиш;
- Инсонларни, ҳудудларни, иншоотларни, транспорт, техника ва воситаларни санитар ишлов беришдан ўтказиш.

Кимёвий хавфли объектлар авариялари ҳақида хабар бериш вазирликлар, кимёвий хавфли объектлар ташкилотлари раҳбарияти, фуқаро муҳофазаси фавқулодда вазиятлар давлат тизимининг барча тизимларининг навбатчиларига юклатилади.

Хабар бериш авария кимёвий заҳарловчи моддалар максимал даражада тарқалиш ҳудудига тенг бўлган радиусларда барча ташкилотларга, аҳоли пунктларига хабар берилади. Кимёвий хавфли авариядан кейинги тушган сигналдан сўнг, шахсий ва жамоавий ҳимоя воситаларини қўллашга тайёр ҳолга келтирилади ва айрим ҳолатларда ходимларни, аҳолини вақтинчалик кўчиришга тайёргарлик тадбирлари кўрилади ва ўтказилади.

Сигнал бўйича хабар берилгандан кейин барча биноларда филтрсиз вентилляция тизими ёқилади ёки ички циркуляция тартибига ўтказилади. Филтрли вентилляция филтр-вентилляция тартибига ўтказилади.

Хабар бериш тизимида электросиреналар ва масофадан бошқариш ва марказий чақирув аппаратларидан фойдаланилади. Бундан ташқари хабар бериш учун теле ва радио эшиттирувларни, шаҳар ва ишлаб чиқаришдаги овоз кучайтиргич алоқаси ва телофон алоқасини ҳам қўллаш мумкин.

Ходимларни ва аҳолини кимёвий зарарланган (эҳтимолий зарарланиш худуди) ҳудудлардан шикастланишни олдини олиш ёки шикастланиш даражаларини камайтириш мақсадида вақтинчалик эвакуация қилиш. Шунинг айтиш жоизки аҳолини эвакуация қилишда авария ривожланишининг тезлигини ҳисобга олиш, уни ўтказишда жиддий қийинчиликлар бўлишини, асосан аҳоли ўртасида саросимани келиб чиқиши мумкинлигини ҳисобга олиш ҳимоянинг охириги чораларидан бўлиб, алоҳида ҳолатларда ўтказилади. Авария кимёвий захарловчи моддаларининг бирламчи булутни келгунича аҳолини вақтинчалик эвакуация қилишни ўтказиш самарадорлиги юқори бўлади.[5]

Авария худудида жамоат тартибини қувватлаш, яъни инсонларнинг бу ҳудудга киришини чеклаш, зарарланган ҳудудда авария оқибатларини бартараф қилишда қатнашувчи турли хил куч ва воситаларнинг сафарбарлигини бошқарилиши муҳим рол ўйнайди. Бу муҳим вазифаларни бажариш учун назорат ўтказиш пунктлари, зарарланган ҳудудни ўраб олиш, зарарланиш зонасига олиб борадиган йўللarda шлагбаум ва постлар қўйилиши, шаҳар кўчалари ва аҳоли пунктлари кўчаларида патруллар қўйилиши, аҳолини эвакуация қилиш йўналишларида ҳаракатни назорат қилиш, зарарланиш зоналари чегараларида огоҳлантирувчи белгилар қўйилиши ташкил қилинади.

Вазиятни тезлик билан ривожланиб боришида филтрлар билан жиҳозланган иншоотларга вақтинчалик жойлаштириш кўзда тутилади. Агар ҳимоя иншооти бўлмаса, аҳолини бирламчи булут ўтиш даврида ёки эвакуациягача яшаш ва хизмат хоналарида уларнинг герметиклигини таъминлаган ҳолда, шахсий ҳимоя воситаларини кийиб (энг оддий ҳимоя воситалари) олиш тавсия қилинади.

Умумий аварияларнинг кўламига қараб уларнинг оқибатларини бартараф қилиш бўйича туман, вилоят ёки республика фавқулодда вазиятлар комиссияси раҳбарияти ишлайди. Айрим оғир асоратли ҳолатларда эса мамлакат комиссияси ишлайди.

Авария кимёвий захарловчи моддлар билан захарланганда биринчи тиббий ёрдам кўрсатиш усуллари.

Жабрланганларга ёрдам кўрсатишда биринчи навбатда захарли моддаларнинг кейинги таъсиридан ҳимоя қилиш учун нафас олиш органлари ҳимоя қилинади. Бунинг учун хлор билан захарланган жабрланувчига газниқоб, сув ёки 2% ош содаси эритмаси сингдирилган пахтали марлили ниқоб, аммиак билан захарланганда 5% лимон кислотаси эритмаси сингдирилган пахтали марлили ниқоб кийдириб зарарланиш зонасидан олиб чиқилади.[4]

Аммиак билан захарланганда тери қопламлари, кўз, бурун, оғизни сув билан ювинг. Кўзга 30% албуцид эритмасидан 2-3 томчи томизинг, бурунга зайтун ёғи томизинг. Сунъий нафас бериш тақиқланади.

Хлор билан заҳарланганда тери қопламлари, оғизни 2% ош содаси эритмаси билан кўп маротаба ювинг. Нафас олиш тўхтаганда сунъий нафас беринг.

Синил кислотаси билан заҳарланганда унинг ошқозонга тушишида зудлик билан сунъий қусишни чақиринг. Ошқозонни тоза сув ёки 2% ош содаси билан ювинг. Нафас олиш тўхтаганда сунъий нафас беринг.

Фосгенга қарши махсус даволаш ёки профилактика воситаси топилмаган. Фосген билан заҳарланганда тоза ҳавога олиб чиқиш, тинчлик ва танани иссиқ қилиш зарур. Сунъий нафас беришни ўтказманг.

Углерод оксиди билан заҳарланганда нашатир спирти ҳидлатинг, бошига, кўкрак қафасига совуқ қўйинг, имкон борича намлантирилган кислороддан нафас олдинг. Нафас олиш тўхтаганда сунъий нафас беринг.

Симоб билан заҳарланганда ошқозонни 20-30 гр фаол кўмир қўшилган сув билан кўп марта ювинг. Ундан кейин сут, сувга аралаштирилган тухум сариғини, ундан кейин ични сурувчи воситалар беринг. Ўткир, асосан ингаляцион заҳарланишларда шикастланиш зонасидан чиқаргандан кейин жабрланувчига тўлиқ тинчлик бериш, ундан кейин шифохонага олиб бориш зарур.[4]

Кимёвий заҳарли моддаларнинг чиқиши билан юз берган аварияларда аҳолини кейинчалик шикастланишини олдини олиш учун ҳудудларни, кийимларни, оёқ кийимларни, уй жиҳозларини дегазация қилиш бўйича комплекс ишлар олиб борилади. Дегазация – бу заҳарли кимёвий моддаларни йўқ қилиш, уларни заҳарсиз моддаларга айлантириш ёки уларни юзалардан шундай тозалаш керакки, уларнинг зарарлаш даражаси меъёр даражасигача тушиши ёки умуман йўқ қилиниши керак. Дегазациянинг учта усули кўп қўлланилади: механик, физик ёки химик.

Механик усулда кимёвий заҳарли моддалар ҳудудлардан, буюмлардан зарарланган қисмини олиб ташланади. Масалан тупроқнинг юқориги зарарланган қисми кесиб олиниб махсус ажратилган жойларга кўмиш учун олиб чиқилади ёки у кум, тупроқ билан кўмилади.

Физик усулда зарарланган буюмлар ва материаллар иссиқ ҳаво ёки сув буғлари билан ишлов берилади.

Дегазациянинг кимёвий усули заҳарли кимёвий моддаларнинг тўлиқ йўқ қилиниши ёки уларнинг бошқа заҳарли бўлмаган бирикмаларга махсус эритмалар ёрдамида ўтказиш ҳисобланади.

Кийим, оёқ кийим, уйда фойдаланадиган буюмлар турли хил усуллар орқали (шамоллатиш, қайнатиш, сув буғлари билан ишлов бериш) материалларнинг хусусиятига ва зарарланиш характериға қараб дегазация қилинади.[4]

Кимёвий хавфли объектлар авариялари оқибатларини пасайтириш бўйича тадбирлар.

Авариялар профилактикаси ва улардан келтирилган зарарларни пасайтириш ташкилий, ҳукуқий ва техник комплекс тадбирлар орқали таъминланади.

- Хавфсиз технологияларни қўллаш;
- Объектларни юқори даражада ишлаш ишончилигини таъминловчи ташкилий, техник, махсус ва бошқа тадбирларни амалга ошириш;
- Аварияларда кимёвий заҳарли моддаларнинг санитар ҳимоя зонасидан ташқарига тарқалишини чегаралаш;
- Кимёвий хавфли объектларни авариялар оқибатларини ҳисобга олган ҳолда рационал жойлаштириш;
- Аҳолига зарарли таъсирлар кўламини пасайтиришни таъминловчи ва ҳимояси бўйича махсус тадбирларни ўтказиш.

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ПРИНЦИПЫ РАЗВИТИЯ ЛИДЕРСКОЙ КОМПЕТЕНТНОСТИ РУКОВОДЯЩИХ КАДРОВ

Аннотация: В статье рассматриваются ключевые принципы, лежащие в основе эффективного развития лидерской компетентности у руководящих кадров. Обосновывается необходимость системного, ценностно-ориентированного подхода к формированию лидерского потенциала управленцев. Особое внимание уделяется таким аспектам, как саморефлексия, непрерывное обучение, развитие эмоционального интеллекта, адаптивность и наставничество. Подчёркивается роль принципов как универсальных ориентиров, обеспечивающих целостность, этичность и устойчивость лидерства в современных организациях.

Ключевые слова: лидерская компетентность; руководящие кадры; принципы лидерства; развитие лидерства; эмоциональный интеллект; адаптивность; наставничество; управление персоналом; стратегическое мышление.

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PRINCIPLES FOR THE DEVELOPMENT OF LEADERSHIP COMPETENCIES AMONG EXECUTIVE PERSONNEL

Abstract: The article examines the key principles underlying the effective development of leadership competence among managerial personnel. It substantiates the necessity of a systematic, value-oriented approach to building the leadership potential of managers. Particular attention is given to aspects such as self-reflection, continuous learning, emotional intelligence development, adaptability, and mentoring. The role of principles as universal guidelines ensuring the integrity, ethical foundation, and sustainability of leadership in modern organizations is emphasized.

Keywords: leadership competence; managerial personnel; leadership principles; leadership development; emotional intelligence; adaptability; mentoring; human resource management; strategic thinking.

Современные условия управления организациями требуют от руководителей не только профессиональных знаний, но и высокоразвитых лидерских компетенций. В условиях постоянных изменений, роста

конкуренции и цифровизации лидерская компетентность становится ключевым фактором успешного руководства. Эта статья рассматривает основные принципы, на которых должно строиться развитие лидерского потенциала у управленцев [3].

1. Осознанность и саморефлексия

Лидерство начинается с понимания самого себя. Эффективный руководитель должен обладать развитым уровнем самосознания, умением анализировать свои сильные и слабые стороны, а также последствия своих действий для коллектива и организации в целом. Развитие навыков саморефлексии позволяет принимать более взвешенные и стратегические решения.

2. Непрерывное обучение и развитие

Лидерская компетентность — это не раз и навсегда приобретённый навык. Важно регулярно обновлять знания, осваивать новые управленческие подходы, развивать эмоциональный интеллект, коммуникативные и стратегические способности. Обучение может происходить как в формальном формате (тренинги, MBA-программы), так и в неформальном — через наставничество, самообразование, анализ успешных кейсов.

3. Ориентация на ценности и этику

Настоящий лидер формирует культуру ответственности, честности и уважения в коллективе. Этические ориентиры руководителя оказывают сильное влияние на корпоративную культуру и поведение сотрудников. Поэтому развитие лидерской компетентности должно опираться на личные и корпоративные ценности, а также на высокий уровень социальной ответственности.

4. Развитие эмоционального интеллекта

Эмоциональный интеллект (EQ) — одна из основ лидерской эффективности. Он включает в себя способность понимать и управлять своими эмоциями, а также распознавать эмоции других и строить гармоничные отношения. Руководитель с высоким EQ способен эффективно мотивировать команду, предотвращать конфликты и обеспечивать психологическую безопасность в коллективе.

5. Гибкость и адаптивность

Лидер должен уметь быстро адаптироваться к изменяющимся условиям внешней и внутренней среды. Это требует гибкости мышления, готовности к инновациям и способности эффективно управлять изменениями. Современные лидеры не просто следуют плану — они готовы к неопределённости и умеют работать в нестабильной среде.

6. Наставничество и развитие других

Одной из ключевых ролей лидера является развитие потенциала своих подчинённых. Это включает в себя передачу знаний, поддержку профессионального роста сотрудников, делегирование задач и формирование сильной команды. Настоящий лидер помогает другим становиться лидерами,

развивая у них инициативу, ответственность и стремление к совершенствованию.

7. Системное мышление и стратегическое видение

Лидер должен видеть организацию как целостную систему, уметь анализировать взаимосвязи между её элементами и предвидеть последствия управленческих решений. Стратегическое мышление позволяет руководителю выстраивать долгосрочные цели и направлять команду в сторону устойчивого развития.

Развитие лидерской компетентности руководящих кадров — это комплексный и долгосрочный процесс, основанный на целенаправленной работе над собой, обучении и взаимодействии с окружающими. Применение описанных принципов позволяет формировать лидеров нового поколения, способных эффективно управлять организациями в условиях глобальных вызовов и трансформаций.

Развитие лидерских компетенций — это не просто обучение навыкам или механическое следование технологиям управления. Это глубокий, многослойный процесс формирования личности лидера, требующий целостного подхода [5]. Именно поэтому важно опираться на принципы — базовые, устойчивые ориентиры, которые определяют направление, качество и эффективность развития управленца как лидера.

1. Обеспечивают системность и целенаправленность

Без чётких принципов развитие лидерства может превратиться в набор случайных действий или тренингов. Принципы выступают как вектор — они задают направление, помогают выстраивать логическую последовательность обучения и профессионального роста.

2. Формируют ценностную основу лидерства

Настоящее лидерство строится не только на навыках, но и на ценностях. Принципы позволяют сформировать этическую и моральную основу поведения лидера: честность, ответственность, уважение, доверие. Они защищают от авторитарности и манипулятивных практик.

3. Повышают осознанность и ответственность

Когда развитие строится на осмысленных принципах, человек осознаёт, зачем он это делает, и берёт на себя ответственность за результат. Это снижает формализм и повышает внутреннюю мотивацию.

4. Универсальны и адаптивны

Принципы применимы в разных условиях, организациях и культурах. Это делает их надёжной опорой при адаптации к изменениям, новым вызовам или смене контекста.

5. Позволяют выстроить культуру лидерства в организации

Если принципы развития лидерства применяются не только индивидуально, но и на уровне всей организации, формируется единая управленческая культура, которая способствует росту новых лидеров и укрепляет корпоративную идентичность.

Принципы — это не абстрактные лозунги, а фундамент, на котором строится эффективное лидерство [6]. Они помогают руководителям сохранять стратегическое направление, принимать обоснованные решения, развивать себя и окружающих, действовать этично и осознанно. Без принципов лидерство становится поверхностным, хаотичным и уязвимым перед вызовами времени.

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СУЩЕСТВУЮЩИЕ ПРОБЛЕМЫ ПЕРЕВОЗКИ ЭКСПОРТНО-ИМПОРТНЫХ ГРУЗОВ МЕЖДУ НИДЕРЛАНДАМИ И РОССИЕЙ

***Аннотация.** Рынок товаров между двумя странами осуществляется путем экспорта и импорта. Нидерланды и Россия имеют особенности при транспортировке грузов. В настоящее время при доставке экспортных и импортных товаров между Нидерландами и Россией компании, занимающиеся международной торговлей, испытывают ряд трудностей. Эти проблемы в основном касаются доставки, соблюдения требований и условий для распоряжения товарами на таможенной территории и геополитической обстановки.*

***Ключевые слова:** перевозки грузов, логистика, геополитическая обстановка, таможенное оформление, транспортные маршруты, Россия, Нидерланды.*

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WAYS TO IMPROVE THE EFFICIENCY OF EXPORT-IMPORT CARGO TRANSPORTATION BETWEEN THE NETHERLANDS AND RUSSIA

***Abstract.** The market for goods between the two countries is carried out through exports and imports. The Netherlands and Russia have specific requirements for the transportation of goods. Currently, international trade companies face several challenges when delivering export and import goods between the Netherlands and Russia. These challenges primarily relate to delivery, compliance with requirements and conditions for handling goods within the customs territory, and the geopolitical environment.*

***Keywords:** cargo transportation, logistics, geopolitical situation, customs clearance, transport routes, Russia, Netherlands.*

Таможенные процедуры, включающие в себя необходимость выполнения таможенных правил и нормативов и уплату таможенных налогов и пошлин выступают одной из главных проблем перевозок между Россией и Нидерландами. Одни из главных условий допуска товара на территорию стран

Европейского союза на сегодняшний день служат: соблюдения требования по ветеринарным и фитосанитарным стандартам Евросоюза, оформление необходимых документов и классификация товаров, которые вызывают сложности [1].

Санкции и политические напряжения также являются текущими проблемами в настоящее время. Лимит и трудности при транспортировке экспортно-импортных грузов являются следствием санкции и геополитической ситуации между Нидерландами и Россией. Санкции, которые направлены на стеснение условий торговли между двумя странами, содержат ограничения на перевозку определенных грузов, банковские лимиты и другие способы ограничения. За последнее время они повлекли к замедлениям поставок, повышению затрат на перевозку и к усложнению доставки экспортно-импортных товаров [2]. Для организации, находящихся на международной торговой площадке между Нидерландами и Россией, санкции затрудняют планирование поставок и приводят к росту рисков.

Продолжительные мероприятия таможенного оформления, которые провоцируют длительные остановки на границах, загруженные порты и транспортные сети, приводящие к значительным промедлениям, трудностям в рамках транспортировки экспортно-импортных грузов и к недостаточному выбору наилучших транспортных сообщений, способов доставки, что ведет к росту транспортным расходам и увеличению времени доставки товаров, являются трудностями при планировании поставок и транзита при доставке товаров между двумя странами.

Не соответствующая действующим нормам система объектов и существенная труднодоступность к наилучшим транспортным сетям создают инфраструктурные трудности в транспортировке товаров. Старые пути, железные дороги, места для стоянки судов и транспортные узлы вызывают трудности. Для оснащения более продуктивной и безопасной транспортировки экспортно-импортных товаров между Нидерландами и Россией требуется вложения в систему объектов и ее обновления.

Трудности в доставке товаров между двумя странами вызваны курсовой нестабильности, которые возникают из-за перемены курсов долларов и евро. Из-за этой проблемы изменяются расходы на доставку и ценообразование на экспортно-импортные грузы. Трудности в составлении финансового плана предприятия и в росте расходов на доставку вызваны значительным увеличением роста валют по отношению к российскому рублю. В виду этого стратегии управления цепями поставок организации, занимающихся международной торговлей между Нидерландами и Россией, должны быть направлены на эффективное управление курсовыми рисками.

Итак, геополитическая ситуация, санкции, проблемы в транспортировке товаров и выбор транспорта для доставки грузов, соблюдения требований и условий для распоряжения товарами на таможенной территории, а курсовая нестабильность являются проблемами при доставке экспортно-импортных грузов между Нидерландами и Россией. Предприятия, занимающиеся

международной торговлей между двумя странами, которые не решают эти проблемы, могут столкнуться с длительными остановками на границах, дополнительными расходами и рисками.

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ЎЗБЕКИСТОНДА ЭРКИН ИҚТИСОДИЙ ЗОНАЛАР МАВЗУСИНИ ТАДҚИҚ ЭТИШНИНГ ТАРИХШУНОСЛИГИ МАСАЛАЛАРИ

Аннотация: мақолада Ўзбекистонда эркин иқтисодий зоналар мавзусини тадқиқ этишнинг тарихишунослиги масалалари иқтисодий, ижтимоий ва тарихий йўналишдаги адабиётлар таҳлили асосида баён қилинган. Унда эркин иқтисодий зоналар тушунчасининг моҳияти, ўзига хослиги, мазкур ҳудудларнинг иқтисодий аҳамияти, уларнинг маҳаллий ва хорижий иқтисодчи ва тарихчи олимлар томонидан ўрганилиши, жумладан, илмий мақолалар, дарслик ва қўлланмаларда Ўзбекистонда эркин иқтисодий ва саноат зоналари фаолияти масалаларининг тадқиқи ёритилган.

Калим сўзлар: Ўзбекистон, эркин иқтисодий зона, тарихишунослик, иқтисодий, молиявий, солиқ, ҳудуд, инвестиция, ишлаб чиқариш, имтиёз, махсулот, хом ашё, тадқиқот.

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HISTORIOGRAPHY ISSUES OF STUDYING THE TOPIC OF FREE ECONOMIC ZONES IN UZBEKISTAN

Abstract: the article presents the historiography issues of studying the topic of free economic zones in Uzbekistan based on the analysis of literature of an economic, social and historical nature. It highlights the essence and specificity of the concept of free economic zones, the economic significance of these territories, their study by domestic and foreign economists and historians. In particular, it describes the study of the activities of free economic and industrial zones in Uzbekistan based on scientific articles, textbooks and teaching aids.

Keywords: Uzbekistan, free economic zone, historiography, economic, financial, tax, territory, investment, production, benefit, product, raw materials, research.

Ҳар қандай мамлакатнинг барқарор ривожланишини таъминлашда эркин иқтисодий зона (ҳудуд) лар муҳим рол ўйнайди. Бундай зоналарда ташкил этилган иқтисодиёт тармоқлари мамлакат аҳолисининг саноат, қишлоқ хўжалиги, озиқ-овқат ва бошқа турдаги махсулотларга бўлган эҳтиёжни таъминлашда, қайта ишлаш саноати тармоқларини ҳамда хом ашёга

бўлган эҳтиёжини қондиришда муҳим аҳамиятга эга. Мақолага доир асосий масалалар таҳлиliga ўтишдан олдин Эркин иқтисодий ҳудуд ва Эркин иқтисодий зона тушунчаларига таъриф бериш ўринли. Аммо расмий норматив-ҳуқуқий ҳужжатларда Эркин иқтисодий ҳудуд тушунчаси учрамайди. Бироқ айрим иқтисодчи олимлар ва мутахассислар ўз асар ва мақолаларида бир қатор ўринларда Эркин иқтисодий зона тушунчасининг моҳиятини таҳлил қилар эканлар, Эркин иқтисодий ҳудуд тушунчасига ҳам айрим таърифларни бериб ўтганлар. Масалан, Р. Хожиматов ўз мақоласида Эркин иқтисодий ҳудуд тушунчасига қуйидаги таърифни беради:

Эркин иқтисодий ҳудуд — бу “Эркин иқтисодий ҳудуд: хориж капитали иштирокидаги фаолиятни рағбатлантирувчи, имтиёзли валюта-молиявий ва анчайин қулай солиқ режимларига эга бўлган ҳудуддир”. Шу маънода тарихшунослик нуқтаи назаридан мавзуга оид адабиётларни икки гуруҳга бўлиб ўрганиш мақсадга мувофиқ:

Биринчи гуруҳга маҳаллий тадқиқотчиларнинг илмий ишлари;

Иккинчи гуруҳга хорижлик тадқиқотчиларнинг илмий тадқиқотларини киритиш мумкин. Диссертация тарихшунослиги бўйича тарихий нуқтаи назардан алоҳида тадқиқот амалга оширилмаган. Аммо маҳаллий тарихчи олимлар томонидан тарихий мавзуда яратилган адабиётларда, жумладан, илмий мақолалар, дарслик ва қўлланмаларда Ўзбекистонда эркин иқтисодий ва саноат зоналари фаолияти масалалари қисман баён қилинган. Бу борада Р. Абдуллаев, Ш. Рахматуллаев, М. Рахимов, Э. Нуриддинов, Ш. Зиёмов, Ф. Рашидова, Н. Обломуродов, Қ. Усмонов, М. Содиқова, Ф. Толипов, А. Аминова каби муаллифларнинг илмий ишларини қайд этиш мумкин.

Иқтисодий таҳлилчи Алишер Таксановнинг фикрича Эркин иқтисодий ҳудудлар фақат депрессив — иқтисодий аҳволи ночор ҳудудларда ташкил қилинади. Яъни иқтисоди ривожланмаган ҳудудларда узок йиллар, 50-100-йилга эмас, балки қисқа муддатда иқтисодни кўтариш мақсадида барпо этилади. Бу капитал ва хориж сармояларини жалб қилиш ва минтақа учун сезиларли даромад келтириш мақсадида қилинади. Эркин иқтисодий ҳудуд ёки Эркин иқтисодий зоналарни ташкил этишдан асосий мақсад:

-товар ишлаб чиқариш ва хизматлар кўрсатиш учун тўғридан-тўғри хорижий капитал ёки инвестицияларни ҳамда илғор хорижий технологияларни жалб қилиш;

-янги иш ўринларини шакллантириш ва малакали кадрларни иқтисодиётга жалб қилиш;

-мамлатнинг экспорт салоҳиятини шакллантириш ва кўтариш;

-импорт маҳсулотлари ишлаб чиқаришни кўпайтириш;

-ишлаб чиқаришни ташкил этиш ва унинг бошқарувини ташкил этиш;

-хорижий инвесторларни жалб этиш;

-савдо-тижорат учун шарт шароитлар яратиш;

-божхона тўловларини минималлаштириш ёки қисқартириш;

-зарур инфратузилмалар яратиш;

-арзон ва қулай ишчи кучи ва меҳнат ресурсларидан фойдаланиш;

-бюрократик ва маъмурий тўсиқларни бартараф этишдан иборат.

Иккинчи гуруҳ тадқиқотларига хорижий олимларнинг илмий изланишларини қайд этиш мумкин. Бу борада МДХ давлатлари олимларидан, белорусиялик В.Приходко, Ҳ.Воловикелар ўз ишларини эълон қилганлар. Олимлар иқтисодий зоналарни ривожлантириш учун қулай шарт-шароитларни таъминлаш, ички ва хорижий сармояларни жалб этиш, савдо-иқтисодий ҳамкорликни ривожлантириш, халқаро савдо алмашинувини кенгайтириш, бошқарувнинг илғор тажрибаларини жорий этиш, халқ истеъмоли товарлари ишлаб чиқариш ва хизматлар кўрсатишни кенгайтиришга урғу берадилар. Жумладан, россиялик иқтисодчилардан Т.Р Данко, Ю. Королёв, Р.И Зименков, А.С Козловалар ўз илмий изланишларида эркин иқтисодий зоналар муаммоларига эътибор қаратиб, улар ушбу масалани комплекс ва локал тарзда таҳлил этадилар. Ўз тадқиот объектлари дориасида солиқ имтиёзлари масалаларига ҳам эътибор қаратадилар.

Умуман, мутахассисларнинг ҳисоб-китобларига кўра, 2022-йилгача ўтган даврга нисбатан эркин иқтисодий зоналардаги саноат маҳсулот кўрсаткичи 4,13-мартага кўпайган. Инвестиция қайтимининг умумий индекси (интенсив омил) ўртача 24,4 фоизга камайган. Инвестиция ҳажмининг умумий индекси (экстенсив омил) ўртача 5,5-мартага кўпайганлиги кузатилган. Яъни эркин иқтисодий зоналар саноат маҳсулот ҳажмининг умумий индекси биринчи омил ҳисобига ўртача 24,4 фоизга камайган, иккинчи омил ҳисобига 5,5-мартага ошган. Бу эса вилоятлар эркин иқтисодий зоналарида самарали инвестицион сиёсат юритиш борасида камчиликлар мавжудлигидан далолат беради. Инвестиция ҳажмининг умумлашган ҳолда бундай сезиларли кўпайиши “Ангрен” ва “Жиззах” эркин иқтисодий зоналари капитал қўйилмаларининг юқори даражаси ҳисобига эришилган.

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СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ ПРЕДПОСЫЛКИ ПОЯВЛЕНИЯ ПЕРОНИЗМА В АРГЕНТИНЕ

Аннотация: В статье анализируются ключевые социально-экономические предпосылки возникновения и популяризации перонизма в Аргентине в первой половине XX века. Методологическую основу исследования составляют сравнительный, описательный и системный методы, позволившие провести комплексный анализ. Результаты работы демонстрируют, что формирование идеологии стало ответом на структурный кризис экономики на фоне социальной стратификации.

Ключевые слова: Перонизм, Хустисиализм, Аргентина, Социально-экономические предпосылки

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THE SOCIO-ECONOMIC BACKGROUND OF PERONISM IN ARGENTINA

Abstract: The article analyzes the key socio-economic prerequisites for the emergence and popularization of Peronism in Argentina in the first half of the 20th century. The research is based on comparative, descriptive, and systemic methods, which allowed for a comprehensive analysis. The results demonstrate that the formation of the ideology was a response to the structural crisis of the economy and social stratification.

Keywords: Peronism, Justicialism, Argentina, Socio-economic Prerequisites

Введение

Перонизм, также известный как хустисиализм, представляет собой одну из наиболее влиятельных и устойчивых политических идеологий в истории Латинской Америки. Её основателем и идейным лидером являлся генерал Хуан Доминго Перон, руководивший Аргентиной в 1946 – 1955, а затем 1973 – 1974 годы. Несмотря на длительный период запрета и критики, идеология до сих пор сохраняет широкую популярность в аргентинском обществе, продолжая оставаться центральной силой на политической арене страны. Проанализируем основные социально-экономические предпосылки,

способствовавшие появлению и популяризации перонизма в первой половине XX века.

Методологической основой исследования послужил комплекс взаимодействующих друг друга методов, позволивших всесторонне проанализировать феномен перонизма в Аргентине. Описательный метод заложил фактологическую базу работы, позволив выделить ключевые события, политические и экономические показатели государства. Сравнительный метод позволил провести сопоставление различных этапов развития аргентинского общества. Системный метод дал возможность рассмотреть социально-экономические факторы как комплексную основу формирования новой идеологии. Подобный подход обеспечил комплексность и достоверность анализа.

Результаты

Как и любая политическая идеология, перонизм возник на почве глубоких экономических, социальных и политических проблем, поразивших государство в первой половине XX века.

Аргентина являлась одним из богатейших государств мира в первой четверти столетия. Наделенная обширными плодородными землями и мягким климатом, она быстро стала одним из крупнейших в мире поставщиков сельскохозяйственной продукции. К 1914 году ее экономика являлась десятой в мире по ВВП на душу населения, обгоняя по этому показателю многие европейские государства. Журнал «The Economist», исследуя вопрос аргентинской экономики того времени, охарактеризовал ее следующим образом: «Страна, входящая в десятку наиболее богатых государств мира, уступающая Австрии, Британии и США, но опережающая Францию, Германию и Италию»⁷⁸. Несмотря на колоссальные доходы, структура аргентинского экспорта оставалась чрезвычайно примитивной, значительно уступая ведущим индустриальным экономикам мира. Аргентина практически не производила промышленной продукции: почти все, за исключением простой одежды и обуви, примитивной мебели и продуктов питания, завозилось из-за рубежа. Основным источником дохода для страны являлся экспорт сельскохозяйственной продукции. В 1914 году продукты аграрного производства составляли 99,3% от всего аргентинского экспорта, из которых: 50,8% составляли злаковые, 17% - шкуры и кости, 10% - говядина⁷⁹.

Экономический расцвет и лояльное законодательство провоцировали массовую миграцию. В поисках лучшей жизни в Аргентину приезжали люди из большинства государств мира. С 1870-х по 1930-е в страну прибыло около 6 миллионов человек. Она переживала бурную урбанизацию, городское

⁷⁸ The tragedy of Argentina. A century of decline // The Economist. 2014. URL:

<https://www.economist.com/briefing/2014/02/17/a-century-of-decline> (Дата обращения: 24.03.25)

⁷⁹ Любимов Иван, Казакова Мария, Гвоздева Маргарита, Оспанова Айгерим Провал и триумф экономического усложнения: история Аргентины и Южной Кореи во второй половине XX века // Экономическая политика. 2019. №5. URL: <https://cyberleninka.ru/article/n/proval-i-triumf-ekonomicheskogo-uslozheniya-istoriya-argentyiny-i-yuzhnoy-korei-vo-vtoroy-polovine-xx-veka> (дата обращения: 26.04.2025).

население выросло до 4 млн, что привело к появлению среднего класса и созданию национальной системы образования⁸⁰. В страну приходил иностранный капитал, в частности, Великобритания, являвшаяся на тот момент крупным торговым партнером Аргентины, помогала обуустраивать инфраструктуру, строить железные дороги и метрополитен. Однако, несмотря на впечатляющие экономические показатели, уровень жизни отдельных слоев населения оставался достаточно низким, в стране наблюдалась колоссальная экономическая стратификация. Крупные землевладельцы-латифундисты имели сверхдоходы с экспорта сельскохозяйственной продукции, а городское население и рабочий класс, состоявшее во многом из мигрантов, напротив, были вынуждены выживать. К 1937 году 95% фермеров не владели землей, на которой они работали, а 1% крупных лендлордов были хозяевами 70% земли⁸¹. Приезжие, которые не находили работу, оседали в крупных городах, получая государственные пособия. Они постепенно формировали новый класс, именуемый «descamisados» - «безрубашечники», который в дальнейшем станет опорой для укрепления новой идеологии.

После Великой депрессии, повлекшей за собой общемировое снижение спроса на сельскохозяйственную продукцию, экономика Аргентины начала постепенно увядать, столкнувшись с падением экспортных доходов, девальвацией национальной валюты и ростом безработицы. Зависимость от аграрного экспорта, обеспечивающего процветание ранее, и неразвитость индустриального сектора экономики стали большой проблемой. Цены на пшеницу, мясо и шерсть на мировых рынках стремительно снижались, а крупнейшие торговые партнеры, в лице США и Великобритании, сокращали закупки. Уровень жизни населения падал. Традиционные политические силы, в лице консерваторов и либералов, не смогли решить назревшие проблемы. Правительство стремилось выйти из кризиса, внедряя протекционистские меры и пытаясь диверсифицировать экономику через индустриализацию и импортозамещение. Для того чтобы простимулировать местное производство вводились высокие тарифы на ввоз иностранных товаров, а также были заключены торговые соглашения с Великобританией. Данные шаги лишь частично смогли смягчить последствия кризиса, промышленный рост был неравномерным, а зависимость от аграрного экспорта оставалась. В стране усугублялись социальные проблемы. Безработица, инфляция и существенное сокращение зарплат усиливали недовольство населения. На этом фоне росло влияние военных и профсоюзов, требовавших радикальных реформ. Популистские идеи находили все больше сторонников, а политические власти, неспособные решить вопрос в кратчайшие сроки, регулярно менялись. Все это вылилось в череду военных переворотов в 30-е и 40-е годы. Именно в таких

⁸⁰ Любимов Иван, Казакова Мария, Гвоздева Маргарита, Оспанова Айгерим Провал и триумф экономического усложнения: история Аргентины и Южной Кореи во второй половине XX века // Экономическая политика. 2019. №5. URL: <https://cyberleninka.ru/article/n/proval-i-triumf-ekonomicheskogo-uslozhneniya-istoriya-argentiny-i-yuzhnoy-korei-vo-vtoroy-polovine-xx-veka> (дата обращения: 26.04.2025).

⁸¹ Хроническая Аргентина. Как попасть в столетний застой // Коммерсант URL: <https://www.kommersant.ru/doc/2458978> (дата обращения: 05.05.2025).

условиях и сформировались предпосылки для популяризации идей Перонизма⁸².

Вывод

Подводя итог, в качестве основных предпосылок появления и популяризации перонизма в Аргентине можно выделить: экономические проблемы, вызванные примитивностью экспортного сектора экономики, усугубившиеся с наступлением Великой депрессии, отсутствие стабильной политической власти, а также социальный кризис на фоне сильной социальной стратификации. Для устойчивого развития были необходимы качественные изменения и усложнения в определенных секторах экономики, однако долгие годы Аргентина сохраняла высокие экономические показатели за счет примитивного сельского хозяйства, не прибегая к значительной модернизации, что в конечном итоге привело к сильнейшему экономическому кризису. Результаты данной работы могут быть использованы в регионоведческих исследованиях, а также в качестве справочного материала по теме.

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ДИФФЕРЕНЦИРОВАННОЕ ОБУЧЕНИЕ КАК ФАКТОР ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ОБРАЗОВАТЕЛЬНОГО ПРОЦЕССА

Аннотация. В данной статье описывается актуальность дифференцированного обучения в педагогических вузах, которое предполагает развитие профессиональных навыков и компетенций в данной области, исходя из потребностей в образовании, в связи с индивидуально-типологическими особенностями студентов. В нем обсуждается важность многоуровневого образования, которое очень широко распространено в педагогической практике как одно из важных средств предотвращения и устранения неуспеваемости в учебе. Описывается положительное восприятие мангеймской системы образования во Франции, России, США, Бельгии и других странах мира.

Также представлена информация о том, что дифференцированное обучение является одним из важных факторов формирования профессиональной мотивации учащихся.

Ключевые слова: учитель, образование, достижение, фактор, потребность, дифференцированное образование, дифференциация, система, результат, технология, уровень.

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DIFFERENTIATED LEARNING AS A FACTOR IN INCREASING THE EFFECTIVENESS OF THE EDUCATIONAL PROCESS

Abstract. This article describes the relevance of differentiated learning in pedagogical universities, which involves developing professional skills and competencies in this area based on educational needs and the individual typological characteristics of students. It discusses the importance of multi-level education, which is widely used in teaching practice as an important means of preventing and addressing academic failure. The positive reception of the Mannheim education system in France, Russia, the USA, Belgium, and other countries is described. It also presents information on the importance of differentiated learning as an important factor in shaping students' professional motivation.

Key words: teacher, education, achievement, factor, need, differentiated education, differentiation, system, result, technology, level.

Дальнейшее развитие ведущих стран мира тесно связано с определением ими вопроса развития образования в качестве первоочередной задачи и их достижениями в этой области.

В нашей стране, особое внимание уделяется совершенствованию содержания высшего образования с учётом потребностей государства и общества в дошкольном образовании, а также в соответствии с формирующимся рынком образовательных услуг. В связи с этим, в Концепции развития системы высшего образования Республики Узбекистан до 2030 года определена задача “поднять содержание образования на качественно новый уровень, создать систему подготовки высококвалифицированных кадров, способных найти свое место на рынке труда, внести достойный вклад в устойчивое развитие социальной сферы и отраслей экономики”.

Одним из важнейших средств предупреждения и преодоления неуспеваемости в обучении является многоуровневое обучение, очень распространенное в педагогической практике. Изменения содержания образования связаны с индивидуально-типологическими особенностями обучающихся, поэтому актуально говорить и о дифференцированном обучении.

Правда, многие педагоги и ученые возражают против дифференцированного подхода к обучению. Противники такого обучения считают, что оно снижает образовательные стандарты, разделяет учащихся на группы, создает разные условия для разных групп и порождает бесчеловечность по отношению к менее образованным ученикам. Хочется отметить, что данная форма дифференциации, безусловно, имеет ряд отрицательных сторон, но есть и более положительные. Основной смысл заключается в адаптации учебного процесса к познавательным способностям, способностям и интересам каждого ученика. В дидактике обучение считается дифференцированным, если в процессе обучения учитываются индивидуальные различия учащихся [4]. Каждый педагог должен понимать, что без индивидуализации не может быть развивающего обучения — особого формирования обобщенных способов умственной деятельности, которые делятся на две группы – алгоритмического и эвристического типа. Несколько видов дифференцированного подхода в обучении помогают создать необходимые условия для развития у ученика этих способов умственной деятельности. В педагогической практике материал часто дифференцируют с учетом уровня сложности, самостоятельной работы и домашних заданий, уровня способностей учащихся и склонностей к предмету.

Проблему дифференцированного обучения исследовал в XIX веке педагог Йозеф Зиккенгер (1858–1930). Он отличался тем, что при сохранении классно-урочной системы организации мангеймской системы образования (связанной с названием города Мангейм) ученики распределялись по классам на слабые, средние и сильные стороны в зависимости от их способностей, уровня интеллектуального развития и уровня подготовки. Некоторые положения Мангеймской системы образования были положительно приняты

во Франции, России, США, Бельгии и других странах мира. Единственным элементом этой системы, психолого-педагогически приемлемым признаком развития современной науки называется специализированная прогрессивная практика обучения. Дифференциация повышает эффективность работы системы в связи с расширением функции той или иной системы, повышением ее интенсивности и распределением этих функций между ее компонентами.

Технология поэтапной дифференциации обучения на основе обязательных результатов является одним из вариантов развития технологии, направленной на обучение каждого учащегося на уровне его индивидуальных возможностей и способностей. При дифференцированной образовательной технологии педагог имеет возможность дифференцированно помогать ученику с низким уровнем усвоения и более эффективно работать, сосредотачиваясь на сильных учениках. Сильные ученики активно реализуют желание двигаться вперед и глубже, в то время как слабые ученики с меньшей вероятностью будут отставать от сильных учеников.

Целью дифференциации учебного процесса является создание условий для максимального развития способностей, возможностей и интересов каждого учащегося в процессе усвоения общеобразовательного содержания.

Основные аспекты процесса дифференцированного обучения:

1. Учет индивидуальных особенностей учащихся;
2. Группировка учащихся по этим признакам;
3. Вариативность процесса обучения в группах.

Одной из особенностей дифференцированного обучения является то, что оно учит индивидуальным особенностям учащихся, присущим группам, и организует в этих группах меняющийся процесс обучения. Дозировка помощи педагога учащимся с низкими результатами, т. е. разбиение теста или отрывка на самостоятельные части, работа с наглядным подкреплением (опорные схемы, чертежи) – может добиться эффективности учебного процесса за счет работы с подготовительными упражнениями. Индивидуально-личностный подход в преподавании позволяет учащимся с высокой успеваемостью не терять интереса к предмету, расти и приобретать знания на все более высоком уровне, а учащимся со средней и низкой успеваемостью – видеть и достигать перспектив на примере сверстников.

Вместо заключения стоит отметить, что такое обучение стимулирует развитие познавательных интересов и помогает учащимся преодолевать трудности и учиться более успешно. Это открывает им широкие возможности для самореализации, самопознания и самосовершенствования.

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ВЛИЯНИЕ СТРУКТУРНЫХ ПАРАМЕТРОВ ТКАНЕЙ «БЕКАСАМ» НА ПОКАЗАТЕЛИ БЕЗОПАСНОСТИ

Аннотация: В статье приводятся результаты исследований влияния структурных параметров тканей «бекасам» разного волокнистого состава на их воздухопроницаемость и гигроскопичность. Для исследования влияния структурных характеристик тканей был рассчитан безразмерный параметр SPF, а также коэффициент, характеризующий вид переплетения. Полученная функциональная зависимость даст возможность прогнозирования и проектирование технологических параметров тканей для соответствие требованиям по показателям безопасности.

Ключевые слова: ткань, воздухопроницаемость, гигроскопичность, диаметр нитей, линейная плотность, плотность нитей по основе и по утку, переплетение.

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INFLUENCE OF STRUCTURAL PARAMETERS OF "BEKASAM" FABRICS ON SAFETY INDICATORS

Abstract: The article presents the results of studies of the influence of structural parameters of "bekasam" fabrics of different fibrous composition on their air permeability and hygroscopicity. To study the influence of structural characteristics of fabrics, the dimensionless parameter SPF was calculated, as well as the coefficient characterizing the type of weave. The resulting functional dependence will make it possible to predict and design technological parameters of fabrics to meet the requirements for safety indicators.

Keywords: fabric, air permeability, hygroscopicity, thread diameter, linear density, thread density by warp and weft, weave.

Введение

Древние города Центральной Азии, по которым проходил Шелковый Путь, всегда славились производством изысканных тканей. Центрами узбекского ткачества были и остаются Бухара, Маргилан, Наманган, Коканд и другие. Эти места славятся красотой изготавливаемого там тканей не только по всей стране, но и на весь мир. Вековые традиции ручного изготовления тканей были неотъемлемой частью национальной одежды и культуры [1,2].

Производство национальных тканей в Узбекистане уникальное мастерство народных умельцев, которое сочетает в себе опыт и традиции древности и современной действительности. Существует множество тканей, производство которых вылилось в настоящее искусство. Искусство ткачества является культурным достоянием народа, передаваемым из поколения в поколение. Благодаря уникальному владению художественными и технологическими приемами ткачества, мастера создают уникальные по своей красоте ткани [1,2].

Традиционно для шитья халатов использовали полосатую ткань бекасам.

Бекасам – полосатая ткань разной плотности. В его основных нитях используются мелкие и крупные полосы разных расцветок. В полосах могут использоваться различные переплетения. Бывает разного состава. Ткань достаточно плотная, имеет легкий блеск. Изначально ее изготавливали из шелка и хлопка, но с развитием промышленности и новых технологий производстве пряжи, дорогостоящий шелк стали заменять другими волокнами, например, вискозой. В последнее время все больше стали использовать синтетические нити. Это удешевляет ткани и продлевает срок эксплуатации и легкость при уходе. Хлопковые, шелковые, вискозные нити по-разному впитывают красители и поэтому внешний вид тканей разный. Например, цвета красок в шелковых и вискозных тканях более яркие и блестящие, а в хлопковых более приглушенные и не блестящие. Для синтетических нитей используют различные красители, такие ткани выглядят модно и современно.

Глубокое и всестороннее изучение потребительских свойств тканей имеет важное практическое значение, так как от комплекса присущих тканям свойств, учитывая их целевое назначение, зависит их качество и срок службы, а также необходимо соблюдать требования, регламентированные в общем техническом регламенте «О Безопасности продукции лёгкой промышленности» [3].

Целью данного исследования является изучение влияния структурных параметров тканей «бекасам» на воздухопроницаемость и гигроскопичность.

Задачей исследования является исследование зависимости воздухопроницаемости и гигроскопичности в зависимости от структурных параметров тканей различного волокнистого состава для возможности прогнозирования показателей безопасности и обеспечения комфортного под одежного слоя.

Начало изучения свойств материалов, обеспечивающих комфортность одежды, относится к концу XIX века, когда первые экспериментальные методы начали внедряться в практику исследований А.П. Доброславиным за рубежом - Рубнером, Бартоном, Эдхолмом. С тех пор и до настоящего времени актуальность изучения этих свойств не утрачивается, а возрастает, что связано с развитием технологий создания новых видов волокон, нитей,

полотен из них, ассортимент которых постоянно расширяется и меняется, также изменяются и появляются новые условия эксплуатации.

До последнего времени результаты проведенных работ сводились к констатации фактов зависимости воздухопроницаемости тканей от тех или иных характеристик их строения, но не обеспечивали реальных возможностей проведения расчетов воздухопроницаемости и прогнозирования этого свойства для вновь проектируемых текстильных материалов.

Материалы и методы

Для изучения свойства тканей у отобранных образцов были определены структурные и физические показатели при помощи современного оборудования Учебно-Испытательной лаборатории при Ташкентский институт текстильной и легкой промышленности, регламентированные в общем техническом регламенте «О Безопасности продукции лёгкой промышленности». Перед проведением испытательных работ, образцы выдерживались в нормальных климатических условиях согласно ГОСТ ИСО 139-2014.

В качестве объектов для испытаний выбраны ткани с разным волокнистым составом: ткани из натуральных волокон (хлопок и шелк) и смешанные.



Образец I



Образец II



Образец III



Образец IV

Объектами исследования в данной работе служили:

Ткани бекасам различного волокнистого состава:

1. Основа-100% шёлк, уток-100% хлопок
2. Основа-100% хлопок, уток-100% хлопок
3. Основа-100% вискоза, уток-100% хлопок
4. Основа-100% хлопок, уток-100% синтетика

Результаты и их обсуждение.

Была проведена оценка воздухопроницаемости тканей «Бекасам» различного волокнистого состава и структурных параметров. Для точного воспроизведения зависимости воздухопроницаемости от диаметра нитей, линейной плотности, плотности нитей по основе и по утку, а также от вида переплетения был рассчитан безразмерный параметр SPF, а также коэффициент, характеризующий вид переплетения, как отношение t_{0ty}/R_0R_y . Результаты экспериментальных данных приведены в таблице 1.

таблица 1

№	Диаметр нитей, см		Плотность нитей, см		Коэффициент переплетения	$(\Pi_o \Pi_y d_{0dy}) \cdot K_{\Pi}$	Воздухопроницаемость $dm^3/m^2 \cdot sec$
	Основа	Уток	Основа	Уток			
I	0,0167	0,0282	430	366	0,063	4,6693	128,5
II	0,0239	0,0179	268	142	0,0625	1,0175	314
III	0,0199	0,0162	464	162	0,25	6,0580	149,5
IV	0,0239	0,0206	230	166	0,25	4,6993	109,6

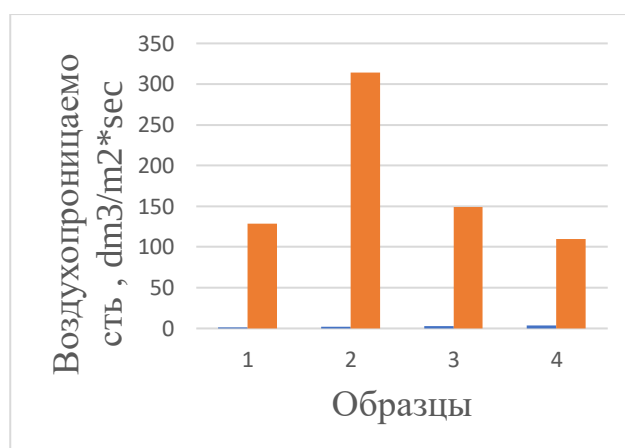


Рис. 1 Влияние волокнистого состава на воздухопроницаемость тканей «Бекасам»

При обработке результатов, приведённых в таблице 1 получили эмпирические коэффициенты нелинейной регрессии:

$$b = 232.3961, a = 83.9037$$

Уравнение регрессии (эмпирическое уравнение регрессии):

$$y = 232.3961 / x + 83.9037$$

Оценим качество уравнения регрессии с помощью ошибки абсолютной аппроксимации. Средняя ошибка аппроксимации - среднее отклонение расчетных значений от фактических:

$$\overline{A} = \frac{\sum_{i=1}^n \frac{|y_i - y_x|}{y_i}}{n} \cdot 100\%$$

Полученная величина свидетельствует о том, что фактор x (параметры ткани) существенно влияет на y (воздухопроницаемость).

При этом, вычислили индекс детерминации величину R^2 (равную отношению объясненной уравнением регрессии дисперсии результата y к общей дисперсии y) для нелинейных связей называют индексом детерминации. Чаще всего, давая интерпретацию индекса детерминации, его выражают в процентах.

$$R^2 = 1 - \frac{\sum (y_i - y_x)^2}{\sum (y_i - \bar{y})^2}$$

$$R^2 = 1 - \frac{1335.77}{26410.02} = 0.949$$

т.е. в 94.94% случаев изменения x приводят к изменению y . Другими словами - точность подбора уравнения регрессии - высокая. Остальные 5.06% изменения Y объясняются факторами, не учтенными в модели (а также ошибками спецификации).

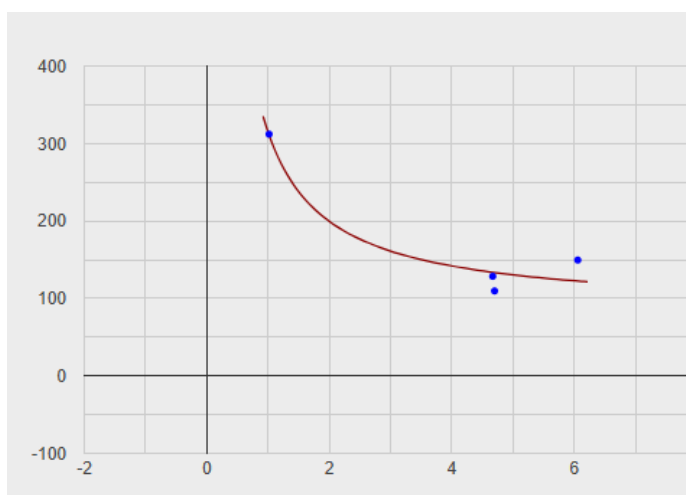


Рис.2 График влияние структурных параметров ткани (SPF) на воздухопроницаемость

Статистическая значимость уравнения проверена с помощью коэффициента детерминации и критерия Фишера. В данной ситуации 94.94% изменение Y объясняется изменением X . Значение ошибки аппроксимации (1,1%) говорит об удовлетворительном качестве найденной модели.

Как известно, гигроскопичность натуральных волокон выше, чем химических и соответственно результаты испытаний подтвердили данное утверждение, так как у образца II ткани из 100% хлопковых волокон гигроскопичность составляет 8,23 %. В сравнение с другими образцами показатель гигроскопичности у образца-I на 34,94 % меньше, у образца- III на 13,6 % меньше, у образца- IV меньше на 66,4 %.

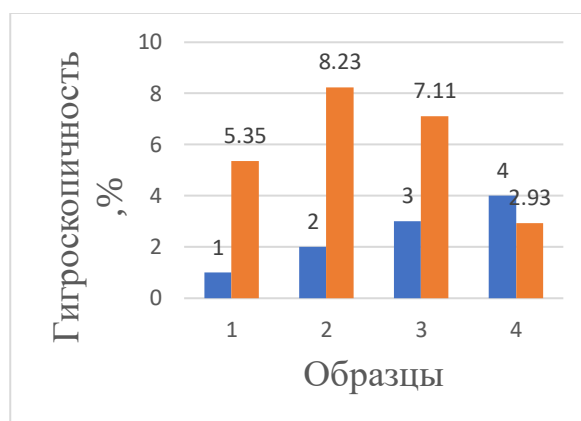


Рис.3 Влияние волокнистого состава на гигроскопичность тканей «Бекасам»

Наилучшей гигроскопичностью обладают хлопчатобумажные и льняные ткани, ткани из натурального шелка и гидратцеллюлозного волокна. Шерстяные ткани, хотя и обладают значительной гигроскопичностью, но влагу впитывают и испаряют медленно. Скорость поглощения и отдачи влаги зависит не только от гигроскопичности волокон, но и от структуры ткани. Чем плотнее и толще ткани, тем медленнее они впитывают и отдают влагу и тем лучше обеспечивают постоянство влажности и температуры воздушной прослойки между одеждой и телом человека. Низкой гигроскопичностью обладают ткани из синтетических волокон.

Заключение

Воздухопроницаемость относится к достоинствам текстильных материалов. От её степени напрямую зависит комфортность одежды в носке. При этом каждый из видов дышащих тканей имеет свои преимущества и недостатки.

При определении воздухопроницаемости, данный показатель для образца II оказался значительно выше чем у других образцов и составил 314 $\text{дм}^3/\text{м}^2 \text{ сек}$, что на 59,08 % больше чем у образца I, на 52,4 % больше чем у образца III и намного превосходит значение для образца IV соответственно больше на 65,1 %.

Исследования показывают, что наиболее резкое уменьшение воздухопроницаемости (до 50%) наблюдается при увеличении количества слоев до двух. Дальнейшее увеличение количества слоев материала влияет на уменьшение воздухопроницаемости в меньшей степени.

Но натуральные материалы также имеют свои минусы. Одежда из таких тканей быстро мнется. Шелк и вискоза требуют бережного обращения, а конопляные и льняные волокна неэластичны. Воздухопроницаемость материала уменьшается с увеличением влажности. Снижение воздухопроницаемости объясняется заполнением пор ткани влагой и набуханием волокон. Увеличение количества слоев материала снижает общую воздухопроницаемость пакета одежды.

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ИННОВАЦИОННЫЕ ТРЕНДЫ И ТЕХНОЛОГИИ В СТРУКТУРЕ СОВРЕМЕННОГО ОБУЧЕНИЯ РУССКОМУ ЯЗЫКУ В НЕЯЗЫКОВОМ ВУЗЕ

***Аннотация.** В статье рассматриваются современные инновационные подходы и технологии, применяемые в обучении русскому языку в неязыковых вузах. Особое внимание уделяется интеграции цифровых инструментов, методикам персонализированного обучения и развитию кросс культурных навыков студентов. Приводится анализ ключевых трендов, а также их практическое применение в образовательном процессе.*

***Ключевые слова:** внедрение новых технологий, новое время, многоязычной и мультикультурной среды, геймификации и кросскультурных методик.*

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INNOVATIVE TRENDS AND TECHNOLOGIES IN THE STRUCTURE OF MODERN TEACHING RUSSIAN LANGUAGE IN A NON-LINGUISTIC UNIVERSITY

***Abstract.** The article discusses modern innovative approaches and technologies used in teaching Russian language in non-linguistic universities. Particular attention is paid to the integration of digital tools, personalized learning methods and the development of students' cross-cultural skills. An analysis of key trends is provided, as well as their practical application in the educational process.*

***Keywords:** introduction of new technologies, new time, multilingual and multicultural environment, gamification and cross-cultural methods.*

Формирование инновационных технологий обучения иностранным языкам вызвано необходимостью преодоления кризиса в образовании, что способствовало бы подготовке специалистов новой формации. Внедрение новых технологий крайне актуально и в связи с тем, что новый XXI век предъявляет к выпускникам вузов иные требования, чем технократическое общество XX века. Технология обучения прошлого века, основанная на логике науки, на принципе «от знаний к умениям», должна превратиться в технологию, основанную на законах познавательной деятельности студентов, которая должна быть направлена на достижение выпускниками вершин профессиональной, творческой и духовно-нравственной деятельности. В

новой образовательной парадигме студент является активным субъектом познавательной деятельности, который с помощью новых форм организации образовательного процесса включается в диалог с преподавателем. Студент сегодня – это активная, творческая личность, которая должна не только обладать определённым объёмом знаний, но и уметь учиться, искать и находить необходимую информацию, использовать для этого различные источники, в том числе и медиа источники, и непрерывно развиваться.

Важнейшие тенденции развития современного общества, связанные с процессами глобализации и информатизации, напрямую отражаются на образовательном процессе в целом и в сфере иноязычного образования в частности. На данный момент сохраняется необходимость дальнейшей разработки вопроса внедрения современных интернет технологий в образовательный процесс, особенно в сфере высшего профессионального образования. Возникает необходимость в разработке специально организованной работы с информацией. Сегодня существует большое количество интернет-ресурсов. Они содержат материал, который может быть использован в образовательных целях. Одной из современных технологий, позволяющей особым образом организовать познавательную деятельность студентов в условиях непрерывно растущего объема информации и появления доступных образовательных интернет-ресурсов. На русском языке накоплен огромный объём информации о современном мире. На этом языке сегодня создаётся, записывается, хранится и распространяется самая передовая информация. Поэтому без знания русского языка очень сложно ориентироваться в современном мире. Преподавание русского языка в Узбекистане переживает, как и все другие сферы общественной жизни, период коренной перестройки. Это пересмотр целей, задач, методов, материалов. Новое время, новые условия потребовали пересмотра как общей методики, так и конкретных методов, и приемов обучения иностранным языкам, в том числе и русскому. Все это говорит в пользу идеи о необходимости особого, более вдумчивого подхода к проблемам обучения русскому языку.

Цели обучения русскому языку следует определить шире, включив в перечень решаемых задач воспитание будущих носителей языка в духе современных требований. Использование электронных сервисов на занятиях по русскому языку как иностранному со студентами отечественных вузов делает их не пассивными наблюдателями, а активными участниками образовательного процесса, повышает интерес студентов к изучению русского языка, помогает им творчески работать, самостоятельно получать знания. Проведённое исследование позволяет сделать вывод о том, что инновационные технологии в образовании являются важнейшим инструментом формирования личности. Они открывают новые возможности для создания персонализированного профессионально-ориентированного мобильного пространства, отвечающего современной компетентностно-ориентированной концепции образования.

Акцент делается на обучении умению самостоятельно находить необходимую информацию. Современное образование претерпевает значительные изменения под воздействием глобальных технологических и социальных процессов. В условиях многоязычной и мультикультурной среды неязыковых вузов обучение русскому языку как неродному становится важным компонентом профессиональной подготовки специалистов. В связи с этим возникает необходимость пересмотра традиционных подходов к обучению и внедрения инновационных решений. Цель данной статьи – определить ключевые инновационные тренды и технологии, способствующие повышению эффективности обучения русскому языку в неязыковых вузах, и раскрыть их практическое значение.

Главной задачей преподавания русского языка в Узбекистане в настоящее время является обучение языку как реальному и полноценному средству общения, подготовка гармонично развитого поколения с соответствующими личностными качествами.

Изучение русского языка способствует формированию гармоничной современной языковой личности, расширению возможностей реализации своих способностей как в нашей республике, так и в мире в целом. В настоящее время актуальность русского языка как иностранного обусловлена необходимостью налаживания международного сотрудничества. Кроме того, русский язык является средством популяризации гуманистических, духовных ценностей через произведения русских классиков.

Инновационные технологии и тренды меняют структуру обучения русскому языку, делая его более интерактивным, персонализированным и ориентированным на практические навыки. Применение цифровых инструментов, геймификации, VR/AR и кросскультурных методик позволяет повысить интерес студентов к изучению языка и улучшить их результаты. Для успешной интеграции таких подходов необходима подготовка преподавателей, адаптация учебных программ и создание условий для внедрения инновационных решений.

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ЭКОНОМИЧЕСКИЙ АНАЛИЗ ЭФФЕКТИВНОСТИ ТРАНСМИССИОННОГО МЕХАНИЗМА ДЕНЕЖНО-КРЕДИТНОЙ ПОЛИТИКИ В УСЛОВИЯХ МАКРОЭКОНОМИЧЕСКОЙ НЕСТАБИЛЬНОСТИ

Аннотация: В данной статье проводится комплексный экономический анализ трансмиссионного механизма денежно-кредитной политики (ДКП) в условиях макроэкономической неустойчивости. Цель исследования – оценить эффективность каналов передачи сигналов от ключевой ставки центрального банка к реальному сектору экономики, прежде всего к уровню инфляции и экономическому росту. В работе рассматриваются такие каналы, как процентный, кредитный, валютный и канал инфляционных ожиданий. Методология исследования включает анализ временных рядов, построение эконометрических моделей (VAR-модели) и сравнительный анализ на основе данных развитых и развивающихся рынков. Результаты показывают, что в условиях шоков предложения и высокой волатильности на финансовых рынках традиционные каналы ослабевают, а роль управления ожиданиями экономических агентов и коммуникационной политики (сигнальный эффект) критически возрастает. Делается вывод о необходимости для центральных банков использования гибкого подхода, сочетающего таргетирование инфляции с мониторингом финансовой стабильности.

Ключевые слова: денежно-кредитная политика, трансмиссионный механизм, ключевая ставка, инфляция, инфляционные ожидания, центральный банк, макроэкономическая неустойчивость, эконометрическое моделирование, финансовая стабильность.

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AN ECONOMIC ANALYSIS OF THE EFFICIENCY OF THE MONETARY POLICY TRANSMISSION MECHANISM UNDER MACROECONOMIC INSTABILITY

Abstract: This article provides a comprehensive economic analysis of the monetary policy (MP) transmission mechanism under macroeconomic instability. The objective of the study is to assess the effectiveness of the signal transmission

channels from the central bank's key interest rate to the real economy, primarily to inflation and economic growth. The paper examines interest rate, credit, foreign exchange, and inflation expectations channels. The research methodology includes time series analysis, econometric modeling (VAR models), and comparative analysis based on data from developed and emerging markets. The results show that, in conditions of supply shocks and high volatility in financial markets, traditional channels weaken, while the role of managing economic agents' expectations and communication policies (the signaling effect) increases critically. It is concluded that central banks need to adopt a flexible approach combining inflation targeting with financial stability monitoring.

Keywords: *monetary policy, transmission mechanism, key rate, inflation, inflation expectations, central bank, macroeconomic instability, econometric modeling, financial stability.*

Денежно-кредитная политика является одним из ключевых инструментов государственного регулирования экономики. Её конечные цели – обеспечение ценовой стабильности и устойчивого экономического роста – достигаются через сложную систему взаимосвязей, известную как трансмиссионный механизм ДКП. Однако его эффективность не является константой и существенно варьируется в зависимости от состояния экономики. Глобальные кризисы, пандемия, нарушения цепочек поставок и геополитическая напряженность создают условия макроэкономической нестабильности, в которых традиционные модели передачи монетарных импульсов могут давать сбои [1]. Это обуславливает актуальность данного исследования, направленного на выявление особенностей работы трансмиссионного механизма в турбулентной среде.

1. Теоретические основы трансмиссионного механизма
Трансмиссионный механизм ДКП – это процесс, посредством которого решения центрального банка (ЦБ) по ключевой процентной ставке влияют на финансовую систему и, в конечном счете, на реальные экономические переменные: инфляцию и выпуск [2]. Основными каналами передачи являются:

·Процентный канал: Изменение ключевой ставки ЦБ влияет на краткосрочные, а затем и на долгосрочные рыночные ставки, изменяя стоимость заимствований для домохозяйств и бизнеса, что сказывается на потреблении и инвестициях.

·Кредитный канал: включает банковский канал (изменение способности банков предоставлять кредиты) и канал баланса (изменение финансового положения заемщиков).

·Валютный канал: Изменение ставки влияет на приток/отток капитала и обменный курс, что модулирует цены на импорт и конкурентоспособность экспорта.

·Канал инфляционных ожиданий: Уверенность экономических агентов в способности ЦБ контролировать инфляцию напрямую влияет на ценовую и wage-setting политику предприятий и населения.

2.Методология анализа. Для оценки эффективности механизма в условиях нестабильности применяется следующий методический аппарат:

·Сравнительный анализ: Сопоставление данных по странам с развитой экономикой (например, США, зона евро) и развивающимися рынками (Россия, Бразилия) в периоды докризисной стабильности и во время шоков (2008–2009 гг., 2014–2015 гг., 2020–2022 гг.).

·Эконометрическое моделирование: Построение векторных авторегрессионных моделей (VAR) для оценки силы и лагов реакции ключевых макропеременных (инфляция, ВВП) на шок ключевой ставки. Анализ функций импульсного отклика.

·Статистический анализ: Расчет корреляций между изменением ставок, денежных агрегатов, кредитной активностью и инфляцией в различные временные периоды.

3.Результаты исследования и их обсуждение Проведенный анализ позволил выявить ряд закономерностей:

1. Ослабление традиционных каналов: в условиях шоков предложения, процентный канал становится менее эффективным. Высокая инфляция заставляет ЦБ резко ужесточать политику, однако это подавляет не источник инфляции (предложение), а спрос, создавая риски для экономического роста (стагфляционное давление).

2.Возрастание роли инфляционных ожиданий: В периоды неопределенности ожидания экономических агентов теряют якорь и становятся более валютиобным. Это делает сигнальный эффект и коммуникационную политику ЦБ (forward guidance) критически важными. Четкие и последовательные заявления ЦБ могут стабилизировать ожидания даже без резких изменений ставки.

3.Нарушение кредитного канала: в условиях кризиса доверия и роста рисков банковская система может «зажать» кредитование, несмотря на наличие ликвидности, предоставляемой ЦБ. Это нарушает передачу импульса к реальному сектору.

4.Повышенная волатильность валютного канала: на развивающихся рынках валютный канал часто работает более резко и быстро, чем процентный. Резкие движения курса национальной валюты могут нивелировать эффект от изменения ставки.

Экономический анализ показывает, что в условиях макроэкономической нестабильности классический трансмиссионный механизм денежно-кредитной политики претерпевает значительные изменения. Его эффективность снижается из-за нестандартной природы шоков (шоки предложения против шоки спроса) и роста неопределенности.

В этих условиях центральные банки не могут ограничиваться лишь ортодоксальными методами таргетирования инфляции через

манипулирование ключевой ставкой. Для повышения эффективности ДКП необходимы:

- Гибкий подход, учитывающий природу инфляционного давления.
- Усиление роли коммуникационной политики для управления инфляционными ожиданиями и повышения предсказуемости действий ЦБ.
- Интеграция мониторинга финансовой стабильности в рамки проведения ДКП, так как финансовая нестабильность напрямую нарушает работу кредитного канала.

Таким образом, современный экономический анализ диктует необходимость перехода к более комплексной и адаптивной модели денежно-кредитного регулирования, способной адекватно реагировать на вызовы турбулентной глобальной экономики.

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ЖАМОАНИНГ КОЛЛЕКТИВДАН ФАРҚИ

Аннотация. Мақолада компания ходимларидан фойдаланиш самарадорлигини оширишда ёрдам бериш мумкин бўлган усуллари кўриб чиқилган. Ходимларни бир бутун жамоа сифатида бошқаришни такомиллаштириш бўйича маслаҳатлар ва тавсиялар берилган.

Калим сўзлар: Бошқарув, компания ходимлари, яхши жамоа, меҳнат унумдорлиги, вазифалар, масъулият, рағбатлантириш, самарадорлик.

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DIFFERENCES BETWEEN A TEAM AND A COLLECTIVITY

Annotation: The article discusses methods that can help improve the efficiency of using company employees. Tips and recommendations are given on how to improve employee management as a team.

Key words: Management, company employees, a good team, labor productivity, tasks, responsibility, rationalization, efficiency.

Жамоани коллективдан нимаси билан фарқ қилиши ҳақида ҳеч ўйлаб кўрганмисиз? Ахир, ҳар бир раҳбар жамоани хоҳлайди. Барчаси биргаликда, битта мақсад билан боғланган ҳолда, керакли натижага эриша олишлари учун.

Аммо бу масалани ўрганишда, менежерларнинг бошларида ҳақиқий жамоа нима эканлиги ҳақида жуда кўп иллюзиялар борлигини кўриш мумкин. Қайси менежерлар ўзларининг бошқарув хатти-ҳаракатларининг самарасиз моделларини яратадилар, бу эса натижаларга эришишга тўсқинлик қилади. Чунки бу борада амалга оширилмайдиган кўплаб умидлар мавжуд. Ушбу мақолада биз ушбу иллюзияларнинг баъзиларини тасвирлашга ҳаракат қиламиз.

1. "Яхши жамоада ҳамма бир-бирига ёрдам беради." Йўқ, жамоадаги ҳар бир киши ўзининг аниқ роллари ва функцияларига эга. Бу аниқ! Ҳар ким ўз масъулиятини аниқ билади, бошқалардан ҳам шуни кутади ва ўз иши учун жавобгардир. Ҳамма ўз ишини яхши бажармоқда! Ҳа, кимдир ўз вазифаларини унутган бўлса, хушмуомалалик билан эслатиш мумкин ва керак. Асосий эътибор ёрдамга эмас, балки алмашинувга қаратилган - ҳар ким умумий натижадаги қийматнинг ўз қисмини ташкил қилади. Чунки мен жамоанинг бошқа аъзоларига ёрдам берсам, мен ҳам ўз вазифамни бажармайман ёки буни унчалик самарали ёки ўз вақтида бажармайман. Бу

умумий натижага эришилмаслигини англатади. Шунинг учун раҳбар жамоада ушбу ёндашувни - ўз иши учун жавобгарликни ривожлантириши керак. Ва бутун жамоага ҳамма натижага қандай таъсир қилишини кўрсатиш - рақамлар, расмлар, бизнес жараёнини чизиш ва ҳар бирининг ролини кўрсатиш керак. Ва агар кимдир доимо ёрдамга муҳтож бўлса, унда бу менежернинг масъулияти - ёки нотўғри одам, ёки етарли ваколатлар йўқ ёки юк нотўғри тақсимланган бўлиши мумкин.

2. "Яхши жамоада уйғунлик ҳукм суради" Яхши жамоаларда ҳаракат бор! Энергия, ривожланиш, ўсиш ва ўзгариш ғояларини доимий излаш. Менга "уйғунлик" сўзи умуман ёқмайди. Мен учун бу ҳеч нарса содир бўлмайдиган сокин ботқоққа ўхшайди. Ва жамоа контекстида уйғунлик ҳамма бир хил эканлигини англатади, бу ҳамма хотиржам, бу ҳеч қандай тўлиб тошиш йўқлигини англатади. Раҳбар уйғунликни кўриши биланоқ билсинки, бу жамоа тез орада чирий бошлайди, янги қизиқарли вазифалар керак, муаммоларни таъкидлаш, янги уфқларни чизиш керак. Яъни, айнан раҳбар уйғунликни бузувчи ва ўчмаслиги учун ҳар доим ўтинни оловга қўйиши керак бўлган етакчидир. Аммо ўтиннинг бутун ҳажми бир вақтнинг ўзида ёқилмаслиги учун, ёниш жараёни узок вақт давом этиши учун, лекин одамларни қизиб кетмаслиги учун буни оқилона қилиш керак.

3. "Яхши жамоада низолар йўқ" Аксинча. Ҳар ким ҳар хил бўлганлиги сабабли, ҳар ким ўз вазифаси учун жавобгардир ва манфаатлар тўқнашуви пайдо бўлиши мумкин ва бўлиши керак. Аммо кучли жамоалар низоларни зудлик билан ҳал қила оладилар ва ҳеч нарса айтилмаган ҳолда қолдирмайдилар. Менежернинг вазифаси низоларни ўчириш эмас. Аксинча, уларни тортиб олиш ва уларни ҳал қилиш. Айнан улар туфайли жамоа аъзолари ўртасидаги ўзаро муносабатлар қоидалари пайдо бўлади, ишдаги муаммолар ва хатолар чиқади, энг яхши ечимлар топилади ва ҳоказо. Битта савол шундаки, низоларни бошқариш маҳоратдир. Ва маҳорат пайдо бўлиши учун биринчи навбатда билим керак. Акс ҳолда, тартибсизликлар юзага келиши мумкин.

4. "Яхши жамоа бир-бирига ўхшаш ва яқин одамлардан иборат." Кучли жамоа жуда бошқача одамлардан иборат бўлиши керак. Агар мувозанат ва бир-бирини тўлдирувчи бўлса, жамоа самарали бўлади: психотиплар, кучли/заиф томонлар ва бажарилган функционаллик жиҳатидан. РАЕИ Адизес модели мувозанатли жамоани яратиш учун оддий ва интуитив воситадир. Агар сиз ушбу модел ҳақида билмасангиз, илтимос, кизиқиб куринг. Бу одамларни бошқариш ва жамоаларни шакллантириш учун жуда фойдали нарса. Ва энг муҳими, у одамлар учун барча бизнес жараёнлари учун ишлайди – ишга қабул қилишдан мотивацияга қадар ва ажойиб натижалар беради.

5. "Яхши жамоа ёрқин натижалар беради" Бир марта рекорд ўрнатиш юлдузлар жамоаси ёки жуда кучли зўриқиш ҳақида. Бу бир марталик ҳикоя. Кучли жамоа интизомга эътибор қаратади. Бу узок вақт давомида барқарор ва самаралидир.

6. "Кучли жамоаларни доимий равишда кучли етакчи бошқаради" Яхши жамоа узоқ вақт давомида умуман етакчисиз ишлаши мумкин. Унинг кучи ўзини ўзи бошқариш механизмларида ётади! Жамоага фикр-мулоҳаза, ресурслар бериш, мураббий сифатида хизмат қилиш ва инқирозларни енгишга ёрдам бериш учун раҳбар керак. Ва улар албатта бўлади. Аммо бундай жамоага мураббий бўлиш учун сиз қандай кўникмаларга эга бўлишингиз ва қандай шахс бўлишингиз кераклигини аллақачон биласиз.

7. "Яхши жамоа ҳамма нарсада бирдамликка эга" Кадимги файласуф Марк Энтони Де Доминиснинг иқтибосига изоҳ бериш мақсадга мувофиқ: "бирлик-асосий нарса, эркинлик-иккинчи даражали, севги-ҳамма нарса!" Бу билан, у самарали бўлиши учун жамоа қандай бўлиши кераклигини жуда аниқ тасвирлайди.

Хулоса қилиб айтганда, идеал менежерларни топиш қийин, аммо юқоридагиларга амал қилиб, кучли жамоани йиғиш мумкин ва шунда юқори натижаларга эришиш мумкин.

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ЭФФЕКТИВНОСТЬ РАЗВИТИЯ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ У ДЕТЕЙ СТАРШЕГО ДОШКОЛЬНОГО ВОЗРАСТА

Аннотация: В данной статье изложены результаты научных исследований и отзывы об эффективности развития творческих способностей детей старшего дошкольного возраста, специфике системы развития творческих способностей, процессе обеспечения организационно-педагогических условий, показателях оценки уровня развития творческих способностей детей, модели технологии развития творческих способностей

Ключевые слова: творческие способности, познавательно-эмоциональные, личностно - творческие способности, мотивационно-ценностные, показатели результативности деятельности старшего дошкольника, содержательные, технологические, рефлексивно-коррекционные условия.

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THE EFFECTIVENESS OF DEVELOPING CREATIVE ABILITIES IN SENIOR PRESCHOOL CHILDREN

Abstract: This article presents the results of scientific research and reviews on the effectiveness of the development of creative abilities of older preschool children, the specifics of the system of creative abilities development, the process of providing organizational and pedagogical conditions, indicators for assessing the level of development of children's creative abilities, models of technology for the development of creative abilities.

Keywords: creative abilities, cognitive and emotional, personal and creative abilities, motivational and value-based, performance indicators of an older preschooler, meaningful, technological, reflexive and correctional conditions.

Развитие творческих способностей детей старшего дошкольного возраста требует создания благоприятных организационно-педагогических условий, в которых они успешно решают образовательные задачи и рассчитывают совокупность возможностей для развития педагогического процесса. В нашей исследовательской работе определены организационные педагогические условия, обеспечивающие функционирование и развитие педагогической системы, отражающие совокупность возможностей среды образовательного и материально-технического пространства, оказывающих положительное влияние на субъектов образовательного процесса. Также,

исходя из специфики системы развития творческих способностей детей старшего дошкольного возраста, в рамках исследования установлено, что повышению эффективности процесса способствует обеспечение следующих организационно-педагогических условий

1.Значимые обстоятельства. Значимые обстоятельства. Известно, что творческое развитие детей-это система направлений и компетенций их нравственного, интеллектуального, физического, социально-личностного развития, в которой особое место занимают государственные требования к развитию дошкольников, наличие комплексных методов диагностики.

2.Технологические условия. Развитие творческих способностей детей и в процессе оценки

- игровые технологии (ролевые деловые игры, имитационные игры);
- решение и анализ педагогических проблемных ситуаций, “тематическое исследование”;
- работа в малых группах, микрообучение;
- применение методов творческого исследования;
- особое внимание было уделено релаксационной тренировке.

Рефлексивно-корректирующая среда.Рефлексивно-корректирующая среда. Особое внимание уделялось созданию рефлексивно-коррекционной (коррекция результатов, коррекция, развитие, переоценка) условной среды как результата-продукта .

При этом содержание рефлексивно-коррекционных условий определялось следующим образом:

- развивать активную познавательную мотивацию;
- формирование творческих навыков;
- развитие личностно-социальных, коммуникативных, интеллектуальных компетенций;
- создание нетрадиционных форм обучения и условий дополнительного образования.

При оценке уровней развития творческих способностей детей старшего дошкольного возраста оценивались показатели познавательно-эмоционального, личностно-творческого воображения, мотивационной активности и стремления к достижению цели воспитанников по следующим критериям:

-когнитивно-эмоциональные показатели воспитанника: неорганизованное мышление, умение придумывать больше идей, умение рисовать образы, удобное использование средств, особенности темперамента (пластичность, изменчивость).

- показатели личностных творческих способностей: активизация творческого потенциала, использование творческого воображения, самостоятельность, владение внутренней позицией (интерес к творческой деятельности).

-мотивационно-ценностные показатели: потребность в творческой деятельности, признание ценности творчества, стремление к самореализации в деятельности через создание творческого продукта;

- показатели результативности деятельности: овладение приемами творческой деятельности, выбор приемов творческого решения поставленной задачи, выбор различных материалов для реализации задумки, стремление к достижению цели и получению конкретных результатов своей деятельности.

В связи с уточнением содержания развития творческих способностей детей старшего дошкольного возраста и его основных показателей, с учетом специфики педагогических условий и индивидуальности воспитанников, исходя из научных соображений, в рамках исследования была разработана педагогическая модель, а содержание деятельности по ней определено следующим образом (Рис.1).

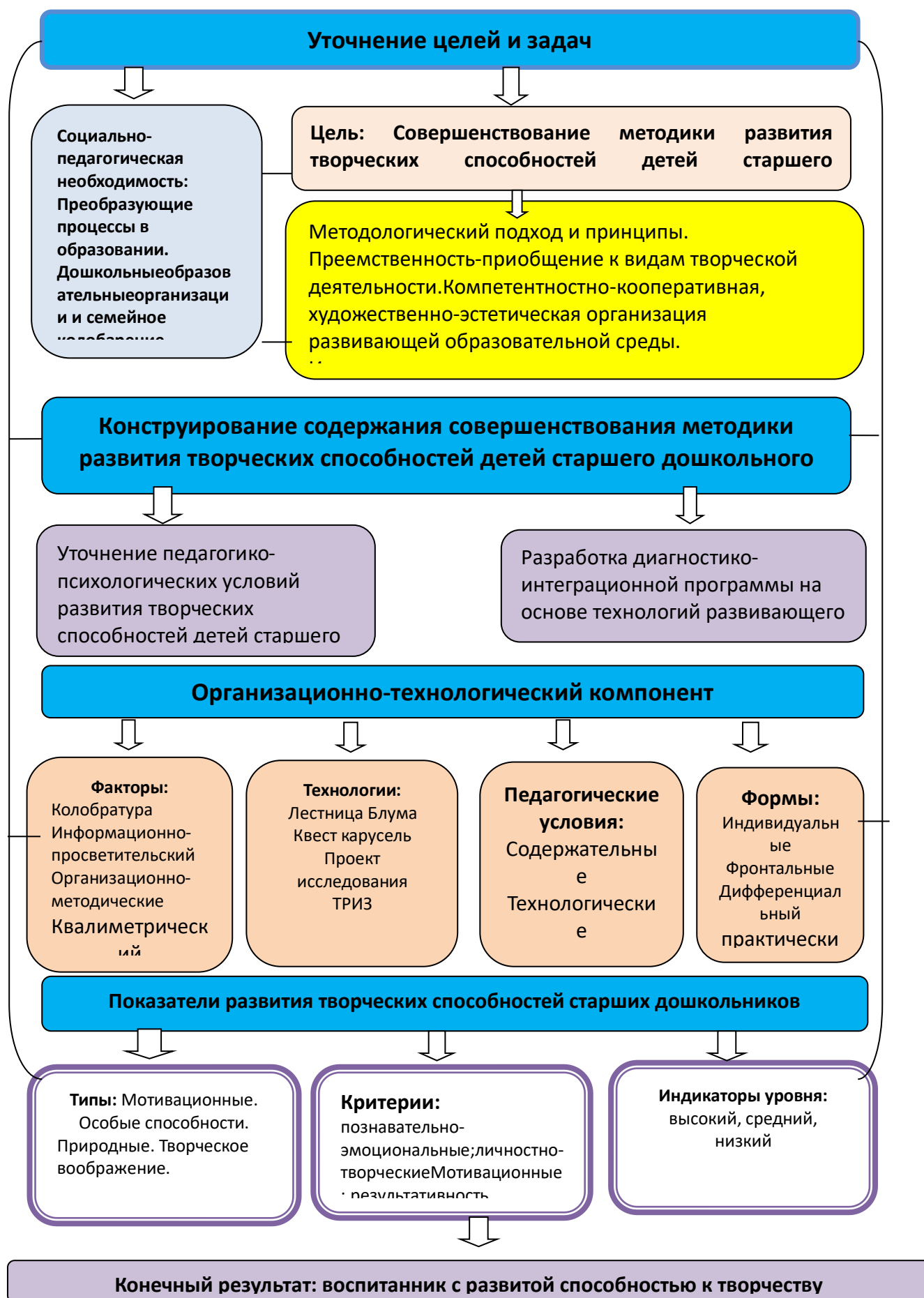
Структура модели состоит из следующих компонентов: целевой (социальный порядок, цели и задачи);

Организационно-методологический компонент
(Факторы. Колобарадия. Информативный образовательный.

Организационно - методические ,Комплексной готовности детей к школьному обучению, определение содержания и технологий педагогической деятельности по направлениям развития, разработка диагностико-фасилитационной программы на основе технологий развивающего обучения);

Научно-педагогический анализ показал, что компетентностный подход в дошкольных образовательных организациях требует внесения функциональных изменений в структурную модель творческого развития старших дошкольников.

Модель технологии развития творческих способностей детей старшего дошкольного возраста.



Структура модели совершенствования методики развития творческих способностей детей старшего дошкольного возраста (5-6 лет) состоит из следующих компонентов:

- целевой (социальный порядок, цели и задачи);
- методический подход (содержание педагогической деятельности и педагогические принципы организации учебно-воспитательного процесса развития творческих способностей детей старшего дошкольного возраста);
- организационно-структурные (факторы, технологии, условия, формы, влияющие на процесс развития творческих способностей детей старшего дошкольного возраста);
- диагностико-результативные (критерии развития показателей творческих способностей детей старшего дошкольного возраста, показатели уровня и результата).

В результате организации системы образования в рамках данной модели, аспектов, связанных с научным мировоззрением, понятиями, законами, принципами, обеспечивающими развитие творческих способностей детей старшего дошкольного возраста, у воспитанников сформировались навыки самостоятельного обучения, критического мышления, умения находить решения проблемных ситуаций, умения работать в команде, проявлять инициативу, самовыражение.

В критерии результативности оценивалось развитие творческих способностей у детей с учетом уровня их интеллектуального, социального и психологического развития. Содержание, формы и методы деятельности с детьми старшего дошкольного возраста должны служить не только формированию готовности воспитанников к следующему этапу обучения, но и развитию их творческо-исследовательской и самостоятельной познавательной деятельности, отличаться от других возрастных групп направленностью на диагностические цели. Поэтому особое значение приобретает правильный выбор и внедрение образовательных технологий и средств, направленных на развитие творческих способностей воспитанников старшей дошкольной группы.

В рамках нашего исследования мы уточнили категорию технологий, основанных на Блуме - квесте, которые служат развитию творческих способностей детей старшего дошкольного возраста. (Рис. 2).

Технологии развития творческих способностей детей старшего дошкольного возраста

Лестница Блума	В решении проблемных жизненных ситуаций развиваются такие качества, как умение находить новые решения; умение оценивать информацию посредством критического мышления; всестороннее понимание предмета; развитие творческих способностей; умение применять друг друга в коллективе, находить самостоятельное решение;
Квест "карусель"	Воспитание у детей интереса к познанию образовательного процесса через игрово - приключенческую деятельность направлено на воспитание потребности в проявлении собственного
Логика карусели	Систематическая форма мышления-это стратегия, которая помогает закрепить знания по теме у детей под определенным понятием, логически продолжить предыдущую мысль, свободно и открыто мыслить по теме.
Организация сотрудничества ДОО и семьи	" Написание на листочках", " портфолио", " консультационные часы для родителей", " небольшой опыт", " мастер-класс", " педагогическая лаборатория", " семинар-практикум", " детская

В результате исследований, проведенных с использованием данных технологий в развитии творческих способностей детей старшего дошкольного возраста, рекомендуются следующие предложения и соображения.

- процесс развития творческих способностей детей старшего (5-6) дошкольного возраста целесообразно рассматривать как направляющий, стимулирующий фактор и движущую силу к глубокому усвоению детьми знаний, умений, навыков.

- эффективным методом развития творческих способностей детей является использование лично-ориентированных и развивающих образовательных технологий, учитывающих их индивидуальные особенности, потребности, интересы, склонности и желания.

- учебно-воспитательная деятельность дошкольных образовательных организаций показывает, что в будущем социальный порядок должен определяться индивидуальными интересами, возможностями, потребностями воспитанников.

- развитие творческих способностей детей требует особого внимания к ряду принципов: приобщение детей к видам творческой деятельности; активность; сотрудничество; индивидуальный комфорт; художественно-эстетическая организация среды и психологическое сопровождение.

- содержание, формы и методы образовательной деятельности с детьми старшего дошкольного возраста требуют правильного выбора развивающих

мотивационных технологий и механизмов развития творческо-исследовательских и самостоятельных познавательных способностей у воспитанников с опорой на современный опыт.

Вместо вывода стоит отметить, что творческие способности являются важным фактором всестороннего развития детей и представляют собой комплексный процесс формирования полноценных личностных качеств в будущем. Именно поэтому организация учебно-воспитательных процессов, направленных на развитие творческих способностей детей в дошкольных образовательных организациях, сегодня показывает актуальность и необходимость.

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ПРОГНОЗ ЧИСЛЕННОСТИ НАСЕЛЕНИЯ, СЕТКИ И СОСТАВА НАСЕЛЕННЫХ ПУНКТОВ БУХАРСКОЙ ОБЛАСТИ

Аннотация. В данной статье освещается состояние демографических процессов в населенных пунктах, численность и прирост населения, естественное и механическое перемещение населения и их будущее состояние посредством прогнозирования численности населения на территории. Прогнозирование позволяет предвидеть возможные природные, демографические, экономико-социальные и экологические проблемы, а также сглаживать их при определении будущих перспектив расселения населения в регионе. Также одной из актуальных задач является создание новых рабочих мест, важных для населения и населенных пунктов, оценка и контроль уровня обеспеченности жильем, реализация безупречного прогноза численности населения территории при предварительном планировании социальных учреждений (образования, медицины, отдыха) и транспортной инфраструктуры.

Ключевые слова: прогноз, населенные пункты, численность населения, городское население, экстраполяция.

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FORECAST OF POPULATION SIZE, NETWORK AND COMPOSITION OF POPULATION POINTS IN BUKHARA REGION

Annotation. This article highlights the state of demographic processes in settlements, the population size and growth, natural and mechanical population movement, and their future state through population forecasting in the territory. Forecasting allows us to anticipate possible natural, demographic, economic, social, and environmental problems, as well as to mitigate them when determining

future prospects for population settlement in the region. Another important task is to create new jobs that are important for the population and settlements, assess and control the level of housing provision, and implement an accurate forecast of the population size in the territory, while also planning social facilities (education, healthcare, and recreation) and transportation infrastructure.

Keywords: *forecast, settlements, population size, urban population, extrapolation.*

Особую значимость прогнозная работа приобретает при разработке государством перспектив развития населенных пунктов и создании перспективных программ. В частности, определена задача Президента Республики Узбекистан, в которой говорится, что необходимо «ежегодно разрабатывать программы развития на основе программ комплексного социально-экономического развития территорий на 2022-2026 годы с углубленным изучением проблем и возможностей регионов». В этом отношении населенные пункты, особенно городские населенные пункты, выступают в качестве опоры эксплуатации страны.

Вопросами прогнозирования численности населения в нашей стране занимались такие ученые, как Солиев А.С., Райымжанов З., Ахмедов Е.А., Курбанов П.Р., Мавлонов А.М., Закиров С.С., Таштаева С.К., Тажиева З.Н., Буриева М.Р., Эгамбердиева М.М., Мусаев Б.М. Работы этих ученых были глубоко изучены, и на их основе были разработаны прогнозы численности городского, поселкового и сельского населения Бухарской области до 2050 года.

В последние годы различными авторитетными международными организациями и изданиями признается, что в нашей стране стремительно развиваются различные отрасли экономики. Вместе с тем демографический потенциал нашей страны также стремительно растет из года в год. В этой ситуации важным является предвидение и оценка изменений численности, расселения, состава, демографических процессов населения, проживающего на этих территориях, а также вопросы составления будущих программ расселения населения, размещения населения и производительных сил.

Для прогнозирования методом экстраполяции был проведен углубленный анализ численности городского населения области за 2010-2024 годы, уровня рождаемости и смертности, количества переселенцев, естественного и механического прироста населения городов. Анализ показал, что естественный прирост населения в 2024 году в провинциях Шафиркан (29,4%), Каракуль (25,7%) и Вабкент (24,5%) чрезвычайно высок. Напротив, в Газли (4,7%), Караулбазаре (15,5%) и Галаасии (16,3%) наблюдаются естественные приросты, которые показывают низкий уровень. Эти показатели являются одними из основных для прогноза численности населения. Но здесь не стоит забывать и о механическом размножении. В большинстве населенных пунктов нашей страны механический прирост населения имеет преимущественно отрицательное сальдо. Так обстоит дело с большинством

населенных пунктов Бухарской области. Например, в городе Шафиркан механическое увеличение составляет 13,4%. Это означает, что валовой прирост населения составляет 16%, хотя показатели естественного прироста населения города самые высокие. Ведущими городскими поселениями в этом отношении являются Ромитан (24,5%), Галаасия (22,3%) и Караулбазар (20,8%). Причина в том, что только 4 городских населенных пункта в провинции имеют положительное сальдо механического прироста населения. Это города Галаасия (6%), Караулбазар (5,3%), Ромитан (1,9%) и Газли (0,7%).

С помощью приведенного выше анализа был рассчитан прогноз численности населения провинции до 2050 года. На сегодняшний день (01.01.2025) в 11 городских поселениях области проживает около 550 тыс. человек. Прогнозируется, что к 2030 году эта цифра увеличится до 600 тыс. человек, к 2040 году превысит 720 тыс. человек и к 2050 году приблизится к 870 тыс. человек (см. таблицу 1).

Таблица-1.

**Прогноз численности населения городов Бухарской области
(2025-2050 гг.), тыс. чел.)**

№	Города	Численность населения						
		2020-г.	2025-г.	2030-г.	2035-г.	2040-г.	2045-г.	2050-г.
1	Бухара	280,2	300,2	329,8	362,4	398,1	437,4	480,6
2	Каган	61,1	65,5	69,7	74,2	78,9	84,0	89,4
3	Гиждуван	46,5	50,4	55,8	61,7	68,2	75,4	83,3
4	Каракуль	24,2	26,9	29,7	34,2	36,3	40,1	44,3
5	Вабкент	19,3	21,1	23,4	25,9	28,7	31,8	35,3
6	Ромитан	15,7	17,4	19,6	22,2	25,0	28,2	31,9
7	Галаасия	14,7	16,1	18,0	20,1	22,4	25,0	28,0
8	Шафиркан	14,4	15,4	16,7	18,0	19,5	21,2	23,0
9	Алат	14,1	15,0	16,4	17,9	19,6	21,4	23,4
10	Караулбазар	10,5	11,5	12,7	14,1	15,7	17,4	19,2
11	Газли	8,3	8,4	8,6	8,9	9,2	9,4	9,6
Итого		509,0	547,9	600,4	659,6	721,6	791,3	868,0

(Таблица прогнозируется автором на основе метода линейной экстраполяции).

Из приведенных выше табличных данных видно, что рост населения в городах области неодинаков. В течение прогнозируемого периода наибольший прирост населения наблюдается в городах Ромитан, Галаасия и Караулбазар. Напротив, можно предположить, что рост немного ниже в городах Шафиркан, Каган и Газли.

В течение этого периода в классификации городов также может наблюдаться ряд изменений. В частности, к 2035 году города Ромитан и Галаасия могут быть переведены из статуса «малых» городов в «полусредние». Также ожидается, что к 2045 году города Алат и Шафиркан войдут в число «полусредних» городов. К 2050 году город Бухара окажется на пороге 500-тысячного перевала, а города Каган и Гиждуван – на пороге «больших» городов. Ожидается, что к этому периоду в сетке городов более

половины будут отнесены к категории «полусредних». Следует также отметить, что к 2050 году статус «города» в области могут получить не менее 2 поселков городского типа. Это города Жондор и Янгибазар, которые считаются центрами районов. Таким образом, в области к 2050 году количество «малых» городов составит не менее 4. Ожидается, что в текущем прогнозном периоде общее количество городских поселений в области достигнет как минимум 13. Место расположения городов по численности населения остается практически неизменным. Только к 2040 году население города Алат превзойдет население города Шафиркан, что отражено в прогнозах.

В 11 существующих городских населенных пунктах Бухарской области среднегодовые темпы прироста населения различны и их можно условно разделить на 4 группы. Первая группа – это, в основном, группа с очень низкими годовыми темпами прироста населения, для которой характерен только один город Газли из провинции. Газли – один из крупнейших городов-ресурсов провинции, расположенный в пустыне Кызылкум, а также ряд природных барьеров, неблагоприятных для жизни человека. Поэтому темпы роста населения значительно ниже.

Таблица-2.

Группировка городов Бухарской области по среднегодовым темпам прироста населения (2025-2050 гг.), в процентах)

Количество групп %	Города		Численность населения, тыс. чел.	
	Кол-во	Название	2030	2050
0,50-1,0%	1	Газли	<u>8,6</u>	<u>9,6</u>
			1,4	1,1
1,1-1,5%	1	Каган	<u>69,7</u>	<u>89,4</u>
			11,6	10,3
1,6-2,0%	5	Шафиркан, Бухара, Алат, Гиждуван, Каракуль	<u>448,4</u>	<u>654,6</u>
			74,7	75,4
2,1-2,5%	4	Караулбазар, Вабкент, Галаасия, Ромитан	<u>73,7</u>	<u>114,4</u>
			12,3	13,2
Итого	11		<u>600,4</u>	<u>868,0</u>
			100	100

(Примечание * в числителе – численность населения, тыс. чел., в знаменателе – доля, в процентах. Таблица рассчитана автором).

Вторая группа – это, в основном, группа с относительно низкими годовыми темпами роста населения, в которой темпы роста населения ниже, чем в среднем по стране. В провинции, относящейся к этой группе, характерен 1 город Каган. Сегодня в городе проживает 65,5 тыс. жителей, и, если темпы роста продолжатся в таком порядке, прогнозируется, что к 2030 году население достигнет 69,7 тыс., а к 2050 году – почти 90 тыс.

Третья группа – это, по сути, группа со средними годовыми темпами роста населения, и эта группа считается почти идентичной темпам роста

населения страны. В области, относящейся к этой группе, 5 городов, и в этом отношении к этой группе относится наибольшее количество населенных пунктов. В этих 5 городах сегодня проживает около 410 тысяч жителей, или 80% населения провинциальных городов. Если в последующие прогнозные периоды рост населения продолжится, то к 2030 году численность населения в этих 5 городах составит около 450 тысяч, а к 2050 году превысит 650 тысяч.

Четвертая группа, в которой рост населения находится в диапазоне 2,1-2,5%, – это группа с высокими темпами роста населения, в которую входят 4 городских поселения, все из которых являются небольшими городами, действующими как районные центры. В этих 4 городах по состоянию на 1 января 2025 года проживает в общей сложности более 60 000 жителей, или 11,8% населения провинциальных городов. Если рост населения сохранит высокий показатель в таком порядке, то к 2030 году численность населения приблизится к 75 тыс., а к 2050 году – к 115 тыс.. Сегодня в 11 городских населенных пунктах области проживает около 550 тыс. человек.

Так, в 11 городских поселениях области прирост населения колеблется, а годовой естественный прирост увеличивается во всех поселениях в пределах 10-20%. При этом механическое размножение имеет отрицательный показатель в 70% местообитаний. Подсчитано, что за прогнозный период численность населения в городах области увеличится на 360 тыс. человек, или на 70%.

Среди населенных пунктов Бухарской области особое место занимают поселки. На сегодняшний день в области насчитывается 68 поселков городского типа, в которых проживает 11,8% населения области и 30,7% городского населения. Количество поселков в провинции также по-разному распределено в разрезе районов. В частности, наибольшее количество поселков расположено в Гиждуванском и Каракульском районах. А в Каганском, Вобкентском и Ромитанском районах зафиксировано наименьшее количество случаев. Даже в Караулбазарском районе нет населенных пунктов такой категории. (см. таблицу 3).

Таблица-3.

**Прогноз численности населения поселков Бухарской области
(2024-2050 гг.), тыс. чел.)**

№	Районы	Города, кол-во	Население					
			2024	2030	2035	2040	2045	2050
1	Алат	8	27,9	30,4	32,7	35,2	37,8	40,7
2	Бухара	6	24,7	27,3	29,6	32,1	34,9	37,8
3	Вабкент	3	8,2	8,8	9,3	9,8	10,6	11,0
4	Гиждуван	13	43,2	47,5	51,4	55,6	60,2	65,1
5	Каган	2	6,4	7,7	9,0	10,6	12,4	14,6
6	Каракуль	12	40,2	42,9	45,3	47,8	50,5	53,3
7	Караулбазар	-	-	-	-	-	-	-
8	Пешкун	4	16,7	18,1	19,3	20,6	22,0	23,5
9	Ромитан	3	12,2	13,4	14,5	15,7	16,9	18,3
10	Джондор	9	35,7	40,3	44,6	49,4	54,6	60,4
11	Шафиркан	8	27,8	29,6	31,1	32,8	34,5	36,4
Итого		68	243,0	260,2	286,8	309,6	334,4	350,2

(Таблица рассчитана автором на основе метода линейной экстраполяции).

В приведенной выше таблице представлен прогноз численности населения поселков Бухарской области на период 2024-2050 гг., при котором за основу взяты показатели естественного и механического роста существующих поселков в районах, их прогноз до 2050 г. рассчитан методом линейной экстраполяции. При этом в поселках Каганского (37,1%), Джондорского (22,2%) и Гиждуванского (18,4%) районов с высоким показателем естественного прироста прирост населения считается выше, чем в других районных поселках. В поселках на территории Вабкентского (12,9%) и Шафирканского (13,5%) районов, где естественный прирост наоборот низкий, прирост населения отмечается несколько ниже. Особое внимание следует уделить и уровню механического воспроизводства населения в этом месте. При этом механический прирост населения в поселках Бухарского (+2,5%) и Ромитанского (+0,2%) районов имеет положительный показатель. Напротив, механическое воспроизводство наиболее низкое в поселках Каганского (- 4,6%), Каракульского (- 3,7%) и Пешковского (- 3,6%) районов.

Нами был рассчитан прогноз населения 68 поселков области на период с 2024 по 2050 год, в ходе которого было отмечено, что рост населения за этот период в разных поселках является разным. В частности, наибольший прирост населения ожидается в районах городов Каган (128%) и Джандор (69,2%). Всего в Каганском районе расположено 2 поселка (Сарай-Абад, Туткунда), прирост населения в этих поселках оценивается в среднем около 5% в год. А в 9 поселках Джондорского района прогнозируется экстремальный ежегодный рост на 2,7%. Напротив, этот показатель был самым низким в поселках Шафирканского (30,9%), Каракульского (32,6%) и Вабкентского (34,1%) районов. В качестве причин можно привести отрицательное сальдо миграции и низкий уровень естественного прироста населения в поселках данного

региона. Ожидается, что в городах в остальных округах рост в течение прогнозируемого периода будет в диапазоне 40-50%.

Среднегодовые темпы прироста населения в 68 поселках Бухарской области различны и их можно условно разделить на 7 групп.

Первая группа – это в основном группа с убывающей популяцией с отрицательными ежегодными темпами роста. К данной группе относятся поселки Арабхана Бухарского района и Навбахор (ранее Хайрхуш) Вабкентского района, где миграционное движение населения очень активно и имеет отрицательное сальдо. Оба этих поселения входят в состав Бухарской агломерации, в 20 км от областного центра, и поэтому рост населения замедляется в результате того, что большая часть населения движется к центру.

Вторая группа – это группа со среднегодовыми темпами роста населения до 1%, в которой сосредоточено 16 или 23,5% от общего числа городов. Эта группа объединяет наибольшее количество поселков и характеризуется низкими среднегодовыми темпами роста населения. Наибольшее количество поселений, относящихся к этой группе, находится в Шафирканском (5) районе. Если среднегодовые темпы прироста населения сохранятся в таком порядке, то к 2030 году население этой группы составит 56,2 тыс. человек, или 21,6% от численности населения поселков городского типа области. В прогнозной работе установлено, что к 2050 году этот показатель составит 64,7 тыс. и 18,5% соответственно.

Третья группа населения имеет среднегодовые темпы роста от 1,1 до 1,5%. В провинции, относящейся к этой категории, выделено 13 населенных пунктов. К 2030 году в данной категории населенных пунктов прогнозируется снижение численности городского населения области на 18,8%, а к 2050 году – на 17,6%.

Три группы, рассмотренные выше, включали группы населенных пунктов, среднегодовые темпы прироста населения которых были ниже среднегодовых темпов прироста населения страны. Всего в этих трех группах 31 населенный пункт, что составляет более 45% от общего числа поселков в области.

Таблица-4.

**Группировка численности населения поселков Бухарской области
по среднегодовым темпам прироста (2025-2050 гг.), в процентах)**

Количество групп %	Города		Численность населения, тыс. чел.	
	Кол-во	Nomi	2030	2050
-0,5-0,09 %	2	Арабхана, Навбахор.	<u>6,3</u> 2,4	<u>6,3</u> 1,8
0,10-1,0 %	16	Джайхунабад, Дехча, Подшойи, Ширин, Наманган, Юкори-Кумок, Даргабаг, Янгикала, Караходжи, Махаллаи-Миришкор, Пахлавон, Куючукурар, Исагари, Талисафед, Мирзакул, Гуломте.	<u>56,2</u> 21,6	<u>64,7</u> 18,5
1,1-1,5 %	13	Ганчи Чандыр, Кесакли, Бештува, Абади, Хатча, Джигачи, Мирзакала, Чандирабад, Яккалам, Янгибазар, Табагар, Ундаре, Чандыр.	<u>48,9</u> 18,8	<u>61,7</u> 17,6
1,6-2,0 %	11	Бурибек Чандыр, Джовгари, Бандбаши, Солур, Шоррабат, Шаугон, Юкары-Газберон, Джондор, Кулиян, Самончук, Хазарман.	<u>47,8</u> 18,4	<u>64,1</u> 18,3
2,1-2,5 %	13	Киртай, Солакараул, Узбекистан, Човдур, Мазраган, Юкары Ростгуй, Узанон, Саят, Пешку, Кокуштуван, Далмун, Ушат, Чарзана.	<u>48,9</u> 18,8	<u>70,3</u> 20,1
2,6-3,0 %	7	Хумини-Боло, Кулиджабар, Чагдари, Додакар, Кувача, Хаса, Джуйрабад.	<u>28,2</u> 10,8	<u>42,3</u> 12,1
3,1-5,0 %	6	Рабатак, Урта-Навуметан, Косари, Гаждумак, Сарайнабад, Туткунда.	<u>23,9</u> 9,2	<u>40,8</u> 11,6
Итого	68		<u>260,2</u> 100	<u>350,2</u> 100

(Примечание * в числителе – численность населения, тыс. чел., в знаменателе – доля, в процентах. Таблица рассчитана автором).

Четвертая группа – это группа со среднегодовыми темпами прироста населения 1,6-2,0%, в эту группу входят 11 городов области. Рост населения поселков, относящихся к данной группе, можно охарактеризовать как «средний». Город Джондор в этой группе выделяется как город, который действует как районный центр. Прогнозируется, что к 2030 году население этих городов достигнет почти 50 тыс. человек, а к 2050 году - 65 тыс. человек.

Пятая группа – это группа со среднегодовыми темпами прироста населения 2,1-2,5%, в эту группу входят 13 городов области. Рост населения поселков, принадлежащих к этой группе, целесообразно оценивать как «относительно высокий». Городов, принадлежащих к этой группе, больше всего в Алатском (4), Гиждуванском (3) и Джандорском (3) районах. В этих поселках, где отмечается «относительно высокий» рост, к 2030 году численность населения составит почти 50 тыс. человек, а к 2050 году превысит 70 тыс. человек, и в прогнозах отражено, что 1/5 населения этих провинциальных поселков будет приходиться именно на эту категорию поселков.

Шестая группа – это группа со среднегодовыми темпами прироста населения 2,6-3,0%, в эту группу входят 7 городов области. Рост населения городов, относящихся к этой группе, можно охарактеризовать как «высокий». Прогнозируется, что к 2030 году в этих поселках будет проживать 10,8% населения городов области, а к 2050 году – 12,1%. В этих 7 поселках сегодня проживает 25 тыс. (на 01.01.2025) жителей. Ожидается, что эта цифра достигнет 28 тыс. человек в 2030 году и 42 тыс. в 2050 году. Почти половина (3) поселков этой группы находится в районе Гиждуван.

Седьмая группа – это группа со среднегодовыми темпами прироста населения 3,1-5,0%, в эту группу входят 6 городов области. Рост населения поселков, принадлежащих к этой группе, целесообразно оценивать как «очень высокий». Все эти 6 городов расположены в удобном географическом месте. В частности, городок Работак находится в непосредственной близости от областного центра и является районом, где активно идет процесс «рурбанизации», Косари – город в районе Вабкент, расположенный вдоль дороги международного значения, то есть имеет удобное транспортное географическое положение, а Гайдумак характеризуется тем, что является крупным ремесленным центром в районе Гиждуван.

Сегодня сельские поселения занимают особое место в расселении жителей Бухарской области. По состоянию на 2025 год более 63% населения провинции проживает именно в сельских населенных пунктах. Всего за этот период в области было зарегистрировано 1458 сельских населенных пунктов, в каждом из которых проживает в среднем 867 человек. Эта сумма ниже, чем в среднем по Узбекистану. Количество поселений сельского населения также очень неравномерно распределено в разрезе районов.

Наибольшее количество сельских населенных пунктов находится в Гиждуванском районе (252), который является лидером не только в области, но и в республике. Также значительно больше населенных пунктов данной категории в Умани-Вабкент (186), Бухара (162) и Ромитан (153). Самый низкий показатель в этом отношении относится к Караулбазарскому (6) району. В связи с малонаселенностью района, неудобством географического положения и освоением территории в ближайшие годы сеть населенных пунктов сформировалась не лучшим образом.

Нами также разработан прогноз численности населения сельских населенных пунктов области в разрезе районов до 2050 года.

Для разработки этого прогноза был рассчитан естественный прирост сельского населения в районах.

В расчетах видно, что показатели естественного прироста сельского населения в районах области находятся в диапазоне от 10% до 20% (только в сельских населенных пунктах Вабкентского района уровень естественного прироста составляет 9,9%). Среди сельских населенных пунктов наибольший естественный прирост приходится на сельские населенные пункты Гиждуванского (20%), Каганского (19,6%), Бухарского, Пешкинского, Джондорского (19%) районов. Самый низкий показатель в этом отношении у

сельских населенных пунктов в Вабкентском (9,9%), Шафирканском (14,6%) и Каракульском (15,7%) районах.

Механический прирост населения в сельских населенных пунктах области характеризуется отрицательным показателем и отмечен в сельских населенных пунктах всех районов, кроме Караулбазарского (+3,6%) и Бухарского (+1,4%) районов. В качестве причин этого можно назвать нехватку рабочих мест в сельских населенных пунктах, естественные географические неудобства, нехватку водных ресурсов и ряд других аспектов. Самые низкие показатели в этом отношении в сельских населенных пунктах Каракульского (-3,9%), Гиждуванского (3,7%), Шафирканского (3,2%) и Каганского (3%) районов.

Таблица-5.

**Прогноз численности населения сельских населенных пунктов
Бухарской области (2024-2050 гг.), тыс. чел.)**

№	Районы	Сельские населенные пункты, кол-во	Население (тыс. чел.)					
			2024	2030	2035	2040	2045	2050
1	Алат	62	65,0	70,6	75,7	81,1	87,0	93,3
2	Бухара	162	137,7	155,4	171,9	190,2	210,4	232,7
3	Вабкент	186	119,9	125,4	130,2	135,1	140,3	145,6
4	Гиждуван	252	228,9	252,2	273,4	296,5	321,4	348,5
5	Каган	134	78,2	89,4	100,0	111,8	125,1	139,8
6	Каракуль	91	105,8	113,5	120,4	127,7	135,4	143,6
7	Караулбазар	6	8,5	9,6	10,7	11,8	13,1	14,6
8	Пешку	130	112,8	125,5	137,2	150,1	164,1	179,4
9	Ромитан	153	113,6	125,1	135,7	147,1	159,5	172,9
10	Джондор	138	149,8	166,0	180,7	196,8	214,3	233,4
11	Шафиркан	144	143,4	153,4	162,4	171,9	181,9	192,5
Итого		1458	1263,6	1386,1	1498,3	1620,1	1752,5	1896,3

(Таблица рассчитана автором на основе метода линейной экстраполяции).

В интервале прогнозного периода фиксируются различные показатели прироста численности населения сельских населенных пунктов в районах области. Прогнозировалось, что в 62 существующих сельских населенных пунктах алатского района валовой прирост населения в течение прогнозируемого периода составит 43,5%, или рост с 1,7% в годовом исчислении. В Каракуле, еще одном районе, где количество сельских населенных пунктов не достигает 100, валовой прирост населения за прогнозируемый период составит 35,7%, а годовой прирост – 1,4%. В связи с отрицательным миграционным сальдо в сельских населенных пунктах этих двух районов рост населения ниже, чем в других районах. Прогнозировалось, что в сельских населенных пунктах Бухарского района этот показатель составит 69% и 2,7% соответственно. Как видно по научным оценкам, прирост

населения в сельских населенных пунктах Бухарского района будет значительно выше, чем в сельских населенных пунктах Алатского района. В этом плане данная категория населенных пунктов в Вабкентском районе также имеет свои особенности. Район занял одно из последних мест с валовым приростом сельского населения 21,4% в течение прогнозируемого периода. Прогнозируется, что ежегодный прирост населения в сельских населенных пунктах данного района составит всего 0,8%. Видно, что этот показатель в 2 раза ниже, чем в Алатском районе, и почти в 3,5 раза ниже, чем в Бухарском районе.

Гиждуванский район является явным лидером в области по количеству сельских населенных пунктов, а также по количеству сельских жителей. На сегодняшний день (01.01.2025) в сельских населенных пунктах района проживает в общей сложности 228,9 тыс. человек. По прогнозам, к 2050 году численность сельского населения района приблизится к 350 тыс. человек. Мы видим, что в период с 2024 по 2050 год валовой прирост сельского населения составит 52,2%, а годовой прирост – 2%.

Особое место в области занимают также сельские населенные пункты Каганского района, на долю которых приходится 6,2% сельского населения области и 9,2% сельских населенных пунктов. В сельских населенных пунктах этого района сегодня проживает 78,2 тыс. человек. Прогнозируется, что к 2035 году эта цифра достигнет 100 тыс. человек, а к 2050 году – 140 тыс. человек. За этот период прогнозируется рост численности сельского населения на 78,7% или на 3% в год. По этому показателю Каган является явным лидером среди районов области. Караулбазарский район в этом плане стоит на втором месте после Каганского. Караулбазарский район – район с наименьшим количеством населенных пунктов и населения среди районов области. На сегодняшний день в районе насчитывается 6 сельских населенных пунктов, в которых проживает в общей сложности 8,5 тыс. человек. Но ввиду того, что естественный (17,2%) и механический (3,6%) прирост сельского населения довольно высок, прогнозируется, что в последующие годы темпы прироста населения также будут высокими. В частности, прогнозируется, что к 2050 году численность сельского населения района приблизится к 15 тыс. человек. В период с 2024 по 2050 год валовой прирост населения в селах Караулбазарского района составит 71,8%, а годовой прирост – 2,8%.

Район Пешку, который по площади является крупнейшим в области, сегодня насчитывает 130 сельских населенных пунктов. Населенные пункты распределены по территории района неравномерно. В то время как районы, где в основном ведется орошаемое земледелие, являются домом для крупных деревень, внутренние районы пустыни Кызылкум являются домом для небольших деревень с небольшим населением. Так, в селе Талисабун с наибольшей численностью населения проживает 2929 человек, а в селе Учкудук с наименьшей численностью населения – 82 человека. Было подсчитано, что в течение прогнозируемого периода валовой прирост

сельского населения Пешкунского района составит 59%, а годовой прирост – 2,3%.

Еще одним отличительным районом провинции является район Ромитан.

Территория этого района разделена на 3 больших участка. В этом районе расположено 153 сельских населенных пункта, уступая по этому показателю Гиждуванскому, Вабкентскому и Бухарскому районам. В этих сельских населенных пунктах проживает в общей сложности 113,6 тыс. человек, что делает его 6-м по величине населенным пунктом в провинции.

По прогнозам, к концу прогнозируемого периода население деревень приблизится к 173 тыс. Валовой прирост населения за прогнозируемый период составит 52,2%, а годовой – 2%.

Сегодня в Джондарском и Шафирканском районах области количество сельских населенных пунктов и численность населения в них близки друг к другу. Но есть различия в показателях роста населения.

В частности, если в период с 2024 по 2050 годы в Шафирканском районе прогнозируется рост численности сельского населения с 143,4 тыс. до 192,5 тыс. человек, то в Джондорском районе ожидается рост с 149,8 тыс. до 233,4 тыс. человек. Валовой прирост в Шафирканском районе составляет 34,2%, а в Джондорском – 55,8%.

Из приведенных выше табличных данных мы видим, что по состоянию на 2024 год в сельских населенных пунктах провинции проживает 1,26 миллиона человек. Тот факт, что этот показатель со временем будет увеличиваться, отражается в прогнозах. В том числе сельское население области к 2035 году составит 1,5 млн. человек. к 2050 году – 1,9 миллиона. Ожидается, что в текущем прогнозном периоде валовой прирост населения в сельских населенных пунктах области составит 50% (см. таблицу 5).

При прогнозировании численности населения городских, поселковых и сельских населенных пунктов Бухарской области было установлено, что некоторые населенные пункты могут изменить свой статус, увеличив или уменьшив численность населения в течение прогнозируемого периода. В частности, в таблице 6 указаны некоторые из этих населенных пунктов.

Таблица-6.

Города и поселки, которые могут появиться в Бухарской области в будущем					
№	Название населенного пункта	Период, в течение которого ожидается изменение статуса	Население 2024 год ¹	Население 2030 год	Население 2050 год
Населенные пункты, которые могут получить статус города					
1	Джондор	2025-2035 гг.	10,4	11,3	15,3
2	Янгибазар	2030-2040 гг.	7979	8508	10536
3	Рабатак	2035-2050 гг.	4710	5743	11122
Населенные пункты, которые могут получить статус поселка					
1	Афшана	2030-2040 гг.	1682	1878	2709
2	Розмоз	2030-2040 гг.	2290	2457	3107
3	Ханабад	2030-2040 гг.	2609	3218	6478
4	Зарангари	2030-2040 гг.	2146	2552	4547
5	Саврак	2030-2040 гг.	3079	3625	6249

(Таблица составлена на основе исследований, проведенных автором).

Из приведенных выше табличных данных видно, что в Бухарской области к 2050 году количество населенных пунктов городского типа может увеличиться как минимум на 3. Среди них город Джондор считается с относительно высоким потенциалом. Причина в том, что сегодняшний город Джондор может соответствовать практически всем требованиям, предъявляемым к получению статуса города в нашей стране. В частности, в этом городе, который действует как районный центр, проживает более 7 тыс. человек, в структуре трудовых ресурсов вес занятых в сельском хозяйстве не очень высок, а возможности инфраструктуры частично отвечают требованиям. Это означает, что в ближайшие годы это место может получить статус города.

Город Янгибазар, который также служит районным центром, имеет основания для присвоения статуса города. Янгибазар – это город, который служит центром Пешкунского района, в котором сегодня проживает около 8 тыс. человек. Основная часть населения занята в торговле, сфере услуг и сельском хозяйстве, а инфраструктурные возможности города с каждым годом улучшаются.

После 2040 года Рабатак также может войти в число провинциальных городов. Причина в том, что этот город расположен в очень удобном географическом месте, очень близко к центру провинции. Анализируя прирост населения за последние 5 лет, можно увидеть, что среднегодовой прирост превышает 5%. Сегодня 77% населения Рабатака заняты в несельскохозяйственных секторах и имеют инфраструктурные возможности, характерные для города. Только численность населения не соответствует требованиям для получения статуса города. В прогнозах мы видим, что к 2040 году население города превысит 7 тыс. человек.

Некоторые сельские населенные пункты в провинции также могут получить статус поселка в ближайшие годы. В ходе проведенных научных

исследований и наблюдений было установлено, что около 10 сельских населенных пунктов в провинции почти вплотную приблизились к получению статуса поселков. В частности, в ходе научных исследований и наблюдений было установлено, что демографические возможности сельских населенных пунктов, представленные в таблицах 3-6, показатели занятости населения, уровень обеспеченности объектами социальной сферы, инфраструктурные возможности, уровень обеспеченности электроэнергией, природным газом, питьевой водой и другими видами услуг достаточны для присвоения статуса поселка городского типа. Есть также достаточный потенциал для получения статуса поселка в сельских населенных пунктах, таких как Лоша, Бахауддин Накшбанд, Дорман, Кумушкент, Хумин.

Таким образом, основной целью разработки прогноза численности населения городских, поселковых и сельских населенных пунктов Бухарской области до 2050 года является третий по важности компонент алгоритма «ТТВВ» (анализ – диагностика – прогноз – управление), реализуемый в каждом географическом исследовании. Пороговое прогнозирование применяется для определения будущих возможностей контроля или управления человеком определенных вопросов и проблем в рамках предмета исследования, которые были собраны, проанализированы и диагностированы на данной основе.

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ОСНОВЫ ФОРМИРОВАНИЯ ПРЕДПРИНИМАТЕЛЬСТВА НА РЫНКЕ МЕДИЦИНСКИХ УСЛУГ

***Аннотация.** В статье рассматриваются тенденции развития частного сектора здравоохранения в Узбекистане, институциональные барьеры и перспективы предпринимательства. Приводятся статистические данные 2017–2025 годов, обзор литературы и рекомендации по совершенствованию нормативно-правовой базы.*

***Ключевые слова:** частная медицина, предпринимательство, государственно-частное партнёрство, здравоохранение, Узбекистан.*

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FUNDAMENTALS OF ENTREPRENEURSHIP DEVELOPMENT IN THE HEALTHCARE MARKET

***Abstract.** The article examines the trends in the development of the private healthcare sector in Uzbekistan, institutional barriers, and prospects for entrepreneurship. Statistical data for 2017–2025, a literature review, and recommendations for improving the regulatory framework are presented.*

***Keywords:** private healthcare, entrepreneurship, public-private partnership, healthcare, Uzbekistan.*

Введение.

В последние годы частный сектор медицины в Узбекистане демонстрирует активный рост: число клиник увеличилось почти втрое по сравнению с 2017 годом. Государственная политика направлена на привлечение инвестиций, внедрение механизмов ГЧП и развитие платных

медицинских услуг. Вместе с тем сохраняются институциональные барьеры, ограничивающие потенциал отрасли.

Цель исследования — проанализировать ключевые тенденции развития предпринимательства в сфере медицины Узбекистана и определить основные направления дальнейшего реформирования.

Методы исследования: статистический, системно-аналитический, абстрактно логический, контент-анализ.

Современные исследования по системе здравоохранения Узбекистана сходятся в оценке «двойственной» динамики: заметный прогресс институциональных реформ сочетается с сохраняющимися структурными ограничениями. Обновлённые обзоры Европейской обсерватории ВОЗ описывают модель как преимущественно налогово-финансируемую с базовым пакетом помощи, при этом подчёркивают сравнительно низкий уровень государственных расходов (около 673 долл. США по ППС на человека в 2021 г.) и высокую долю прямых платежей, что формирует барьеры доступа для домохозяйств с низкими доходами. Эти работы фиксируют улучшение охвата базовыми услугами за последние два десятилетия, но отмечают, что не все жизненно необходимые услуги и лекарства покрываются в полной мере, а финансовая защита остаётся ограниченной⁸³.

Литература о частном секторе документирует ускоренный рост предпринимательства в медицине: доля частных организаций в системе здравоохранения приблизилась к 30%, а на их долю приходится порядка 35% коечного фонда; частные провайдеры фактически доминируют в ряде специализаций (около 91% стоматологии, 70% ЛОР-услуг и 60% офтальмологии). При этом коечный фонд частных учреждений практически удвоился за 2019–2024 годы, что указывает на устойчивое расширение стационарного сегмента. Вместе с тем авторы подчёркивают неоднородность качества и инфраструктуры по регионам, а также риски для пациентской безопасности при недостаточной стандартизации.

Исследования по государственно-частному партнёрству (ГЧП) фиксируют институционализацию проектного цикла: создано Агентство по развитию ГЧП при Минфине, международные отчёты (МВФ, Всемирный банк, ЕБРР) отмечают рост портфеля сделок, включая проекты в здравоохранении. По оценке МВФ, в 2023 году в Узбекистане было подписано шесть ГЧП-проектов на сумму около 1,6 млрд долл. США; при этом эксперты настаивают на повышении качества предпроектной подготовки, прозрачного распределения рисков и мониторинга исполнения контрактов.

Важной темой остаются региональные диспропорции и кадровый дефицит. Обзоры и официальные сводки показывают концентрацию частных услуг и инфраструктуры в Ташкенте и крупных центрах на фоне ограниченного предложения в сельских районах; это усиливает нагрузку на

⁸³ [https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-uzbekistan-2024?utm_source=Health systems in action: Uzbekistan](https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-uzbekistan-2024?utm_source=Health%20systems%20in%20action%3A%20Uzbekistan)

столичные клиники и стимулирует «пациентские потоки». Рекомендуемые решения включают адресные налогово-инвестиционные стимулы для периферии, развитие телемедицины и сетевых моделей предоставления услуг, а также программы удержания и подготовки кадров.

Наконец, растёт массив работ о цифровой трансформации и предпринимательстве в медицине — от маркетинга медицинских услуг и электронной коммерции до внедрения электронного учёта и аналитики. Эти исследования рассматривают цифровизацию как мультипликатор эффективности и качества, одновременно подчёркивая необходимость интероперабельности, защиты данных и развития цифровых компетенций у персонала; общерегиональные обзоры для постсоветского пространства контекстуализируют траекторию Узбекистана в сравнении с соседними странами.

Результаты и обсуждение.

Развитие частного сектора здравоохранения в Узбекистане за последние годы характеризуется устойчивым ростом. Если в 2017 году в стране насчитывалось около 3,5 тысячи частных медицинских учреждений, то к концу 2024 года их число достигло примерно 9 тысяч, что почти втрое больше. При этом частный сектор стал доминировать в ряде направлений: на его долю приходится 91 % стоматологических услуг, 70 % ЛОР-услуг и 60 % офтальмологических. Данный рост сопровождается увеличением вклада в экономику: объём медицинских услуг за первые пять месяцев 2025 года составил 7,4 трлн сум, что на 27 % выше показателя предыдущего года. Кроме того, частные больницы обеспечивают около 35 % коечного фонда страны, то есть примерно 42,7 тысячи мест, что свидетельствует об их существенной роли в обеспечении стационарной помощи.

Несмотря на позитивную динамику, сохраняются институциональные барьеры. Проблемы лицензирования и стандартизации качества остаются актуальными: хотя число специализаций, доступных для частных клиник, увеличилось с примерно 50 до 225, уровень качества и соответствие инфраструктуры стандартам остаются неоднородными. Серьёзным ограничением является и слабое развитие медицинского страхования: добровольные программы охватывают менее 0,1 % населения, тогда как система обязательного страхования ещё не внедрена в полном объёме. Дополнительным вызовом выступает территориальная концентрация — большинство клиник сосредоточено в Ташкенте и крупных областных центрах, тогда как сельские районы остаются слабо охваченными медицинскими услугами.

Рост частного сектора в Узбекистане сопровождается значительным увеличением инвестиций и расширением спектра услуг, что в целом положительно влияет на доступность и качество медицинской помощи. Частные клиники стали важным дополнением к государственной системе, особенно в таких направлениях, как стоматология, офтальмология и ЛОР-практика, где их доля превышает половину всего объёма услуг. Вместе с тем

чрезмерная концентрация в столице и крупных городах создаёт существенный региональный дисбаланс и ограничивает возможности сельского населения. Кроме того, отсутствие обязательного медицинского страхования препятствует формированию устойчивой модели финансирования и ограничивает доступ малообеспеченных граждан к качественным услугам. Недостаточная стандартизация и разнородное качество услуг усиливают риски для пациентов, а кадровый дефицит остаётся одной из ключевых проблем сектора. Системное решение этих вопросов требует комплексного подхода: институциональные реформы должны быть направлены на внедрение страховой модели, установление единых стандартов качества и лицензирования, стимулирование регионального развития через налоговые льготы и инвестиции, а также на модернизацию системы подготовки и переподготовки медицинских кадров. Только при сочетании этих факторов частный сектор сможет превратиться в полноценный драйвер устойчивого развития национального здравоохранения.

Заключение.

Частный сектор здравоохранения в Узбекистане стал значимым игроком и способен выполнять стратегическую функцию по обеспечению населения качественными медицинскими услугами. Его дальнейшее развитие требует устранения институциональных барьеров и системной поддержки со стороны государства.

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ТЕОРИЯ ГОСУДАРСТВЕННО-ЧАСТНОГО ПАРТНЕРСТВА В СФЕРЕ МЕДИЦИНСКИХ УСЛУГ

***Аннотация.** В статье теоретически обосновываются основания развития региональной системы медицинских услуг на базе государственно-частного партнёрства (ГЧП). На основе анализа отечественной и зарубежной литературы, нормативно-правовых актов Республики Узбекистан, данных национальной статистики и материалов аналитических агентств раскрываются три ключевых методологических рамки: институциональный, контрактный и системный подходы. Показано, что институциональная среда определяет возможности внедрения ГЧП; контрактная теория задаёт принципы распределения рисков и механизмы оплаты; системный подход требует интеграции проектов в единую региональную сеть помощи.*

***Ключевые слова:** государственно-частное партнёрств, здравоохранение, региональная система, медицинские услуги, инфраструктурные модели (BOT, BOOT, DBFO).*

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THEORY OF PUBLIC–PRIVATE PARTNERSHIP IN MEDICAL SERVICES

***Abstract.** The article provides a theoretical rationale for developing a regional system of medical services based on public–private partnership (PPP). Drawing on an analysis of domestic and international literature, the regulatory acts of the Republic of Uzbekistan, national statistics, and materials from analytical agencies, it identifies three key methodological frameworks: institutional, contractual, and systems approaches. It is shown that the institutional environment determines the feasibility of PPP implementation; contract theory defines the*

principles of risk allocation and payment mechanisms; and the systems approach requires integrating projects into a unified regional care network.

Keywords: *public–private partnership (PPP); healthcare; regional system; medical services; infrastructure models (BOT, BOOT, DBFO).*

Введение.

В условиях ограниченности бюджетных ресурсов и необходимости модернизации инфраструктуры здравоохранения особую актуальность приобретает использование механизмов государственно-частного партнёрства (ГЧП). Данный инструмент позволяет сочетать финансовые и организационные возможности государства с инвестиционным потенциалом и управленческим опытом частного сектора, что способствует повышению качества и доступности медицинских услуг на региональном уровне⁸⁴.

Государственно-частное партнёрство уже показало эффективность в развитии социальной инфраструктуры, в том числе в кризисные периоды, когда риски для «здоровье сберегающего» потенциала общества возрастают. Международная практика убедительно демонстрирует целесообразность дальнейшего применения ГЧП и в системе здравоохранения Узбекистана. Дополнительным фактором устойчивости выступает стабильный спрос населения на современную и качественную медпомощь, что поддерживает сегменты платных услуг и частной инициативы.

Обзор литературы.

Теоретическое осмысление ГЧП в здравоохранении включает институциональный, контрактный и системный подходы, позволяющие раскрыть сущность и эффективность данного механизма.

С точки зрения институциональной теории ГЧП представляет собой изменение правил взаимодействия между государственными органами, инвесторами и медицинскими организациями. В рамках этого подхода внимание уделяется формированию правовой базы, механизмам координации интересов сторон и снижению институциональных барьеров⁸⁵.

Медицинские услуги, с одной стороны, обладают признаками товарности, служа для удовлетворения частных потребностей индивидуумов в поддержании своего здоровья, а с другой, – выступают в виде общественного нематериального блага, имеющего высокую социальную значимость. На основе вышесказанного можно констатировать, что медицинской услуге имманентно присущи как общественные, так и индивидуальные аспекты. Отметим, что качество медицинской услуги в значительной мере обуславливается неэкономическими факторами. Во многом это является следствием того, что на практике потребителям во многих случаях довольно проблематично мгновенно оценить качество оказанных им медицинских услуг, в связи с чем их принято относить к такой категории как доверительные

⁸⁴ Всемирный банк. Public-Private Partnerships for Health: Best Practices. Washington, 2021.

⁸⁵ Roehrich J.K., Lewis M.A., George G. Are public–private partnerships a healthy option? // Public Management Review. – 2014. – №16(1). – С. 69–89.

блага. Первым данный термин ввел в научный оборот Ф. Нельсон, охарактеризовав подобным образом специфическую группу товаров и услуг, измерение качественных характеристик которых сопряжено с чрезмерно высокими издержками⁸⁶. В частности, примером доверительных благ являются медицинские, консалтинговые, образовательные, страховые услуги.

Методы исследования: статистический, системно-аналитический, абстрактно логический, контент-анализ.

Результаты и обсуждение.

ГЧП (PPP) в медицине — не единый инструмент, а класс институционально-контрактных схем, соединяющих финансирование /строительство инфраструктуры и/или оказание услуг частным оператором при сохранении публичных целей (доступность, качество). Один из самых цитируемых систематических обзоров показал, что результаты PPP критически зависят от качества **контрактного дизайна**, распределения рисков и контекста системы здравоохранения, а литература долго оставалась фрагментированной между менеджментом и здравоохранением.

Общая рамка PPP международных институтов (ВБ/ADB/EBRD и др.) вводит ключевые понятия **“value for money (VfM)”**, **Public Sector Comparator (PSC)**, принципы распределения рисков (“кто лучше управляет — тот и несёт”) и различает инфраструктурные и сервисные схемы; руководство служит «картой местности» по подготовке, закупке и контракт-менеджменту.

Европейский центр компетенций ЕПЕС и его «Guide to PPP» структурируют стадии цикла (подготовка—закупка—заккрытие—мониторинг), описывают **платежи за доступность** и организационные конструкции (SPV и др.), а также компилируют лучшие практики по отраслям, включая здравоохранение.

В литературе и практике выделяются несколько моделей реализации ГЧП:

- **Инфраструктурные модели (BOT, BOOT, DBFO)** — строительство, эксплуатация и передача объектов;
- **Сервисные контракты** — передача частному сектору отдельных функций (лаборатории, логистика, клининг);
- **Модели с оплатой по результату (P4P)** — привязка финансирования к качеству услуг и клиническим исходам;
- **Смешанные модели**, включающие элементы концессий, аренды или совместного управления.

Каждая модель имеет свои преимущества и ограничения, и её выбор зависит от целей проекта, уровня институциональной зрелости региона и потребностей населения.

⁸⁶ Курс институциональной экономики: институты, сети, транзакционные издержки, контракты / Я.И. Кузьминов, К.А. Бендукидзе, М.М. Юдкевич. - М.: Издательский дом ГУ ВШЭ, 2006. – С. 233.

Применение ГЧП в сфере медицинских услуг на региональном уровне позволяет: привлекать дополнительные инвестиции в медицину; ускорять модернизацию инфраструктуры; внедрять современные стандарты менеджмента и медицинские технологии; повышать доступность и качество медицинских услуг; снижать нагрузку на государственный бюджет.

Однако ГЧП несёт и определённые риски: недостаточная прозрачность контрактов; возможное перераспределение ресурсов в пользу экономически более привлекательных регионов; риск снижения социальной ориентации услуг; сложность мониторинга и контроля исполнения проектов. Для их минимизации необходимы институциональные реформы, развитие компетенций в области управления проектами и внедрение механизмов общественного контроля.

Региональная система медицинских услуг обладает спецификой: разнообразием инфраструктуры, неоднородностью финансирования и различиями в уровне развития кадрового потенциала. В этих условиях ГЧП может стать эффективным механизмом сглаживания диспропорций, обеспечивая равномерное развитие медицинских услуг и формирование устойчивой модели социального партнёрства.

Международные исследования демонстрируют успешное применение ГЧП в странах Европы, Латинской Америки и Азии, где партнёрские модели позволили ускорить модернизацию первичной медико-санитарной помощи и специализированных клиник⁸⁷. В Республике Узбекистан отрасли социальной сферы, в первую очередь здравоохранение и образование, постоянно находятся в центре внимания государства. Потенциальный интерес к участию в «социальных» проектах как в сфере производства и сбыта услуг, имеющих устойчивый массовый спрос, существует и у бизнеса. Тем не менее, опыт ГЧП в социальной сфере крайне ограничен. Одним перспективным направлением внедрения механизмов ГЧП, как одно из наиболее привлекательных для бизнеса, является сфера санаторно-курортного обслуживания, профилактического лечения и отдыха. В этих видах деятельности получение прибыли наиболее очевидно. Развитие подобных рекреационных зон благоприятно сказывается на инвестиционном климате страны, способствует увеличению притока инвестиций.

ЗАКЛЮЧЕНИЕ

ГЧП — не «волшебная палочка», а институциональный и контрактный механизм, требующий дисциплины подготовки и управления. В Узбекистане создана нормативная основа, определены принципы и роли институтов, а проектный портфель демонстрирует переход к более сложным объектам (многопрофильные больницы, радиотерапия) и цифровым сервисам. На региональном уровне именно сочетание прозрачных правил, корректного распределения рисков и строгого контроля КРІ превращает ГЧП в устойчивый способ повышения доступности и качества медицинской помощи.

⁸⁷ World Bank. Public-Private Partnerships in Health: Evidence from Developing Countries. Washington, 2018.

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КОМПЛЕКСНЫЙ АНАЛИЗ ДЕЙСТВУЮЩИХ ПОЛОЖЕНИЙ И ОСОБЕННОСТЕЙ ДЛЯ ОСУЩЕСТВЛЕНИЯ ЗЕМЛЕУСТРОИТЕЛЬНОЙ ЭКСПЕРТИЗЫ

***Аннотация:** в научной статье проводится исследование и анализ действующих, общих положений, особенностей осуществления землеустроительной экспертизы.*

Цель данной работы состоит в том, чтобы систематизировать действующие в Российской Федерации общие положения и особенности для выполнения землеустроительной экспертизы.

В процессе исследования общих положений и особенностей проведения землеустроительной экспертизы применяется концепция, влияющая на функционирование и правовую защиту объектов собственности.

В процессе описания положений и особенностей необходимых для выполнения землеустроительных экспертиз рассмотрены факторы, которые могут быть использованы в процессе определения координат земельного участка, местоположения границ земельного участка, определения рыночной стоимости объектов недвижимости.

Результаты исследования по комплексному анализу действующих положений и особенностей осуществления землеустроительных экспертиз могут применяться в междисциплинарных научных исследованиях, для осуществления защиты объектов недвижимости.

***Ключевые слова:** землеустроительная экспертиза, кадастровая деятельность, определение рыночной стоимости объектов недвижимости, подготовка судебных экспертов, правовая защита объектов недвижимости, судебная экспертиза, судебный эксперт.*

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A COMPREHENSIVE ANALYSIS OF CURRENT PROVISIONS AND FEATURES FOR LAND MANAGEMENT EXPERTISE

***Abstract:** The scientific article provides a study and analysis of the current general provisions and features of conducting land management expertise.*

The purpose of this work is to systematize the general provisions and features applicable in the Russian Federation for conducting land management expertise.

In the process of studying the general provisions and features of conducting land management expertise, a concept is applied that affects the functioning and legal protection of property objects.

In the process of describing the provisions and features necessary for conducting land management expertise, factors are considered that can be used in the process of determining the coordinates of a land plot, the location of the boundaries of a land plot, and the determination of the market value of real estate objects.

The results of a comprehensive analysis of current regulations and the specifics of conducting land management examinations can be used in interdisciplinary scientific research to protect real estate objects.

Keywords: *land management examination, cadastral activity, determination of the market value of real estate objects, training of forensic experts, legal protection of real estate objects, forensic examination, forensic expert.*

В современных правовых отношениях землеустроительная экспертиза представляет собой самостоятельное исследование, направленное на всестороннее изучение всех особенностей земельного участка с точки зрения его местоположения, назначения, характеристик. В рамках осуществления мероприятий по выполнению судебной землеустроительной экспертизы проводится анализ существующих и потенциальных связей между земельными участками возникающих в процессе землепользования.

В ходе подготовки к землеустроительной экспертизе и выполнению исследования специалистом анализируются все необходимые данные, которые могут быть использованы в процессе определения координат земельного участка, местоположения границ земельного участка, определения рыночной стоимости объектов недвижимости для зарегистрированных объектов внесенных в Государственный кадастр недвижимости (ГКН).

Данный технический процесс осуществляется подготовленными и квалифицированными специалистами, которые привлекаются для выполнения поставленной задачи органами государственной власти субъектов Российской Федерации. Привлечение специалистов, экспертов для выполнения судебного исследования регламентируется действующим законодательством в области судебно-экспертной деятельности. Судебно-экспертная деятельность в настоящее время на территории Российской Федерации регламентируется Федеральным законом от 31 мая 2001 г. N 73-ФЗ «О государственной судебно-экспертной деятельности в Российской Федерации» [6].

Современные методы проведения судебной, внесудебной землеустроительной экспертизы основываются на применении фундаментальных научных методов и новых технологий: сеть интернет, геоинформационные системы (ГИС), средства измерения, средства

позиционирования, средства объективного контроля, картографические инструменты, специализированного программного обеспечения.

В соответствии с ФЗ №190 от 29.12.2004 Градостроительного кодекса, на основании ст. 1, объектами капитального строительства, подлежащими государственной кадастровой оценке, являются здания, сооружения, строения, объекты незавершенного строительства, за исключением построек, носящих временный характер, таких как: навесы, киоски, и другие подобные постройки [1].

В качестве объектов исследования для проведения землеустроительной экспертизы выступают: земельные участки, границы участков, объекты на территории земельных участков, категория земель, прилегающая территория, коммуникации в земле.

В определенных случаях землеустроительная экспертиза выполняется с целью определения рыночной стоимости земельного участка, в данном случае выполняется кадастровая оценка. Методологической основой для выполнения кадастровой оценки служат Федеральный стандарт оценки (ФСО), Приказ Министерства экономического развития РФ от 14 апреля 2022 г. N 200 «Об утверждении федеральных стандартов оценки и о внесении изменений в некоторые приказы Минэкономразвития России о федеральных стандартах оценки» [3], методические указания по проведению государственной кадастровой оценке (ГКО), которые регламентированы приказом Федеральной службы государственной регистрации, кадастра и картографии от 4 августа 2021 г. N П/0336 «Об утверждении Методических указаний о государственной кадастровой оценке» [5] утверждаемые органом правового регулирования.

Постановление Правительства РФ от 01.06.2009 №457 «О Федеральной службе государственной регистрации, кадастра и картографии» [4] являясь нормативным правовым документом в данной отрасли детально описывает процедуры и требования к проведению исследования, обеспечивая единообразие и сопоставимость результатов по всей территории Российской Федерации.

Специалисты, эксперты должны понимать, что документы, составленные в рамках проведения землеустроительной экспертизы должны отвечать действующим нормам и требованиям, соответствовать установленным стандартам. Единообразие норм и требований к проведению землеустроительной экспертизы обеспечивают юридическую значимость, точность данных и достоверность.

Законодатель предусматривает, чтобы процесс исследования представлял собой объективную комплексную систему, включающую в себя: применение специализированного оборудования, соответствие нормативно-правового регулирования, объективное методологическое обеспечение, высокую точность.

В ходе проведения судебной землеустроительной экспертизы изучаются:

- правоустанавливающие документы,

- кадастровые данные,
- результаты полевых исследований,
- аналитические расчеты, необходимые для определения координат земельного участка, местоположения границ земельного участка.

Процесс сбора и анализа исходной информации имеет важное значение, потому что анализ правоустанавливающих документов необходимо произвести до момента, когда будет проводиться полевое обследование объекта экспертизы, в ходе которого выполняется определение координат земельного участка, местоположения границ земельного участка, составляется топографическая съемка и другие необходимые процедуры.

Очень часто предметом спора является кадастровая стоимость земельного участка, определение координат земельного участка, местоположения границ земельного участка влияют на площадь земельного участка и все полученные данные необходимы для проведения оценки.

Следует учитывать, что все данные для определения кадастровой стоимости должны предоставляться в полном объеме и регламентированы статьей 22 Федерального закона №221 «О государственном кадастре недвижимости» [2].

В процессе проведения землеустроительной экспертизы, на основании исследовательской части формируется заключение. В заключении содержится: вводная часть, исследование и выводы о соответствии или несоответствии землепользования установленным требованиям и нормам.

В случае отсутствия споров по результатам проведенного исследования могут быть выполнены действия, включающие в себя:

- определение стоимости,
- верификацию данных,
- урегулирование существующих споров.

При необходимости, эксперт может предоставить предложения и рекомендации по корректировке границ земельных участков, изменению их функционального назначения или оптимизации режима использования. Данная процедура имеет место быть в практике и регламентирована соответствующими действующими нормативно-правовыми актами.

Вся информация о границах земельных участков, кадастровой стоимости объектов недвижимости должна своевременно интегрироваться в Единый государственный реестр недвижимости (ЕГРН) посредством своевременной передачи всех актуальных и необходимых данных. Данная процедура направлена на обеспечение корректности, точности и объективности кадастровых данных об объектах исследования. Этот процесс является основным элементом системы по контролю и актуальному учету объектов недвижимости, обеспечивая прозрачность и доступность публичных данных для всех заинтересованных сторон.

Специалист должен понимать, что сведения, поданные в базу данных и зарегистрированные в ЕГРН основанные на данных из землеустроительной

экспертизы, обладают юридической значимостью предусмотренных нормами и требованиями документооборота на территории Российской Федерации.

Особая ответственность лежит на специалистах при определении кадастровой стоимости. Очень часто по результатам землеустроительной экспертизы формируется база для определения кадастровой стоимости объекта недвижимости. Кадастровая стоимость является основой для расчета налоговой базы и играет ключевую роль в формировании фискальной политики государства в сфере недвижимости.

Кадастровая оценка, определяемая по результатам землеустроительной экспертизы, выполняется в строгом соответствии с нормативными актами Российской Федерации, представляет собой рыночную оценку объекта недвижимости, зафиксированную на конкретную календарную дату. Кадастровая оценка очень часто формируется на основе применения массовой оценки объектов недвижимости, которая регламентирована на основе общепринятых методик и технологий, что обеспечивает унифицированный подход к объективности и репрезентативности. Фактически кадастровая стоимость, в рыночных отношениях, является индикатором текущего уровня цен на рынке недвижимости на момент ее установления, что позволяет рассматривать ее как достоверный показатель рыночной стоимости.

Анализируя действующие положения и особенности при выполнении землеустроительной экспертизы, выявлено:

- В процессе землеустроительной экспертизы, экспертом применяются необходимые методы исследования и оценки, позволяющие систематизировать все данные об объекте исследования.

- Результаты землеустроительной экспертизы фактически всегда используются для определения кадастровой стоимости объекта капитального строительства.

- В контексте системы налогообложения, кадастровая стоимость объекта капитального строительства, основанная на рыночной оценке, играет ключевую роль, в процессе обеспечивая справедливости налогового бремени на собственников.

- Использование кадастровой стоимости в качестве базы для налогообложения недвижимости способствует созданию сбалансированной и прозрачной системы фискальных отношений.

Использованные источники

1. Градостроительный кодекс Российской Федерации от 29.12.2004 N 190-ФЗ (с изменениями и дополнениями);
2. О государственном кадастре недвижимости: Федеральный закон от 24 июля 2007 г. № 221-ФЗ (с изменениями и дополнениями);
3. Об утверждении федеральных стандартов оценки и о внесении изменений в некоторые приказы Минэкономразвития России о федеральных стандартах оценки: Приказ Министерства экономического развития РФ от 14 апреля 2022 г. N 200 (с изменениями и дополнениями);

4. О Федеральной службе государственной регистрации, кадастра и картографии: Постановление Правительства РФ от 01.06.2009 №457 (с изменениями и дополнениями);
5. Об утверждении Методических указаний о государственной кадастровой оценке: Приказ Федеральной службы государственной регистрации, кадастра и картографии от 4 августа 2021 г. N П/0336 (с изменениями и дополнениями);
6. О государственной судебно-экспертной деятельности в Российской Федерации: Федеральный закон от 31 мая 2001 г. N 73-ФЗ (с изменениями и дополнениями).

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ПСИХОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ФОРМИРОВАНИЯ КРЕАТИВНОСТИ У ДЕТЕЙ ДОШКОЛЬНОГО ВОЗРАСТА

Аннотация. Статья посвящена исследованию психологических особенностей формирования креативности у детей дошкольного возраста. В работе рассматриваются теоретические подходы к пониманию креативности, а также представлены результаты эмпирического исследования, проведённого в условиях дошкольного образовательного учреждения. Показано, что у дошкольников ярко выражены беглость и оригинальность мышления, однако разработанность идей требует дополнительной педагогической поддержки. Делается вывод о важности игровой деятельности и воображения как ведущих факторов развития креативности, а также о необходимости создания развивающей среды, стимулирующей творческую активность детей.

Ключевые слова: креативность, дошкольный возраст, воображение, игра, психология творчества, педагогическая поддержка.

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PSYCHOLOGICAL FEATURES OF CREATIVITY DEVELOPMENT IN PRESCHOOL CHILDREN

Abstract. The article examines the psychological characteristics of creativity development in preschool children. It discusses theoretical approaches to creativity and presents the results of an empirical study conducted in a preschool educational setting. The findings reveal that preschoolers demonstrate high levels of fluency and originality of thinking, while elaboration of ideas requires additional pedagogical support. The study emphasizes the importance of play activity and imagination as key factors in the development of creativity and highlights the need to create an educational environment that fosters children's creative potential.

Keywords: creativity, preschool age, imagination, play, psychology of creativity, pedagogical support.

Введение.

Современное общество предъявляет к личности новые требования, среди которых одной из ключевых компетенций выступает креативность. В

условиях стремительных социально-экономических изменений, внедрения инновационных технологий и необходимости нестандартного мышления именно способность к творческому поиску и гибкости мышления становится важнейшим ресурсом развития человека. В этой связи исследование особенностей формирования креативности у детей на ранних этапах онтогенеза приобретает особую актуальность.

Дошкольный возраст (от 3 до 6 лет) является наиболее сензитивным периодом для становления творческих способностей. Согласно культурно-исторической концепции Л. С. Выготского, воображение в этом возрасте выполняет ключевую функцию в развитии психики, позволяя ребенку выходить за пределы непосредственного опыта и формировать новые комбинации образов [1]. Подобную мысль развивал Д. Б. Эльконин, указывая, что именно игра как ведущая деятельность дошкольника является основным источником развития креативности [3, 28-39].

В зарубежной психологии идеи о значении креативности были впервые систематизированы Дж. Гилфордом, который выделил дивергентное мышление как центральный компонент творческих способностей [6]. Позднее Э. Торренс разработал диагностический инструментарий для выявления креативности у детей, показав, что именно дошкольники демонстрируют наиболее высокий уровень гибкости и оригинальности мышления [7].

Несмотря на значительное количество исследований, остается открытым вопрос о психологических механизмах, условиях и особенностях развития креативности именно в дошкольном возрасте, что и определяет цель настоящей работы.

Методы.

В исследовании психологических особенностей формирования креативности у детей дошкольного возраста был применён комплексный подход, включающий как теоретические, так и эмпирические методы.

Понятие «креативность» в психологии трактуется многозначно. Дж. Гилфорд связывал его с дивергентным мышлением – способностью выдвигать множество идей и находить различные варианты решения [6]. Э. Торренс рассматривал креативность как универсальное качество личности, включающее беглость, гибкость, оригинальность мышления и способность к доработке идей [7].

Отечественные ученые связывали креативность с деятельностью ребенка. Л. С. Выготский отмечал, что воображение в дошкольном возрасте формируется под влиянием игровой деятельности и выступает важнейшим условием развития креативности [1]. Д. Б. Эльконин подчеркивал, что именно сюжетно-ролевая игра является пространством, в котором ребенок пробует новые социальные роли, преобразует реальность и создает воображаемые ситуации [3, 28-39]. А. Н. Леонтьев рассматривал креативность как продукт активности ребенка, возникающий в ситуации свободного выбора и экспериментирования [4].

Современные исследования подтверждают, что дошкольный возраст является наиболее благоприятным для развития креативности, однако этот процесс требует педагогического сопровождения и создания специальных условий.

Эмпирическая часть включала наблюдение за деятельностью детей дошкольного возраста в естественных условиях дошкольного учреждения. В качестве объектов исследования рассматривались различные виды деятельности: сюжетно-ролевая игра, изобразительная деятельность (рисование, лепка, аппликация), музыкально-двигательные игры, элементарное конструирование. Для более объективной фиксации проявлений креативности использовались диагностические методики. Наиболее значимыми оказались тесты креативного мышления Торренса, направленные на выявление показателей беглости, гибкости и оригинальности мышления, а также методики Гилфорда, акцентирующие внимание на способности к ассоциативным преобразованиям.

Кроме того, применялись беседы с воспитателями и родителями, которые позволяли выявить субъективное восприятие творческих проявлений детей и факторы, способствующие или препятствующие их развитию. Сопоставление данных различных методов сделало возможным комплексное понимание феномена креативности в дошкольном возрасте, что важно для последующего анализа результатов.

Результаты.

Полученные данные показали, что дети дошкольного возраста обладают высоким потенциалом креативности, который выражается в различных формах деятельности. Наибольшая интенсивность творческих проявлений наблюдалась в игре и в изобразительной активности, где ребёнок имеет больше свободы для самовыражения.

Для фиксации параметров креативности использовались критерии Торренса: беглость, гибкость, оригинальность и разработанность идеи. Обобщённые результаты представлены в таблице:

Показатель креативности	Характерные проявления у дошкольников	Частота проявления (по наблюдениям)
Беглость (количество идей)	Ребёнок быстро придумывает несколько сюжетов игры, варианты рисунка или способов использования предмета	Высокая (наблюдается у большинства детей в свободной деятельности)
Гибкость (смена стратегии)	Легко перестраивается при изменении правил игры, придумывает новые способы применения предметов	Средняя (зависит от условий и эмоциональной вовлечённости)
Оригинальность (нестандартность решений)	Создание фантастических персонажей, необычных комбинаций форм и цветов	Высокая (особенно выражена в рисовании и фантазировании)
Разработанность идеи (детализация)	Умение развивать замысел: прописывать сюжет, добавлять детали, объяснять «почему так»	Низкая—средняя (часто идеи остаются незавершёнными)

Анализ показал, что наибольшую трудность у детей вызывает именно разработанность идеи, что связано с особенностями произвольного внимания и планирования в дошкольном возрасте.

Наблюдения также выявили, что позитивная эмоциональная атмосфера и поддержка со стороны взрослых значительно усиливают проявления креативности. Дети, которых чаще хвалили и которым предоставляли больше свободы, высказывали больше идей и демонстрировали разнообразие решений. В то же время строгий контроль и ориентация исключительно на «правильный» результат снижали показатели оригинальности и гибкости.

Обсуждение.

Результаты исследования согласуются с положениями культурно-исторической психологии Л. С. Выготского, который рассматривал воображение как ведущий механизм развития ребёнка в дошкольном возрасте. Проявления креативности у детей — это не только следствие биологических задатков, но и продукт социального взаимодействия. Игра, изобразительная деятельность и творческие задания становятся ключевыми механизмами, через которые развивается способность ребёнка преобразовывать реальность.

Особое внимание следует уделять эмоциональному фактору. Исследование подтвердило, что положительная мотивация, эмоциональная поддержка и отсутствие чрезмерного давления со стороны взрослых формируют условия для свободного поиска и экспериментирования. Таким образом, креативность у дошкольников развивается наиболее активно в атмосфере психологической безопасности.

Полученные данные позволяют сделать вывод, что педагогическая практика в дошкольных учреждениях должна смещать акцент с конечного результата на сам процесс поиска. Следует поощрять вариативность решений, индивидуальные подходы и необычные комбинации идей. Практическая

значимость результатов заключается в разработке условий, стимулирующих творческую активность: включение в образовательный процесс сюжетно-ролевых игр с открытыми сценариями, организация художественных мастерских, использование интегрированных занятий, где ребёнок может сочетать музыку, движение и изобразительное искусство.

В целом исследование подтверждает, что креативность дошкольника — это динамическая и чувствительная к средовым условиям характеристика, и именно в этот возрастной период закладываются основы будущего творческого потенциала личности.

Заключение

Креативность в дошкольном возрасте проявляется как способность ребёнка генерировать разнообразные, часто оригинальные идеи, особенно в игровой и художественной деятельности. Однако у большинства детей отмечается недостаточная разработанность замысла, что связано с возрастными ограничениями когнитивного развития.

Практическая значимость исследования заключается в том, что педагогам и родителям следует создавать условия для развития творческих способностей детей: поощрять инициативу, предлагать задания с открытым исходом, развивать сюжетно-ролевые игры, стимулировать воображение через рисование, музыку и конструирование. Важно смещать акцент с результата на процесс поиска, позволяя ребёнку свободно экспериментировать.

Таким образом, дошкольный возраст является сенситивным периодом для развития креативности, и именно в это время закладываются основы будущего творческого потенциала личности.

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РАЗВИТИЕ КРИТИЧЕСКОГО ЧТЕНИЯ И АНАЛИТИЧЕСКОГО МЫШЛЕНИЯ НА УРОКАХ РУССКОГО ЯЗЫКА НА МАТЕРИАЛЕ ТЕКСТА “НЕФРИТОВЫЕ ОЗЁРА”

***Аннотация:** В статье представлен методический комплекс заданий для развития критического чтения, аналитического мышления и читательской грамотности при обучении русскому языку в школах с узбекским и другими языками обучения. Материал построен на основе художественно-публицистического текста «Нефритовые озёра», что обеспечивает аутентичность и краеведческую ценность.*

***Ключевые слова:** критическое чтение; читательская грамотность; аналитическое мышление; русско-язычное образование; аутентичный текст; краеведческий материал; экологическое воспитание; проектная деятельность; межкультурная коммуникация.*

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DEVELOPMENT OF CRITICAL READING AND ANALYTICAL THINKING IN RUSSIAN LANGUAGE LESSONS BASED ON THE TEXT "NEFRIT LAKES"

***Abstract:** The article presents a methodological set of tasks for developing critical reading, analytical thinking, and reading literacy in teaching Russian in schools with Uzbek and other languages of instruction. The material is based on the artistic and journalistic text "Nefrit lakes," which ensures authenticity and local history value.*

***Keywords:** critical reading; reading literacy; analytical thinking; Russian-language education; authentic text; local history material; environmental education; project activities; intercultural communication.*

Введение

В современном мире важно не только уметь быстро читать, но и критически осмысливать информацию. Данные задания помогут анализировать тексты, находить скрытый смысл, делать выводы и отличать факты от мнений. Это очень полезный навык для учёбы и жизни- навыки читательской грамотности. Оно покажет, насколько глубоко умеют работать с

текстом: понимать его структуру, извлекать нужную информацию, интерпретировать данные и оценивать содержание. Надо всегда помнить что ключ к успеху — внимательное чтение и логическое мышление.

Русский язык огромен, и задания могут быть очень разными. Например: возьмём задание по чтению и пониманию текста:

Нефритовые озёра.

Нефритовые озёра являются природным богатством Узбекистана. Причины возникновения горных бассейнов уникальны. Эта красота была создана в результате обвала скалы, после чего сформировалась плотина. Расположены нефритовые озёра в 160 километрах от города Ташкента, дорога до национального парка занимает около 2 часов времени, а восхождение в гору – около 1,5 часа пешей прогулки.

Малое озеро Урунгах сильно меняется в течение года и зависит от уровня воды Урунгах-сая. Примерно на 4 километра выше находится старший брат озера. В отличие от меньшего брата, водоём не пересыхает никогда, даже в самые жаркие дни вода остаётся на таком же уровне. Отличается озеро цветом зелёного нефрита, а по объёму оно больше и глубже.

Температура воды в водоёме достигает от +3 до +8 градусов. Некоторые приезжают, чтобы окунуться в ледяной бассейн, но на длительное время в воде не получится задержаться, она ледяная! Спасает каменная местность, которая раскаляется в летнее время от жары. По пути вы можете заметить знаки, которые не стоит упускать из виду. Знаки призывают к сохранению природы озёр, и стоит воздержаться от разбрасывания мусора на территории заповедника.

Территория заповедника охраняема и находится близ границы с Кыргызстаном. Восхождение можно осуществить пешком, на внедорожнике или на лошади.

По этому тексту можно составить множество заданий для проверки понимания. Вот несколько вариантов, которые вы можете использовать.

1. Как образовались Нефритовые озёра? (Ответ: в результате обвала скалы, который сформировал плотину.)

2. На каком расстоянии от Ташкента расположены Нефритовые озёра? (Ответ: 160 километров.)

3. Сколько времени занимает восхождение в гору? (Ответ: около 1,5 часа.)

4. Какое из двух озёр никогда не пересыхает? (Ответ: Большое озеро.)

5. Почему вода в озёрах такая холодная? (Ответ: температура воды достигает от +3 до +8 градусов.)

6. Что призывают делать знаки на территории заповедника? (Ответ: сохранять природу и не разбрасывать мусор.)

7. С какой страной граничит территория заповедника? (Ответ: с Кыргызстаном.)

Задания на анализ и размышление.

Эти вопросы направлены на более глубокое понимание текста и умение делать выводы.

1. Почему, по вашему мнению, озёра называют "Нефритовыми"? (Ответ: текст говорит, что Большое озеро отличается "цветом зелёного нефрита".)

2. Как вы думаете, почему в тексте Малое озеро названо "Урунгач", а Большое — его "старшим братом"? (Ответ: это метафора, подчёркивающая, что они расположены рядом, но Большое озеро больше по объёму и глубже, чем Малое.)

3. Для чего, согласно тексту, туристы иногда окунаются в ледяную воду озёр? (Ответ: для получения сильных впечатлений от холодной воды.)

4. С чем можно сравнить Большое озеро? (Ответ: его можно сравнить с большим бассейном.)

5. Как вы думаете, почему в тексте подчёркивается, что территория заповедника охраняется? (Ответ: чтобы подчеркнуть её ценность и важность сохранения для природы.)

Задания на словарный запас

Эти задания помогают проверить, насколько хорошо человек понимает значение слов из текста.

1. Объясните значение слова в контексте текста.

(Ответ: сооружение, которое удерживает воду, создавая водоём.)
(Ответ: плотина)

2. Найдите в тексте синоним к слову

(Ответ: "восхождение", "пешая прогулка".)(Ответ: поход)

3. Что означает фраза «не стоит упускать из виду»? (Ответ: нужно обращать внимание, не забывая.) (Ответ: каменистая местность)

Для этой темы можно подготовить такие задания, которые помогут ученикам лучше понять и запомнить информацию, а также развить их творческие и аналитические способности.

Творческие задания

Описание места: попросите учеников представить, что они побывали на Нефритовых озёрах, и написать небольшой рассказ, эссе или стихотворение, описывающее их впечатления.

Разработка туристического маршрута: предложите создать подробный план однодневной поездки к озёрам, включая, необходимое снаряжение и одежда, предполагаемый бюджет.

Советы для туристов. создание плаката или брошюры: попросите разработать рекламный материал (плакат или брошюру) для привлечения туристов к Нефритовым озёрам, подчёркивая их уникальные особенности и правила посещения.

Ролевая игра: организуйте ролевую игру, где ученики возьмут на себя роли: гид: рассказывает о Нефритовых озёрах. Путешественник: задаёт вопросы о маршруте и особенностях места. Эколог: объясняет важность сохранения природы заповедника.

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РАЗВИТИЕ ТУРИСТИЧЕСКИХ ДЕРЕВЕНЬ САМАРКАНДА И БУХАРЫ

Аннотация. Статья представляет экономический анализ развития туристических деревень в Узбекистане на примере Самаркандской и Бухарской областей за последние пять лет. Цель исследования — оценить динамику и вклад туристических деревень в региональные доходы от туризма, занятость и инвестиционную активность. Методологически работа сочетает анализ официальной статистики и нормативно-отчётных материалов с компаративным межрегиональным сравнением; применены индикативные ряды, нормирование показателей, расчёт относительных темпов и вкладов, а также качественный анализ проектов инфраструктуры. Результаты показывают устойчивый постпандемический рост въездного и внутреннего турпотока, расширение номерного фонда и сервисов в сельских локациях, увеличение числа малых предпринимателей и рабочих мест в гостевом секторе, общественном питании и ремёслах, а также активизацию государственных и частных инвестиций в туристскую инфраструктуру и продукты локальной идентичности.

Ключевые слова: туристические деревни; сельский туризм; Самаркандская область; Бухарская область; экономический анализ; занятость; доходы от туризма; инвестиции; инфраструктура туризма; устойчивое развитие.

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DEVELOPMENT OF TOURISM VILLAGES IN SAMARKAND AND BUKHARA

***Abstract.** The article presents an economic analysis of the development of tourism villages in Uzbekistan using the example of the Samarkand and Bukhara regions over the past five years. The purpose of the study is to assess the dynamics and contribution of tourism villages to regional tourism revenues, employment, and investment activity. Methodologically, the research combines analysis of official statistics and regulatory-reporting materials with comparative interregional evaluation; indicative series, normalization of indicators, calculation of relative growth rates and contributions, as well as qualitative analysis of infrastructure projects were applied. The results show sustainable post-pandemic growth in inbound and domestic tourist flows, expansion of accommodation facilities and*

services in rural locations, an increase in the number of small entrepreneurs and jobs in the guesthouse sector, catering, and handicrafts, as well as the activation of public and private investments in tourism infrastructure and products of local identity.

Keywords: *tourism villages; rural tourism; Samarkand region; Bukhara region; economic analysis; employment; tourism revenues; investments; tourism infrastructure; sustainable development.*

Введение.

Туристические деревни представляют собой уникальную форму развития территорий, сочетающую элементы культурного, экологического и агротуризма [1]. В Узбекистане за последние пять лет реализуется политика поддержки сельского и культурного туризма, особенно в исторически значимых регионах. Самаркандская и Бухарская области - ключевые центры туризма на Великом Шелковом пути, обладающие богатым наследием: например, в Бухарской области сосредоточено 660 туристических достопримечательностей, в том числе 142 объекта под защитой ЮНЕСКО.[2] Начиная с 2019 г. эти регионы стали пилотными площадками для развития «туристических деревень» - компактных сельских кластеров для привлечения туристов и развития местной экономики. Однако пандемия COVID-19 в 2020 г. нанесла серьёзный удар по туристическому сектору, временно сократив как въездной, так и внутренний турпоток. Тем не менее, к 2022-2023 гг. отрасль не только восстановилась, но и превзошла допандемические показатели, отчасти благодаря активным инвестициям государства и частного сектора в туристическую инфраструктуру. В данной статье проводится экономический анализ развития туристических деревень в Самаркандской и Бухарской областях за 2019-2024 гг. с фокусом на три ключевых показателя: доходы от туризма, занятость населения и инвестиции в отрасль. Цель исследования - выявить динамику и региональные особенности этих показателей, оценив вклад туристических деревень в социально-экономическое развитие регионов.

Методы исследования.

Исследование основано на анализе статистических данных и отчетов за 2019-2024 гг. из официальных источников Республики Узбекистан, а также на обзоре академической литературы по теме. Количественные показатели (численность туристов, объем туристических услуг, количество объектов и рабочих мест) собраны из материалов Агентства статистики и Министерства туризма и культурного наследия Узбекистана, публикуемых в пресс-релизах и новостях УзА (Национального агентства информации)[3]. Для сопоставления динамики использованы данные за базовый допандемический 2019 год, кризисный 2020 год и период восстановления 2021-2024 гг. Методологически работа носит характер сравнительного регионального анализа: ключевые индикаторы рассчитаны отдельно для Самаркандской и Бухарской областей,

что позволяет выявить сходства и различия в эффектах развития туристических деревень.

Анализ и результаты.

Туристический поток и доходы. Развитие туристических деревень в обоих регионах сопровождалось значительным ростом туристического потока после спада 2020 г. На Рис. 1 показана динамика въезда иностранных туристов в 2019-2023 гг.: до пандемии 2019 г. Самаркандскую область посетило порядка 0,5 млн зарубежных гостей, а Бухарскую - около 0,4 млн (оценки на основе частичных данных). В 2020 г. их количество сократилось почти до нуля из-за закрытия границ. С возобновлением путешествий в 2021 г. иностранный турпоток начал восстанавливаться (в Бухару прибыли ~30,8 тыс. зарубежных туристов, в Самарканд - десятки тысяч). К 2022 г. произошёл резкий скачок: Самаркандскую область посетили 1,204 млн иностранных туристов, а Бухарскую - 550 тыс. [4], что в 18 раз больше, чем годом ранее в Бухаре. Уже в первом квартале 2023 г. в Самарканде было зарегистрировано свыше 217 тыс. зарубежных гостей, а в Бухаре - 400 тыс. (за счёт смягчения визового режима и маркетинговых кампаний). По оценкам местных властей, в 2023 г. ожидается более 1,5 млн иностранных туристов в Самаркандской области и не менее 1,2 млн в Бухарской - значительное превышение уровня 2019 г. (см. Рис. 1). Одновременно растёт и внутренний туризм (Рис. 2): если в 2019 г. по области путешествовали ~2,5 млн узбекистанцев (Самарканд) и ~2,8 млн (Бухара), то в 2022 г. эти показатели достигли 4,247 млн и 2,7 млн человек соответственно/В 2021 г. действовала государственная программа стимулирования внутреннего туризма «Travel Uzbekistan», благодаря которой только в Бухару приехало более 1,405 млн внутренних туристов (в 2020 г. - около 1 млн). К концу 2023 г. ожидается свыше 3 млн внутренних путешественников в Бухарской области [4] и до 5 млн - в Самаркандской. Такая динамика свидетельствует, что туристические деревни и новые маршруты успешно привлекают как иностранцев, так и граждан страны.

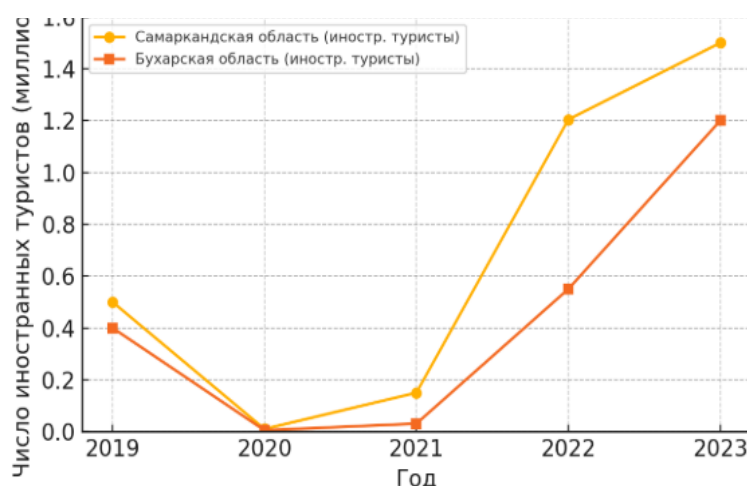


Рис. 1. Динамика числа иностранных туристов в Самаркандской и Бухарской областях (2019-2023 гг.).

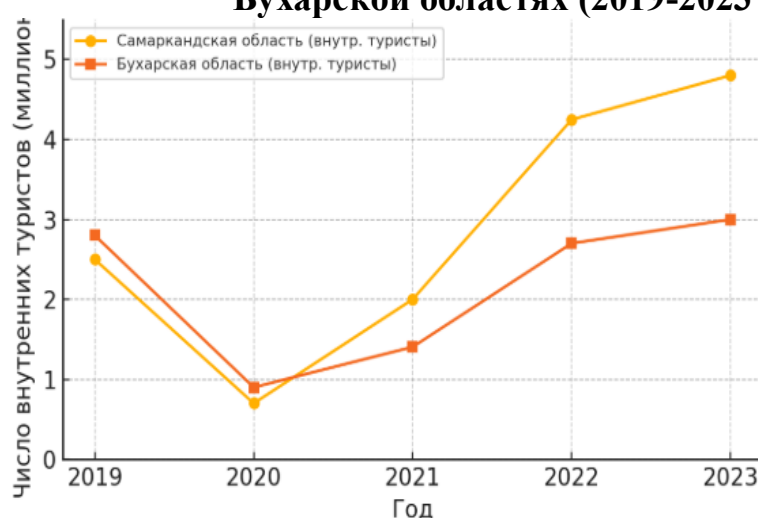


Рис. 2. Динамика числа внутренних (местных) туристов в Самаркандской и Бухарской областях (2019-2023 гг.).

Пандемия 2020 г. вызвала спад, но в 2021-2022 гг. внутренний туризм превысил докризисный уровень за счёт государственных программ стимулирования.

Рост туристического потока напрямую отразился на доходах отрасли. Экспорт туристических услуг (валютные поступления от иностранных туристов) в Самаркандской области за 2022 г. составил 197,6 млн долл. США [5]. Для сравнения, в целом по Узбекистану объём экспорта туристических услуг в 2022 г. превысил 1,61 млрд долл. (против 951 млн долл. в 2019 г.), то есть Самарканд обеспечил порядка 12% этих поступлений. В Бухарской области сопоставимых официальных данных нет, но косвенные показатели свидетельствуют о высокой доходности туризма: средние ежедневные расходы иностранных туристов в Бухаре оцениваются в 250 USD, а местных - около 350 тыс. сумов (≈ 30 USD) при среднем времени пребывания 3,5-4 дня. Таким образом, один зарубежный гость оставляет в регионе примерно 800-900 USD, а внутренний турист - около 1,4 млн UZS за поездку. В 2022 г.

суммарные траты всех туристов в Бухаре, по оценкам, могли превышать 500 млн USD, хотя часть этих средств не учитывается как экспорт (расходы внутренних путешественников). Опережающие темпы роста доходов подтверждаются и косвенными индикаторами: средняя продолжительность пребывания иностранцев по стране увеличилась с 3 дней в 2019 г. до 4-5 дней в 2022 г., а их средние расходы выросли с 195 USD до 305 USD благодаря расширению туристических услуг. Это свидетельствует об увеличении глубины охвата туристов за счёт новых предложений, в том числе в сельской местности.

Занятость и социальные эффекты.

Развитие туристических деревень способствовало росту занятости населения, особенно в сфере услуг и малого предпринимательства. В Самаркандской области по итогам 2022 г. в туристическом секторе занято более 5800 человек (без учёта сезонных рабочих мест), тогда как годом ранее этот показатель не превышал ~3000. Реализация программы трансформации 103 махаллей в туристические (в 2022 г.) позволила создать множество семейных гостевых домов - 491 дом был переоборудован под прием туристов. В 2023 г. география расширилась до 239 махаллей, что даст открытие 1144 гостевых домов и увеличение занятости до 7189 человек только в рамках данного проекта. Помимо гостеприимства, туризм стимулирует смежные услуги: питание, транспорт, ремёсла. Так, в Бухаре одним из драйверов стала инициатива по развитию гастрономического туризма. К началу 2023 г. в городе оформлены 50 национальных ресторанов и кафе на крышах исторических зданий, что позволило создать около 500 новых рабочих мест. Кроме того, предприниматели открыли 54 открытые террасы, на которых одновременно можно обслуживать ~2788 посетителей; создание этих террас дало ещё 1350 рабочих мест. В целом, за 2022-2023 гг. количество предприятий общественного питания, ориентированных на туристов, в Бухарской области выросло до 81, а число новых рабочих мест в данной сфере превысило 5500. [6]

Инвестиции и инфраструктура.

Значительное расширение туристического сектора в 2019-2024 гг. стало возможным благодаря активным инвестициям, как государственным, так и частным. Правительство Узбекистана обозначило туризм приоритетной отраслью, введя налоговые льготы для инвесторов (например, освобождение от таможенных пошлин на импорт оборудования для гостиниц) [7] и упростив визовый режим для иностранных туристов. В Самаркандской и Бухарской областях реализован ряд крупных проектов, направленных на развитие туристических деревень и сопутствующей инфраструктуры (Таблица 2). В 2019 г., на волне туристического бума, в Бухарской области начато строительство 32 новых гостиниц (на 2851 место) и 50 гостевых домов (на 420 мест), в том числе 3 крупных отельных комплекса с участием иностранных инвесторов из Германии и Индии (две 5-звёздочные гостиницы введены в 2020-2021 гг.). В 2020-2021 гг. темпы несколько снизились из-за пандемии,

однако этот период использовали для подготовки новых проектов. Например, в Самарканде шла реконструкция международного аэропорта и строительство современного туристического комплекса «Silk Road Samarkand». Этот туристический центр открылся в 2022 г., включив несколько высококлассных отелей, парк и конгресс-холл (проектная стоимость - 4,54 трлн сумов)[8]. Параллельно в Самаркандской области появились новые объекты показа в сельской местности: так, в 2022 г. реализованы 4 экотуристические зоны отдыха в горных районах (Ургутский, Акдарьинский и др.). В 2023 г. продолжилась диверсификация предложений: построена канатная дорога в горах Нурабада (120 млрд сум) и запущены 2 крупных туристических комплекса в махаллях «Ворсин» и «Янгиарык» (суммарно 127 млрд сум инвестиций). Общее количество коллективных средств размещения в Самаркандской области выросло к 2023 г. до 681 с общей вместимостью 18 869 мест - это почти в 3 раза больше, чем было в 2017 году. В Бухарской области инвестиции также сконцентрированы на инфраструктуре и новых продуктах. Наряду с упомянутым ростом объектов питания (кафе на крышах и террасы) [9], в 2022-2023 гг. намечено создание ряда новых средств размещения: 15 гостиниц, 20 семейных гостевых домов и 10 хостелов только в городе Бухара. Эти проекты должны привлечь дополнительно 4200 туристов одновременно и создадут ~4200 рабочих мест. Для финансирования подобных инициатив в 2022 г. из государственного бюджета Узбекистана по стране планировалось выделить 21,6 трлн сумов на туристские проекты (727 проектов), в том числе существенная доля - на Самарканд и Бухару как опорные точки. Кроме того, в мае 2024 г. была представлена концепция развития города Бухары до 2045 г., предполагающая масштабную модернизацию: строительство нового международного аэропорта (способного обслуживать втрое больше пассажиров), прокладку 15-км скоростной дороги от аэропорта до города, создание тематического парка «Бохий Бухоро» (32,6 га) с этнодеревней и четырьмя 5★ отелями, а также делового района «Bukhara City». Хотя эти планы рассчитаны на долгосрочную перспективу, уже в ближайшие годы (2024-2025) ожидается открытие ряда новых объектов, включая 3 туристические деревни в Бухарской области в рамках отдельной республиканской программы. Для сравнения, в Самаркандской области на 2023 г. запланировано довести число официальных *туристических сел* до 18 (с учётом уже действующих, таких как туристическая деревня Конирил под Самаркандом). Совокупные инвестиции в туристический сектор двух областей за 2019-2024 гг. оцениваются в несколько миллиардов долларов, что свидетельствует о масштабной поддержке отрасли.[10]

Таблица 2. Основные инвестиционные проекты и инициативы в сфере туризма (Самаркандская и Бухарская области, 2019-2024 гг.).

Год	Регион	Ключевые проекты и инвестиции в туризм (туристические деревни, инфраструктура)
2019	Бухара	Начало строительства 32 гостиниц (2851 мест) и 50 гостевых домов (420 мест); зарубежными инвесторами возводятся 2 пятизвёздочных отеля (сдача в 2020-2021 гг.).
2020-21	Самарканд	Реконструкция международного аэропорта; строительство туристического центра «Silk Road Samarkand» (многофункциональный комплекс, 4,5 трлн сум).
2022	Самарканд	Ввод в эксплуатацию центра «Silk Road Samarkand»; открытие 4 экотурзон отдыха (в горах Ургута и др.); запуск канатной дороги в Нурабаде (120 млрд сум).
2022	Бухара	Реализация проекта «Гастрономическая Бухара»: 54 террасы и аутентичные рестораны (~1850 новых посадочных мест), в области функционируют 131 гостиница и 119 гостевых домов (2019), планируется рост на 20-25% к 2024 г.
2023	Самарканд	Создание 2 туристических комплексов в махаллях (127 млрд сум; расширение номерного фонда до 681 объекта размещения; подготовка к проведению 25-й сессии Генассамблеи ЮНВТО в Самарканде (улучшение инфраструктуры).
2023	Бухара	Открытие 15 гостиниц, 20 гостевых домов, 10 хостелов (создание ~4200 мест размещения и ~4200 рабочих мест); начало проекта по созданию этнотуристической деревни «Ширин» (Вобкентский район).
2024	Бухара	Утверждена концепция развития до 2045 г.: расширение города на 3831 га, строительство нового аэропорта и ж/д вокзала, туристический парк «Бохий Бухоро» (32,6 га) с отелями и ремесленными кварталами (реализация начнётся в 2024-2025 гг.).[11]
2025 (план)	Республика	Создание 10 новых туристических деревень по стране, в т.ч. 3 в Бухарской области и до 2 в Кашкадарьинской. В Самаркандской области уже действует туристическая деревня Конибил (центр ремёсел), планируется развитие «Конибил-2»[12]

Из таблицы 2 видно, что Самаркандская область сделала упор на создание современных кластеров и крупных объектов (турцентр, аэропорт, канатная дорога), тогда как Бухарская область фокусируется на развитии исторического города (гостиницы, рестораны) и новых туристических локаций в регионе. Обе области активно внедряют концепцию *туристических деревень*. В Самарканде одна из первых таких деревень - Конибил - уже стала популярной точкой притяжения благодаря традиционной бумажной фабрике и ремесленному ансамблю[13]. В Бухарской области в 2023 г. статус этнотуристической деревни присвоен махалле Ширин близ города Бухары, а в августе 2025 г. открылось село Ушот в Джандарском районе как новая туристическая деревня[14]. Эти проекты не только улучшают впечатления

туристов, но и обеспечивают занятость и доход сельскому населению, тем самым способствуя сбалансированному развитию региона.

Выводы

В период 2019-2024 гг. туристический сектор Самаркандской и Бухарской областей Узбекистана продемонстрировал высокие темпы роста по основным экономическим показателям - доходам, занятости и инвестициям - во многом благодаря созданию и развитию туристических деревень. Доходы от туризма в 2022-2023 гг. превысили допандемический уровень: экспорт туристических услуг растёт, увеличивается средняя продолжительность и стоимость пребывания туристов. Занятость населения заметно повысилась: в сельских районах появились тысячи новых рабочих мест, что способствует снижению трудовой миграции и сохранению традиционных навыков (ремёсел, гостеприимства).[15] Инвестиции - как государственные, так и частные - в инфраструктуру и туристические деревни окупаются за счёт роста турпотока и улучшения качества услуг. Самаркандская область выделилась реализацией крупных проектов международного масштаба, тогда как Бухарская добилась успехов в развитии малого предпринимательства и гастротуризма; оба подхода принесли позитивные результаты и являются взаимодополняющими.[16] Концепция туристических деревень зарекомендовала себя как эффективный инструмент сбалансированного регионального развития: она интегрирует памятники культуры, природные достопримечательности и местное сообщество в единый туристский продукт, повышая конкурентоспособность регионов.

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МОНИТОРИНГ СНЕЖНОГО ПОКРОВА С ИСПОЛЬЗОВАНИЕМ ПРОГРАММЫ MODSNOW

Аннотация: Статья посвящена вопросам мониторинга снежного покрова в речном бассейне, с использованием программы MODSNOW. Описаны алгоритмы очистки изображений от облаков с целью повторного анализа данных о распространении снежного покрова и устранения факторов, влияющих на качество спутниковых данных. Эти данные о снежном покрове в речном бассейне – позволяют прогнозировать сток рек на вегетационный период и ускорить процесс принятия оптимальных решений участниками водохозяйственного комплекса для эффективного использования водными ресурсами.

Ключевые слова: модуль, MODSNOW сток, река, MODIS, снежный покров, облачность, бассейн.

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SNOW COVER MONITORING BASED ON THE MODSNOW PROGRAM

Abstract: The article is dedicated to monitoring snow cover in the river basin using the MODSNOW program. Algorithms for clearing images from clouds are described to re-analyze data on snow cover distribution and to eliminate factors affecting the quality of satellite data. These data on snow cover in the river basin allow for predicting river flow for the growing season and accelerating the process of optimal decision-making by water management complex participants for the efficient use of water resources.

Key words: module, MODSNOW flow, river, MODIS, snow cover, cloudiness, basin.

Введение.

На аридных территориях Центральной Азии, в зависимости от их природно-географических характеристик, выращивание сельскохозяйственных культур не может осуществляться без орошения. При этом, проблема нехватки воды усугубляется с каждым годом из-за роста

населения, расширения орошаемых земель и многих других факторов. Сегодня данная проблема привлекает внимание всего мирового сообщества.

Значение снежного покрова в формировании водных ресурсов Центральной Азии огромно, особенно если учесть, что в силу климатических особенностей региона, выращивание сельскохозяйственных культур осуществляется на поливных землях, что становится затруднительным в связи с сокращением стока.

Известно, что снежный покров в горных районах формируется за счет выпадения твердых осадков, причем максимум осадков приходится на зимне-весенний период (февраль, март-апрель).

В горных районах характеристики снежного покрова существенно зависят от высоты местности. Максимальные снежные ресурсы и даты образования максимума снегозапасов наступают на больших высотах местности уже в марте. Это обстоятельство обуславливает сроки проведения наблюдений над снежным покровом в начале весны, поскольку для гидрологических целей (прогноза стока на вегетацию) важно заранее оценить объемы снегонакопления в горах.

Мониторинг снежного покрова в горных бассейнах с использованием методами дистанционного зондирования очень важен. Даты появления устойчивого снежного покрова, даты формирования максимальных снегозапасов, даты разрушения устойчивого снежного покрова, продолжительность периода залегания устойчивого снежного покрова, величина максимальных снегозапасов варьируются год от года.

В настоящее время тип питания рек горного региона средней Азии устанавливается по критерию В.Л. Шульца, уточненного позднее О.П. Щегловой [6]. В качестве объекта исследования приняты – реки бассейна Кашкадарьи. Некоторые реки бассейна Кашкадарьи (Оксув) относятся к снегово-ледниковому типу питания, а некоторые (Урадарья, Танхоздарья, Гузардарья, Яккабогдарья) снегово-дождевому типу питания.

Методы исследования.

В данной статье использованы методы географического обобщения, гидрологической аналогии, ГИС технологий при обработке данных дистанционного зондирования.

Результаты исследования.

На сегодняшний день для мониторинга водных ресурсов широко используется программа MODSNOW, разработанная доктором Абдор Гафуровым (GFZ-Potsdam). В настоящее время информацию о снежном покрове с высоким временным и умеренным пространственным разрешением можно получить из изображений оптического дистанционного зондирования, например, из продуктов MODIS. Такая информация важна для оценки состояния запасов снега в горах Центральной Азии. Однако обработка таких данных отнимает много времени и представляет собой очень трудоёмкий процесс. Удобный для пользователя инструмент MODSNOW предлагает возможность автоматической обработки данных MODIS о снежном покрове

для заранее определенных речных бассейнов или выбранного региона. Обработка включает в себя загрузку данных, удаление облаков с изображений, создание ежедневных карт снежного покрова в масштабе бассейна и в зависимости от высоты.

Программа MODSNOW автоматически загружает суточные данные AQUA и TERRA через спутник MODIS ежедневно и осуществляет мониторинг снежного покрова [1, 4]. Программа состоит из комплекса модулей, состоящих из 7 этапов. Эти модули включают следующие этапы:

- 1) скачать доступные и обновленные данные о снежном покрове с NSIDC сервера MODIS;
- 2) загрузка обновленной информации о входящей и исходящей коротковолновой радиации из сети автоматических климатических станций;
- 3) использование алгоритмов очистки изображений от облаков с целью повторного анализа данных о снеге на местах и устранения факторов, влияющих на качество данных;
- 4) перепроектировать и объединить необходимые плитки MODIS в формате GeoTIFF ;
- 5) перевести файлы GeoTIFF в формат ASCII и вырезать бассейны с границами;
- 6) использование 8-этапного алгоритма очистки облаков для определения данных о суточном снежном покрове;
- 7) повторный анализ и визуализация отчетов о состоянии снежного покрова в бассейне.

Эти процессы организованы через файл пакета и могут выполняться вручную или автоматически в качестве запланированной задачи в заданное время.

Программа MODSNOW позволяет автоматически получать данные о суточном снежном покрове, очищенном от облаков для речного бассейна. Данная программа позволяет проводить мониторинг снежного покрова на основе дистанционного зондирования не только в Узбекистане, но и по всей территории Центральной Азии. На рис.1 показана площадь снежного покрова бассейна реки Кашкадарьи Кашкадарьинской области Республики Узбекистан.

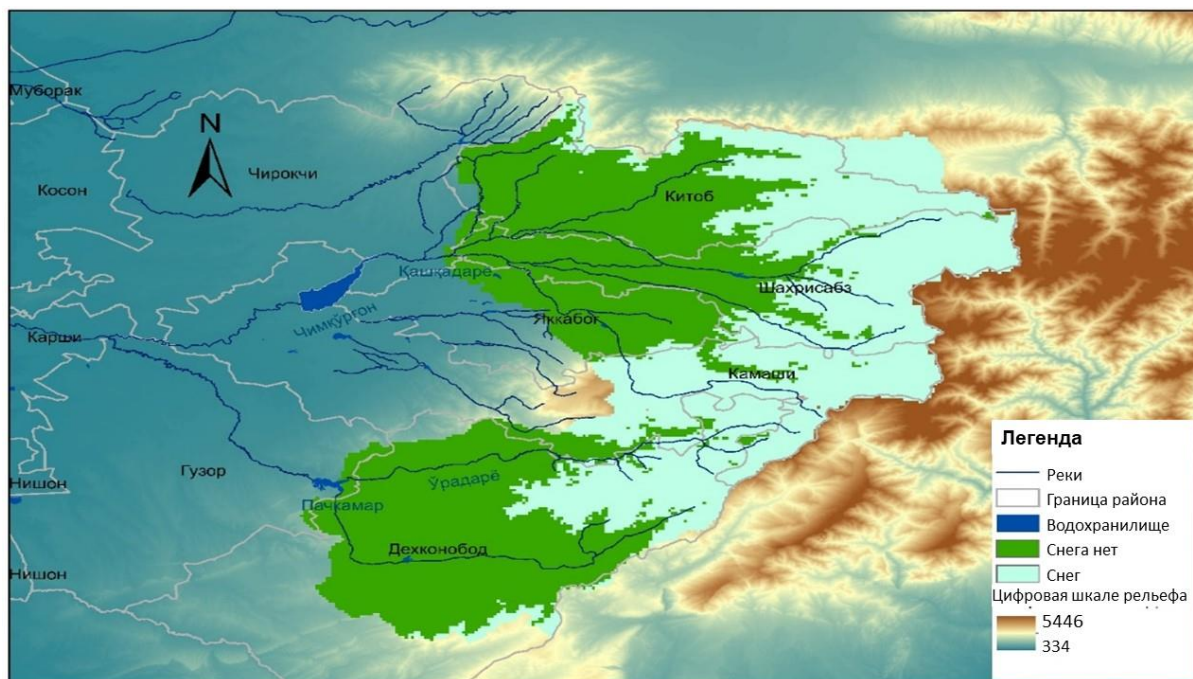


Рис.1. Снежный покров бассейна Кашкадарьи, полученный при помощи программы MODSNOW (05.01.2022 г.)

Сегодня MODSNOW используется практически во всех Центрах Гидрометеорологической службы в Центральной Азии. Используя программу, можно дистанционно оценить запасы воды в крупных речных бассейнах, которые получают воду через каскад насосных станций в пустынных районах.

Данными спутника MODIS могут свободно пользоваться представители всех областей. Информация будет предоставлена с задержкой в два дня. Для целей гидрологического мониторинга такая двухдневная задержка также приемлема и достаточна [2, 3]. Ниже приводятся этапы - использование алгоритмов очистки изображений от облаков с целью повторного анализа данных о площади снега на местах и устранения факторов, влияющих на качество данных (рис.2).

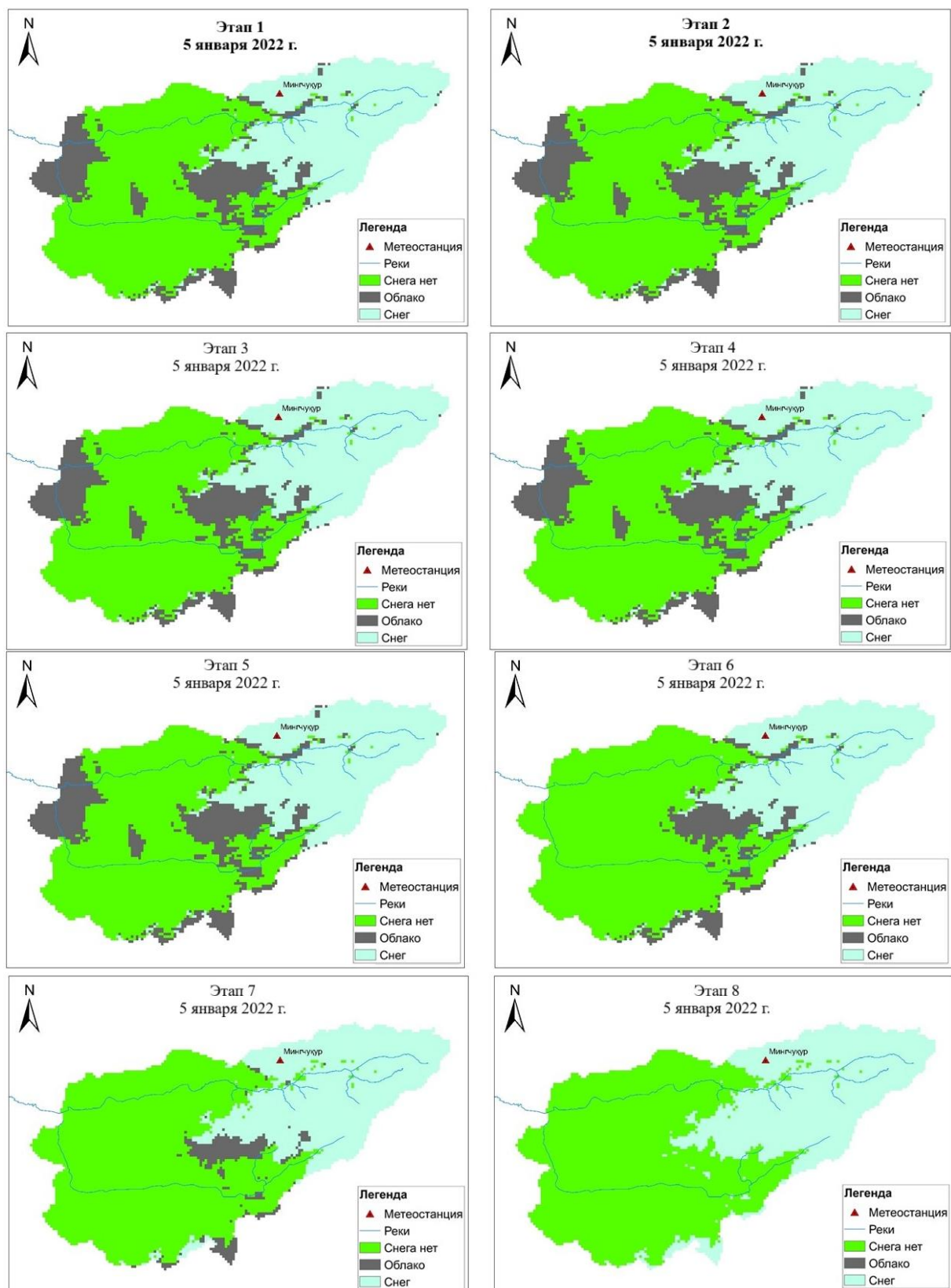


Рис 2. Этапы алгоритма очистки от облаков с помощью MODSNOW по бассейну реки Урадарьи

Закключение.

С помощью программы MODSNOW можно создать обобщенную карту снежного покрова из данных нескольких бассейнов. Эта возможность может быть использована при составлении обобщенной карты снежного покрова не только по отдельным бассейнам, но и по всем основным речным бассейнам на территории Республики Узбекистан.

Основная цель создания сводной карты данных о снежном покрове в бассейне реки - ускорить процесс принятия оптимальных решений правительством, фермерами и исследователями. Потому что исследование, основанное на фактических результатах, позволяет заранее планировать эффективное использование водных ресурсов.

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СИСТЕМА СБЫТА И ПРОДВИЖЕНИЯ СЕЛЬСКОХОЗЯЙСТВЕННОЙ ПРОДУКЦИИ В РОЗНИЧНОЙ ТОРГОВЛЕ

***Аннотация:** эффективный сбыт сельскохозяйственной продукции – критически важный элемент устойчивого развития агропромышленного комплекса. В условиях глобализации и роста конкуренции производители сталкиваются с необходимостью оптимизации каналов распределения, внедрения инновационных маркетинговых инструментов и адаптации к требованиям потребителей. В статье анализируются современные тенденции и вызовы, связанные с продвижением сельхозпродукции в розничных сетях, включая опыт зарубежных стран и локальные практики. На основе анализа предложены рекомендации по оптимизации сбытовых каналов и повышению конкурентоспособности сельхозпродукции на рынке.*

***Ключевые слова:** сельскохозяйственная продукция, система сбыта, прямые продажи, продвижение сельхозпродукции, розничная торговля, стратегии продвижения.*

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SYSTEM OF SALES AND PROMOTION OF AGRICULTURAL PRODUCTS IN RETAIL TRADE

Abstract: *effective marketing of agricultural products is a critical element of sustainable development of the agro-industrial complex. In the context of globalization and increasing competition, producers are faced with the need to optimize distribution channels, implement innovative marketing tools and adapt to consumer demands. The article analyzes current trends and challenges associated with the promotion of agricultural products in retail chains, including the experience of foreign countries and local practices. Based on the analysis, recommendations are proposed for optimizing distribution channels and increasing the competitiveness of agricultural products in the market.*

Key words: *agricultural products, distribution system, direct sales, promotion of agricultural products, retail trade, promotion strategies.*

Актуальность темы. В современном мире сельскохозяйственная продукция играет важную роль в обеспечении продовольственной безопасности и удовлетворении потребностей населения. Однако, для эффективного функционирования аграрного сектора и доведения продукции до конечного потребителя, необходима развитая система сбыта и продвижения, что позволит обеспечить более эффективное функционирование аграрного сектора, удовлетворить потребности населения в качественной продукции и поддержать местных производителей.

Целью данной статьи является анализ современных механизмов сбыта и продвижения сельскохозяйственной продукции в розничной торговле, а также разработка рекомендаций по повышению эффективности распределительных каналов и маркетинговых стратегий для производителей.

Прежде, чем рассмотреть систему сбыта и продвижения сельскохозяйственной продукции в розничной торговле, представим в таблице 1 различные исследования современных отечественных ученых в данной области.

Таблица 1

Исследования отечественных ученых в области сбыта и продвижения сельскохозяйственной продукции в розничной торговле

Авторы	Особенности исследования
Г.М. Гриценко	Изучала проблемы инфраструктуры сбыта для малых форм хозяйствования (фермеров и ЛПХ). Ее работы подчеркивают необходимость создания агрегаторов фермерской продукции и кооперативов для взаимодействия с розничными сетями. Отмечается, что отсутствие государственной поддержки и высокие логистические издержки ограничивают доступ малых производителей к крупным каналам распределения [1]
О.И. Хайруллина	Исследовала факторы, влияющие на экспорт сельхозпродукции, включая логистику и инвестиционную активность. Ее работы актуальны для понимания интеграции российских производителей в международные цепочки поставок, что косвенно влияет и на розничную торговлю через увеличение качества стандартов [6]
Е.В. Устинова	Рассматривала вопросы продовольственной безопасности и связи сбытовых механизмов с устойчивостью агропроизводства. В ее работах подчеркивается роль кооперативов и прямых продаж как инструментов снижения зависимости от посредников [5]
А.А. Зубова	Хотя ее исследования посвящены автомобильному рынку, методология анализа сбытовых политик (например, дистрибуция через дилерские сети) может быть адаптирована для сельхозпродукции, особенно в контексте франчайзинга и партнерских программ с розницей [3]

Исследования отечественных ученых подчеркивают комплексный подход к решению проблем сбыта и продвижения сельскохозяйственной продукции в розничной торговле.

Процесс продвижения, связанный с продукцией сельского хозяйства, сложнее и специфичнее чем другие виды маркетинга, что предопределяет многообразие способов, методов его осуществления из-за большого количества производимых продуктов, и их значимости, так например, некоторые являются товарами первой необходимости, а другие служат для удовлетворения высокого уровня жизни. При этом стоит отметить, что продвижением продукции в малом бизнесе занимаются сами предприниматели, а не обученные этому специалисты [4, с. 235].

Так, например, в Пермском крае система продвижения сельхозпродукции сочетает регулируемые (сырьевые поставки) и рыночные (конечная продукция) механизмы. Это обеспечивает стабильность для производителей сырья, но ограничивает их доходность, тогда как переработчики получают возможность максимизировать прибыль через розничные сети (таблица 2).

Таблица 2

**Система продвижения сельскохозяйственной продукции на
внутреннем рынке Пермского края**

Направление сбыта	Характеристика	Участники	Механизм ценообразования
Сбыт сельскохозяйст- венного сырья	Поставки сырья переработчикам или заготовительным базам	Производители сырья (фермеры, сельхозпредприятия), перерабатывающие предприятия, заготовители	Регулируемые цены, долгосрочные договоры
Сбыт конечной продукции	Реализация готовой продукции (молочные, мясные изделия и др.) через рыночные каналы	Перерабатывающие предприятия, заготовительные организации, розничные сети, потребители	Рыночное ценообразование (спрос/предложени е)

Производители сырья зависят от перерабатывающих предприятий, что снижает их переговорную позицию. Регулируемые цены часто не учитывают себестоимость, особенно в условиях инфляции [2, с. 70].

Рыночный сбыт готовой продукции позволяет использовать гибкие маркетинговые стратегии (например, продвижение локальных брендов), но требует инвестиций в логистику и конкуренцию с федеральными сетями [7]. В таблице 3 представлены предложенные стратегии продвижения локальных брендов и сельхозпродукции в розничной торговле Пермского края.

Таблица 3

Стратегии продвижения локальных брендов и сельхозпродукции в розничной торговле Пермского края

Стратегия	Инструменты / Методы	Примеры / Результаты	Проблемы и решения
Зонтичный бренд «Покупай пермское»	- коллективные ярмарки; выставки; - торгово-закупочные сессии; - цифровое продвижение (соцсети, микроинфлюенсеры)	и- СПК заключил контракты Х5, «Магнит», «Лента»; - 85% жителей- увеличению узнаваемости товаров логотипом бренда	«Колос»- экономия бюджета на продвижение за счет digital-инструментов;
Кооперативные модели и господдержка	- создание сельхозкооперативов; - субсидии и льготы (страхование, кредиты)	- усиление переговорной позиции фермеров; - снижение логистических издержек	- ограниченный доступ малых производителей к федеральным сетям; - необходимость господдержки
Инновационные каналы сбыта	- онлайн-платформы (маркетплейсы, доставка); - агротуризм и прямые продажи	- рост онлайн-продаж на 80% в 2020 году; удаленных районов формат «от поля до прилавка» - развитие экотуризма дегустациями	- недостаточный охват удаленных районов доставки; - развитие экотуризма как решение
Проблемы и решения	- конкуренция с импортом; - логистика и сезонность	- квотирование местной продукции; - создание ОРЦ для хранения скоропортящихся товаров	- дешевый импорт (белорусская молочная продукция); - нехватка холодильных цепей
Успешные кейсы	- бренд S-Factor (школьная форма); - продукция «Тенториум» (пермская символика)	- увеличение продаж за счет локального инвестирования; и маркетинг - доверие потребителей к бренду	- необходимость инвестиций в упаковку

Таким образом, внедрение предложенных мер приведет к формированию устойчивой системы сбыта, однако требует комплексного подхода и поэтапной реализации. Однако следует учитывать, что процесс трансформации потребует значительных организационных усилий и временных ресурсов, а его успех будет напрямую зависеть от согласованности действий всех заинтересованных сторон. В целом оптимизация системы сбыта в Пермском крае требует баланса между госрегулированием сырьевого сектора и стимулированием рыночных инструментов для переработанной продукции.

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МОНИТОРИНГ ЭКОЛОГО-ХОЗЯЙСТВЕННОГО СОСТОЯНИЯ ЗААДЫРНЫХ ЗЕМЕЛЬ (МАРХАМАТСКОГО РАЙОНА АНДИЖАНСКОЙ ОБЛАСТИ) С ПОМОЩЬЮ ГИС

Аннотация: В статье рассматривается применение геоинформационных технологий (ГИС) для мониторинга эколого-хозяйственного состояния заадырных земель Мархаматского района Андижанской области. Проведён анализ динамики использования земель, выявлены деградиционные процессы, а также предложены рекомендации по улучшению состояния земельных ресурсов с учётом экологических и экономических факторов.

Ключевые слова: мониторинг, эколого-хозяйственное состояние, эколого-хозяйственный баланс, заадыры, ГИС, Мархаматский район Андижанской области, Фергаская долина.

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MONITORING THE ECOLOGICAL AND ECONOMIC CONDITION OF THE INTER-ADYR LANDS OF THE (MARHAMAT DISTRICT OF ANDIJAN REGION) USING GIS

Annotation: The article discusses the use of geographic information technologies (GIS) for monitoring the ecological and economic state of the Zaadyr lands of the Markhamat district of the Andijan region. An analysis of the dynamics of land use was conducted, degradation processes were identified, and recommendations were proposed to improve the state of land resources taking into account environmental and economic factors.

Keywords: monitoring, ecological and economic condition, ecological and economic balance, inter-adyr lands, GIS, Markhamat district of Andijan region, Fergana Valley.

В современных условиях устойчивого развития сельского хозяйства особое внимание уделяется рациональному использованию и охране земельных ресурсов. Заадырные земли Мархаматского района, расположенные в южной части Ферганской долины, играют важную роль в хозяйственной деятельности региона. Однако в последние десятилетия под воздействием природных и антропогенных факторов наблюдается ухудшение

их состояния. Для своевременного выявления изменений и принятия управленческих решений необходимо применение современных методов мониторинга, в частности — ГИС-технологий.

В работе использовалась методика, изложенная в публикациях (Ахмадалиев, 1999), при применении которой существует возможность оценить антропогенную нагрузку от сложившейся структуры землепользования региона. Методология исследования опирается на современные теоретические концепции устойчивого экоразвития (Акимова и др., 2005) и эколого-хозяйственного балансового подхода [2]. Сформировавшаяся структура землепользования — пользования природной территорией как угодьем или ландшафтом, — как пространственно временная категория отражает исторические, политические, экологические аспекты природопользования региона.

Выполнение оценки эколого-хозяйственного баланса территории должно базироваться на точном определении всех исходных компонентов. Содержанием ЭХБ территории является совершенствование структуры землепользования и ориентация на постоянное расширение природных систем обеспечения и жизнедеятельности человека, т.е. создание новых систем землепользования. Для оценки эколого-хозяйственного баланса территории используются следующие показатели: распределение земель по их видам и категориям; площадь природоохранных территорий; площадь территорий по видам и степени антропогенной нагрузки; напряжённость эколого-хозяйственного состояния территории; интенсивность интегральной антропогенной нагрузки; состояние естественной защищённости территории; состояние экологического фонда территории [1]. (Таблица 1)

Таблица 1.

Предлагаемая оценка степени антропогенной нагрузки по категориям земель в баллах на основе классификационных единиц земельного кадастра Ферганской области (Кочуров, Ахмадалиев)

№	Категории земель	Балл	Степень антропогенной нагрузки (АН)
1	Земли промышленности, населенных пунктов, транспорта, связи	6	Высшая (Р ₆)
2	Орошаемо-пахотные земли, в том числе огороды	5	Очень высокая (Р ₅)
3	Земли под ирригационными объектами (водохранилище, каналы, коллекторы)	4	Высокая (Р ₄)
4	Многолетние насаждения (сады, тутовники, виноградники)	3	Средняя (Р ₃)
5	Малоиспользуемые земли (сенокосы, пастбища, адыры)	2	Низкая (Р ₂)
6	Эколого-опорные земли (горы, земли под реками, саев)	1	Очень низкая (Р ₁)

В качестве инструмента реализации предложенного подхода целесообразным является применение географических информационных технологий, которые позволяют осуществить хранение, анализ, визуализацию пространственных данных на платформе современных географических информационных систем (ГИС).

Мархаматский район находится в Андижанской области Ферганской долины. Общая площадь Мархаматского района в административные деления составляет более 543 км². Дальнейшая оценка предполагает расчет напряженности эколого-хозяйственного состояния территории в виде коэффициента относительной экологической напряженности (K_0). При расчете коэффициента относительной экологической напряженности (K_0) учитываются все типы использования земель на рассматриваемой территории и оценивается общая экологическая напряженность в районе. Если значение коэффициента K_0 приближается к 1, то наблюдается сбалансированность на территории по степени АН.

K_0 — коэффициент относительной напряжённости:

$$K_0 = \frac{АН_4 + АН_5 + АН_6}{АН_1 + АН_2 + АН_3}$$

Значения коэффициента (K_0) позволяют объективно оценить степень соответствия интенсивности антропогенных воздействий восстановительному потенциалу природных ландшафтов и обосновать необходимость создания в регионе особо охраняемых природных территорий (ООПТ) с требуемой величиной их площади. [2] (Рисунок1)

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ПИЛТАЛИ ТЎҚИМАЛАРНИ ИШЛАБ ЧИҚАРИШ ВА ТАДҚИҚОТ ҚИЛИШ

Аннотация. Мақолада хавфсизлик камарларига мўлжалланган пилтали тўқималарни ишлаб чиқариш, хусусиятлари ва қўлланиши бўйича тадқиқотлар натижалари келтирилган.

Калим сўзлар. Тўқима, тўқув дастгоҳлари, тўқимани ўраш ва тортиш, хомашё, ассортимент, хомуза, митти моки, арқоқ, танда, автомобил.

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PRODUCTION AND RESEARCH OF SPUN FABRICS

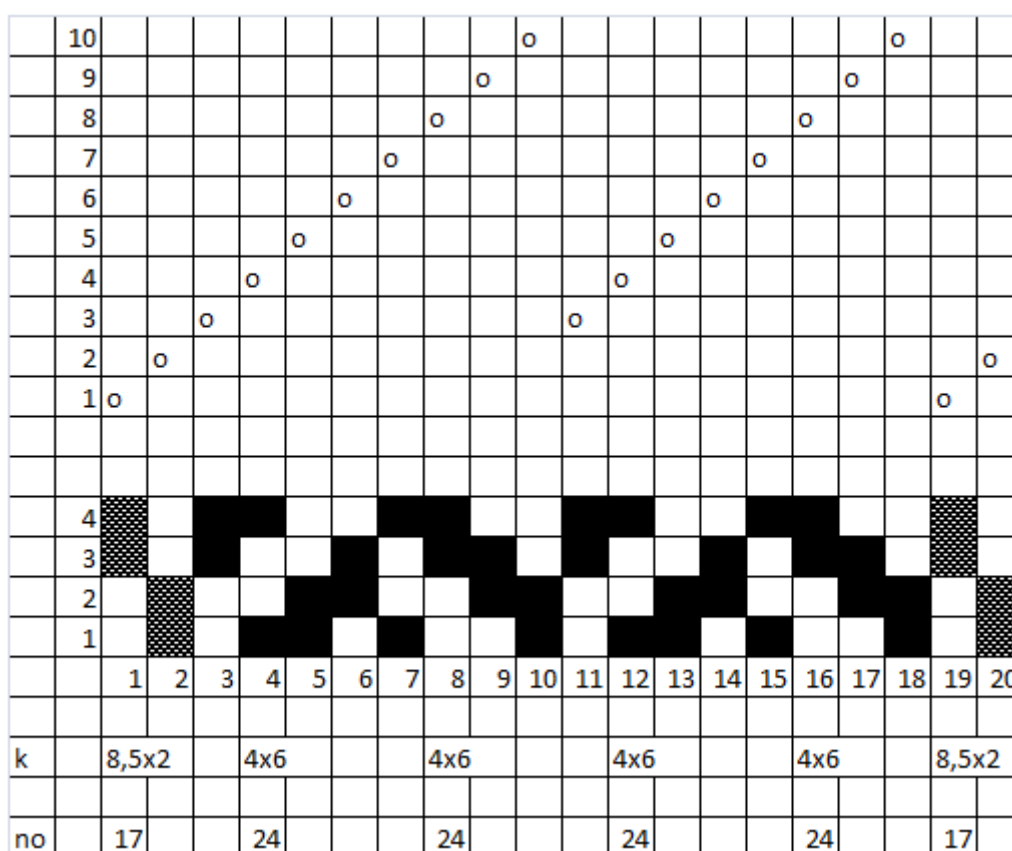
Abstract. In this paper possibility of creation of the special of safety belt and results of researches on manufacturing, studying of properties and to application is shown.

Keyword: Fabric, loom, raw material, assortment, warp, weft.

Автомобил саноати бугунги кунда муҳим аҳамиятга эга. Шу боис, бу соҳада улкан ўсиш ва ривожланиш юз бермоқда. Автомобилларда ишлатиладиган тўқимачилик материалнинг улуши автомобилнинг умумий оғирлигининг 2,2 фоизини ташкил килади [1]. Ички матолар, гиламлар, ва хоказо тўқимачилик махсулотларидан фойдаланишдан ташқари, шиналар, ёнилғи филтрлари, ҳаво ёстиғи ва хавфсизлик камарларидан фойдаланилади. Жаҳон соғлиқни сақлаш ташкилоти маълумотларига кўра, йўл-транспорт ходисалари бутун дунё бўйлаб катта муаммодир ва ҳозирда бутун дунёда йўл-транспорт ҳалокатларидан 1,2 миллион одам нобуд бўлмоқда. Ўлим ва жароҳатланишнинг олдини олишда юқори даражада самарали бўлган хавфсизлик камарлари ва ҳаво ёстиғи энг яхши ечимдир. Хавфсизлик камарлари жиддий шикастланишларнинг умумий хавфини 60-70% га ва ўлим хавфини тахминан 45% га қисқартириши аниқланган [2]. Шунинг учун хавфсизлик камарларини яратиш ва ишлаб чиқариш муҳим вазифалардан бири ҳисобланади.

Республикамизда автомобилсозлик ривожлана бориб, GM Uzbekistan заводи очилиб, турли хил русумдаги енгил автомобиллар ишлаб чиқарила бошлади. Автомобилларни бутловчи қисмларни ишлаб чиқаришни маҳаллийлаштириш борасида ҳукумат томонидан бир қанча қарорлар қабул

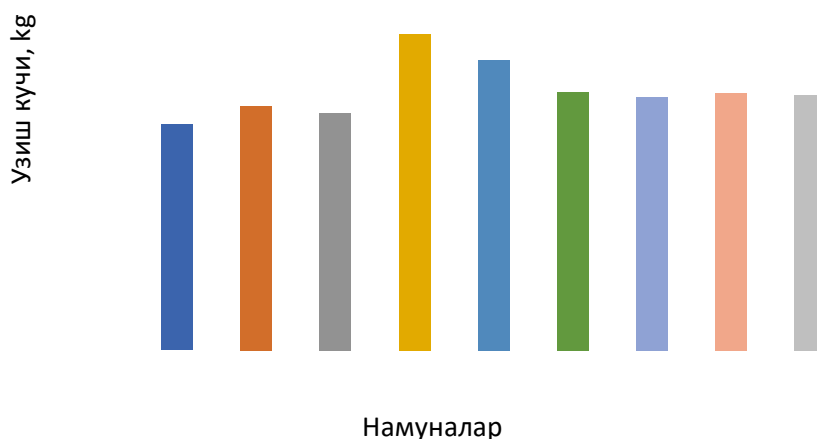
Биз тадқиқот сифатида ишлаб чиққан хавфсизлик камарининг кенглиги $B_{\text{т}}=46+1$ см бўлиб, у саржа 2/2, рогожка ва полотно ўрилишларида ишлаб чиқарилди. Бунда танда ипининг чизиқий зичлиги $T_{\text{т}}=110$ текс ва арқоқ ипининг чизиқий зичлиги $T_{\text{А}}=50$ тексдан иборат. Умумий иплар сони 130 та, тўқиманинг танда бўйича зичлиги $P_{\text{т}}=30$ ип/см ва арқоқ бўйича зичлиги $P_{\text{А}}=17$ ип/см ни ташкил этади, тиғ номери $H_{\text{тиғ}}=26$. Ушбу хавфсизлик тасмасини ишлаб чиқаришда Хитойнинг Yitai Weaving Machine Making Co.Ltd фирмасида ишлаб чиқарилган YTB 4/110 русумли рапирали пилта тўқув дастгохидан фойдаланилди. Ушбу дастгохнинг ишчи эни 110 см бўлиб 1200-1400 айл/мин тезликда ишлайди. Ўрилишнинг тўлиқ тахтлаш дастури 1-расмда келтирилган.



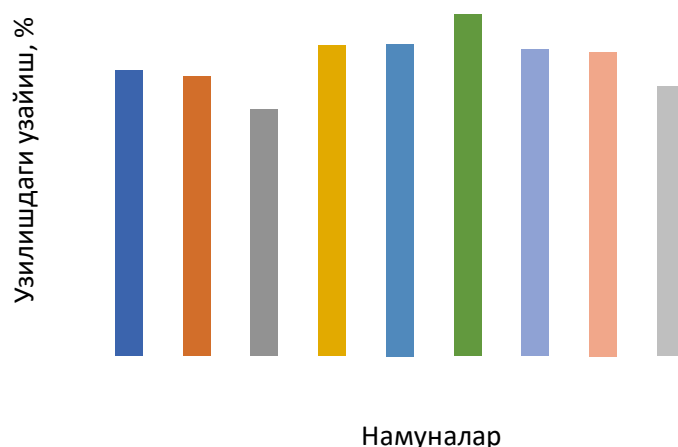
1-расм. Тўқимани тўлиқ тахтлаш дастури

Тўқима намунасининг физик-механик хоссалари GM Uzbekistan заводи лабораториясида синовдан ўтказиб аниқланди.

Тажриба натижаларига кўра тўқимани максимал узилиш кучи бўйича 515,02 кг; узилишдаги узайиши—10,4 % га тенг эканлиги аниқланди (2,3-расмлар).



2- расм Тўқиманинг танда бўйича узилиш кучи гистограммаси



3-расм Тўқиманинг танда бўйича узилишдаги узайиши гистограммаси

Пилтали тўқималар ассортименти классификацияси, тўқима тузилиши ва сифатига таъсир этувчи ўрилиш турлари ва технологик тахтлаш омилларининг таъсири тахлил этилди. Пилтали тўқима ишлаб чиқариш технологияси бўйича қисқа технологияга эга, тўқимани ишлаб чиқариш учун хом ашё ва ўрилиш турлари танлаб олинди ва хусусиятлари тадқиқ этилди.

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МОРФОЛОГИЧЕСКИЕ И ФУНКЦИОНАЛЬНЫЕ ИЗМЕНЕНИЯ ИММУННОЙ СИСТЕМЫ ПОД ВЛИЯНИЕМ ТОКСИЧЕСКИХ, ЭНДОКРИННЫХ, МЕТАБОЛИЧЕСКИХ И ВОСПАЛИТЕЛЬНЫХ ФАКТОРОВ

***Аннотация:** В статье представлены данные о морфологических и функциональных изменениях органов иммунной системы под влиянием различных патогенетических факторов — токсических, эндокринных, метаболических и воспалительных. Анализируются результаты экспериментальных и клинических исследований, включающих моделирование хронического токсического гепатита, воздействие глюкокортикоидов, метаболические нарушения при сахарном диабете, а также влияние тиреоидной гипофункции в постнатальном развитии. Особое внимание уделено структурным перестройкам лимфоидных органов (тимуса, лимфатических узлов, пейеровых бляшек), нарушению архитектоники тканей, изменениям цитоморфологических параметров и механизмам дисфункции иммунного ответа. Полученные данные указывают на универсальность морфологических проявлений иммунных нарушений при различных этиологических факторах и подчёркивают их значимость в патогенезе системных заболеваний.*

***Ключевые слова:** Иммунная система; морфологические изменения; токсические факторы; эндокринные нарушения; морфогенез.*

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MORPHOLOGICAL AND FUNCTIONAL CHANGES OF THE IMMUNE SYSTEM UNDER TOXIC, ENDOCRINE, METABOLIC, AND INFLAMMATORY FACTORS

***Annotation:** The article presents data on morphological and functional changes in the organs of the immune system under the influence of various pathogenetic factors, including toxic, endocrine, metabolic, and inflammatory conditions. The results of experimental and clinical studies are analyzed, covering*

models of chronic toxic hepatitis, the effects of glucocorticoids, metabolic disorders in diabetes mellitus, and the impact of thyroid hypofunction in postnatal development. Special attention is given to structural remodeling of lymphoid organs (thymus, lymph nodes, Peyer's patches), disruption of tissue architecture, alterations in cytomorphological parameters, and mechanisms of immune response dysfunction. The findings highlight the universality of morphological manifestations of immune disorders across different etiological factors and emphasize their significance in the pathogenesis of systemic diseases.

Key words: *immune system; morphological changes; toxic factors; endocrine disorders; morphogenesis.*

Цель исследования. Комплексное изучение структурно-функциональных и морфологических изменений органов иммунной системы в условиях воздействия различных экзо- и эндогенных факторов (токсических, эндокринных, метаболических, воспалительных), а также определение их роли в пренатальном и постнатальном морфогенезе.

Методы исследования. Материалом для анализа послужили данные клинических наблюдений и экспериментальных моделей. Применялись гистологические и цитоморфологические методы (окраски гематоксилин-эозином, по Ван-Гизону и др.), морфометрия, а также экспериментальные модели токсического гепатита и эндокринных нарушений. Использовались клинико-рентгенологические и морфологические методы при воспалительных процессах челюстно-лицевой области, а также гигиеническая оценка условий труда и питания. Дополнительно были проанализированы данные о пренатальном формировании лимфатических узлов.

Результаты исследования.

Исследования показали, что органы иммунной системы высокочувствительны к действию различных факторов. При хроническом токсическом гепатите нарушается структура пейеровых бляшек, а под влиянием глюкокортикоидов развивается истощение лимфоидных клеток. У потомства, рождённого в условиях материнского гипотиреоза, выявлены нарушения постнатального морфогенеза иммунных органов, а у больных диабетом — морфометрические изменения тимуса. При абсцессах, флегмонах и остеонекрозе челюстей установлены характерные морфологические и рентгенологические признаки деструкции тканей. Кроме того, неблагоприятные условия труда и питания оказывают отрицательное влияние на иммунную систему. Пренатальные исследования подтвердили закономерные этапы формирования лимфатических узлов, определяющие особенности их дальнейшего развития.

Вывод.

Морфологическое и функциональное состояние иммунных органов определяется комплексом экзогенных и эндогенных факторов. Токсические, гормональные и метаболические воздействия вызывают перестройку лимфоидной ткани и снижение иммунной реактивности. Нарушения,

возникающие в пренатальном и раннем постнатальном периодах, оказывают наиболее значимое влияние на дальнейшее развитие иммунной системы. Полученные данные подчёркивают важность комплексного подхода к изучению иммунных органов и необходимость разработки мер профилактики патологических изменений.

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ДЕЦЕНТРАЛИЗОВАННАЯ СТРУКТУРА И ВНУТРЕННИЙ МАРКЕТИНГ КРУПНОЙ КИТАЙСКОЙ КОМПАНИИ

***Аннотация.** Результаты деятельности организаций, нацеленных на создание ценности для потребителей, во многом зависят от степени вовлеченности и экономической заинтересованности сотрудников. Методы и инструменты «внутреннего» маркетинга позволяют повысить заинтересованность персонала. Вместе с тем традиционная иерархическая структура многих компаний не обеспечивает простор для реализации инициативы «снизу», так как действия линейных сотрудников и менеджеров среднего звена жестко регламентированы. На основе эмпирического метода исследования автор предпринял попытку доказать, что лучшие результаты внутренний маркетинг дает в тех компаниях реального сектора, которые поощряют самостоятельность и инициативу в маркетинговых коммуникациях и принятии маркетинговых решений, в том числе – на базе децентрализации управления и применения методик «коммерческого расчета», «внутреннего предпринимательства». Именно поэтому автор рассматривает структуру и особенности крупной китайской компании Haier, обеспечивающей значительную широту полномочий сотням своих «владельцев продукта».*

***Ключевые слова:** децентрализованная структура, внутренний маркетинг, коммуникации, принятие решений, взаимодействие подразделений.*

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DECENTRALIZED STRUCTURE AND INTERNAL MARKETING OF A LARGE CHINESE COMPANY

***Abstract.** The results of the activities of organizations aimed at creating value for consumers largely depend on the degree of involvement and economic interest of employees. Methods and tools of "internal" marketing help to increase the interest of personnel. At the same time, the traditional hierarchical structure of many*

companies does not provide scope for the implementation of initiatives "from below", since the actions of line employees and middle managers are strictly regulated. Based on the empirical research method, the author attempted to prove that internal marketing gives the best results in those companies in the real sector that encourage independence and initiative in marketing communications and making marketing decisions, including on the basis of decentralization of management and the use of "commercial calculation" and "internal entrepreneurship" methods. That is why the author examines the structure and features of a large Chinese company Haier, which provides significant breadth of authority to hundreds of its "product owners".

Keywords: decentralized structure, internal marketing, communications, decision-making, interaction between departments..

В XXI веке так называемый «внутренний» маркетинг привлекает внимание многих исследователей и практиков. Так, М.Б. Щепакин констатирует: «..Важнейшим звеном в интегрирующей концепции маркетинга в условиях нарастающих противоречий и усиления влияния виртуального пространства на сознание субъектов отношений становится внутренний маркетинг. Он настраивается на аккумуляцию имеющегося ресурсного потенциала внутри бизнеса для его эффективной реализации в выстраиваемых моделях маркетингового поведения субъекта и его персонала в интересах инновационного обновления и экономического роста». М.Б. Щепакин глубоко исследовал «..условия эффективного управления конкурентоспособностью бизнеса посредством совершенствования механизма внутреннего маркетинга как звена гибридного маркетинга». На этой основе им была разработана перспективная «..модель управления конкурентоспособностью бизнеса посредством совершенствования внутреннего маркетинга» [7].

Т.В. Муравьева обобщила взгляды разных ученых на природу и содержание внутреннего маркетинга, и выделила три основных подхода: «..1) внутренний маркетинг как система взаимоотношений организации с персоналом; 2) внутренний маркетинг как внутрифирменная философия рыночной ориентации; 3) внутренний маркетинг как практическая реализация новой стратегии организации (или корректировка существующей стратегии)» [4]. Последняя из трех формулировок представляется нам спорной.

А. Чернышев утверждает, что «Маркетинговые механизмы в работе с персоналом наиболее востребованы в условиях кризиса, когда усиливаются внешние угрозы устойчивости организации. ..Суть внутреннего маркетинга заключается в том, что отношения компании и работников строятся на тех же основаниях, что отношения компании с клиентами» [8].

Д.А. Черныш, А.Г. Чурлей детально исследовали проблемы «..внедрения системы внутреннего маркетинга на современном предприятии, его влияние на достижение компанией рыночных целей». авторы предложили оригинальную «..модель, отражающую концептуальный подход к формированию системы внутреннего маркетинга» [6].

М.М. Гедгафова относит внутренний маркетинг «..к категории факторов, обеспечивающих устойчивой конкурентное преимущество организации – внутренний маркетинг представляет собой ориентированную на персонал управленческую деятельность по обеспечению эффективного выполнения сотрудниками поставленных задач для достижения намеченных маркетинговых целей организации» [1].

М.И. Захарова справедливо рассматривает внутренний маркетинг персонала «..как инструмент, способствующий формированию удовлетворённости персонала, повышению уровня лояльности и вовлеченности» [2]. Однако утверждение М.И. Захаровой о том, что «..внутренний маркетинг персонала – это уникальный процесс, который осуществляется непосредственно внутри организации» представляется нам дискуссионным, так как, по нашему мнению, нельзя сводить маркетинг только к «процессной» составляющей.

Многие исследователи применяют методы эмпирического исследования внутрифирменного маркетинга. Нас интересуют связи между степенью централизации управления в компаниях и организацией внутреннего маркетинга, поэтому в данной статье мы рассматриваем крупный китайский производственный холдинг Haier, имеющий оригинальную внутреннюю структуру.

Компания Haier занимается производством, маркетингом и продажей широкого спектра бытовой техники и бытовой электроники, такой как холодильники, кондиционеры, стиральные машины, водонагреватели, телевизоры, кухонные электроприборы, цифровая и бытовая техника, а также компьютеры.

Haier преобразовала свою традиционную иерархию в децентрализованную систему микропредприятий, каждое из которых напрямую связано с конкретными потребностями клиентов [3]. В 2012 г. был кардинально сокращен менеджмент среднего звена компании – около десяти тысяч сотрудников. В составе Haier появилось более двухсот микропредприятий, обслуживающих клиентов, и около четырех тысяч микропредприятий по обслуживанию и поддержке. Это похоже на экосистему стартапов, Haier называет это моделью RenDanHeYi [3]. Эта модель оставила в Haier только три типа ролей; «владелец платформы», «владелец микропредприятия» и «предприниматель». Целью преобразований стало «платформенное предприятие» с «предприимчивыми сотрудниками» и «персонализированным пользовательским интерфейсом».

Такой подход повышает ценность внутреннего сотрудничества и внутреннего маркетинга структурных подразделений, сотрудников компании. Переход от вертикальной иерархии к горизонтальному активному взаимодействию микропредприятий в корне изменил корпоративный маркетинг.

«Внутренний» и «внешний» маркетинг в Haier тесно переплетены. Микропредприятия в структуре Haier – автономные подразделения, многие из

которых осуществляют полный цикл разработки и производства конкретных видов продукции – от идеи, проектирования, до продаж. Haier предоставила сотрудникам возможность напрямую взаимодействовать с потребителями, предоставляя для этого свою экосистему. Такая структура обеспечивает быстрое реагирование, способствуя формированию клиентоориентированной культуры. Необходимость овладения маркетинговыми инструментами коммуникаций с потребителями объективно приводит к развитию «внутреннего» маркетинга, повышая вовлеченность сотрудников, и их лояльность.

Совместное создание ценности приводит к взаимопониманию. Так, микропредприятие, производящее сплит-систему, обратилось к представителям соответствующего исследовательского института Haier по вопросу повышения уровня энергоэффективности изделия [5]. Совместная заинтересованность позволила реализовать этот проект менее, чем за год – обновленный продукт вышел на рынок (с соответствующей рекламной кампанией), и обеспечил сорокапроцентный прирост квартальных продаж. Прирост личных доходов при этом ощутили не только сотрудники микропредприятия-производителя, но и работники исследовательского института. Таким образом, децентрализованные структуры повышают адаптивность и клиентоориентированность, в том числе за счет внутреннего маркетинга.

Производственные микропредприятия Haier имеют полномочия взаимодействия с поставщиками сырья, комплектующих, услуг. Одновременно происходит взаимодействие с другими микропредприятиями корпоративной экосистемы, представляющими инфраструктуру и услуги внутри Haier. Это взаимодействие осуществляется на основе модели «коммерческого расчета», когда микропредприятия рассчитываются между собой за «внутрифирменные» поставки и услуги. Это выводит внутренний маркетинг на качественно новый уровень, так как подразумевает договорные отношения и внутреннее ценообразование.

Haier отслеживает продуктивность ресурсов, в том числе трудовых, в режиме реального времени [5]. Экономическое стимулирование персонала базируется на оценке экономических результатов каждого микропредприятия, что повышает заинтересованность коллектива в достижении конечных результатов. Гарантированная часть выплат, компенсаций в целом по Haier устойчиво снижается, зато повышается доля вознаграждений «от результатов». Тем самым Haier сокращает постоянные, фиксированные затраты, и увеличивает переменные затраты. Это положительно влияет на «точку безубыточности» и «порог рентабельности».

Система внутреннего маркетинга включает в себя еженедельные «сессии совместного прогнозирования» сотрудничающих микропредприятий. Это позволяет сотрудникам оценить свое влияние на общий успех, и оптимизировать принятие решений, в том числе инновационных.

Обобщая изложенное, заметим. Внутри холдинга инициативно «снизу» создаются и функционируют микропредприятия Haier – децентрализованные, гибкие структуры, наделенные широкими полномочиями в рамках своей компетенции. Внешний «контур» представлен заинтересованными сторонами, стейкхолдерами – в том числе потребителями, контрагентами, поставщиками, дистрибьюторами. Те и другие взаимодействуют в том числе через платформы экосистемы Haier. Таким образом модель Haier связывает внутренний и внешний маркетинг, поощряя микропредприятия искать ценность – независимо от того, исходит она из внутренних или внешних партнерств, взаимодействий. Возможность гибко интегрировать внутренние и внешние маркетинговые стратегии обеспечивает высокую степень адаптивности компании.

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ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ ЛЕЧЕНИЯ ФИБРОПЛАСТИЧЕСКИХ ЗАБОЛЕВАНИЙ ПОЛОВОГО ЧЛЕНА С ИСПОЛЬЗОВАНИЕМ ЛИМФАТИЧЕСКИХ И МОНООКСИДНЫХ МЕТОДОВ

Резюме: Фибропластические заболевания полового члена относятся к хроническим патологиям, сопровождающимся образованием соединительнотканых изменений в кавернозных структурах и ведущим к деформации, боли и нарушению эректильной функции. Стандартные методы лечения зачастую оказываются недостаточно эффективными и не обеспечивают долгосрочной стабилизации процесса. В связи с этим поиск новых терапевтических подходов представляет высокую актуальность.

В исследовании рассматривается использование лимфатических методов и терапии на основе монооксида (NO) для повышения эффективности лечения пациентов с фибропластическими изменениями полового члена. Лимфатическая терапия направлена на улучшение микроциркуляции, снижение воспалительных процессов и ускорение рассасывания фиброзной ткани. Применение монооксида азота как модулятора сосудистого тонуса и тканевого обмена позволяет активировать регенеративные процессы и повысить эластичность тканей.

Предварительные результаты показывают, что комбинированный подход способен существенно улучшить клинические показатели, уменьшить выраженность боли, скорректировать деформацию и восстановить сексуальную функцию. Таким образом, внедрение комплексной терапии с использованием лимфатических и монооксидных технологий открывает перспективы для оптимизации лечения фибропластических заболеваний полового члена.

Ключевые слова: фибропластические заболевания полового члена, лимфатическая терапия, монооксид азота, эректильная дисфункция, эффективность лечения.

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IMPROVING THE EFFECTIVENESS OF TREATMENT OF FIBROPLASTIC DISEASES OF THE PENIS USING LYMPHATIC AND MONOXIDE-BASED METHODS

Resume: *Fibroplastic diseases of the penis are chronic conditions characterized by connective tissue proliferation in the cavernous structures, leading to penile deformity, pain, and erectile dysfunction. Standard treatment methods are often insufficient and do not provide long-term stabilization of the disease. Therefore, the search for new therapeutic strategies remains highly relevant.*

This study examines the use of lymphatic therapy and nitric oxide (NO)-based treatment to improve the effectiveness of managing patients with fibroplastic penile disorders. Lymphatic therapy aims to enhance microcirculation, reduce inflammation, and accelerate fibrous tissue resorption. Nitric oxide, as a modulator of vascular tone and tissue metabolism, promotes regenerative processes and improves tissue elasticity.

Preliminary results demonstrate that a combined therapeutic approach significantly improves clinical outcomes, reduces pain severity, corrects penile deformity, and restores sexual function. Thus, the introduction of comprehensive therapy using lymphatic and nitric oxide-based methods represents a promising direction for optimizing the treatment of fibroplastic diseases of the penis.

Keywords: *fibroplastic diseases of the penis, lymphatic therapy, nitric oxide, erectile dysfunction, treatment effectiveness.*

Актуальность исследования. Фибропластические заболевания полового члена, включая болезнь Пейрони, относятся к хроническим прогрессирующим состояниям, которые сопровождаются образованием соединительнотканых уплотнений в белочной оболочке кавернозных тел. Данное патологическое состояние приводит к искривлению полового члена, болевому синдрому, нарушению эректильной функции и, как следствие, выраженному снижению качества жизни пациентов[5]. По данным различных исследований, распространённость фибропластических заболеваний полового члена варьирует от 3 до 9 % среди мужчин в возрасте старше 40 лет, при этом реальная частота может быть выше из-за недостаточной обращаемости за медицинской помощью и низкой информированности пациентов[1].

Актуальность проблемы обусловлена несколькими факторами. Во-первых, заболевание имеет тенденцию к прогрессированию и нередко приводит к инвалидизации сексуальной функции мужчины[6]. Во-вторых,

оно сопровождается значительными психоэмоциональными нарушениями, такими как тревожность, депрессия и социальная дезадаптация, что делает проблему не только медицинской, но и социальной[2]. В-третьих, несмотря на наличие различных методов лечения, включая медикаментозные, физиотерапевтические и хирургические подходы, до настоящего времени отсутствует универсальный и гарантированно эффективный способ терапии.

Традиционные методы, такие как применение витаминов, колхициновых препаратов, интерферонов или хирургическая коррекция, показывают ограниченную эффективность и нередко сопровождаются побочными эффектами или рецидивами заболевания. В связи с этим поиск новых терапевтических стратегий является одной из приоритетных задач современной урологии и андрологии[4].

Перспективным направлением является использование лимфатической терапии, основанной на стимуляции лимфодренажа, улучшении микроциркуляции и снижении воспалительных процессов. Данный подход способствует рассасыванию фиброзной ткани, уменьшению отёка и нормализации метаболизма в тканях полового члена[6]. В то же время использование монооксида азота (NO) в качестве модулятора сосудистого тонуса и тканевого обмена имеет доказанный потенциал для активации процессов регенерации, повышения эластичности тканей и восстановления эректильной функции[3].

Научная актуальность исследования заключается в необходимости комплексной оценки эффективности лимфатических и монооксидных методов в терапии фибропластических заболеваний полового члена. До настоящего времени подобных исследований крайне мало, и их результаты носят фрагментарный характер[7]. Практическая значимость заключается в возможности внедрения новых методик лечения, способных повысить результативность терапии, уменьшить количество осложнений, сократить сроки реабилитации и существенно улучшить качество жизни пациентов.

Таким образом, исследование, направленное на повышение эффективности лечения фибропластических заболеваний полового члена с использованием лимфатических и монооксидных методов, имеет высокую актуальность. Оно отвечает современным требованиям урологической науки, ориентированной не только на устранение симптомов болезни, но и на патогенетическое воздействие, восстановление сексуального здоровья и психоэмоционального благополучия мужчины.

Цель исследования. Определить клиническую эффективность и безопасность применения лимфатической терапии и монооксидных методов в комплексном лечении фибропластических заболеваний полового члена, оценить их влияние на выраженность фиброзных изменений, болевой синдром, эректильную функцию и общее качество жизни пациентов.

Материалы и методы исследования. Исследование проводилось на базе урологического отделения клиники Андижанского государственного медицинского института. В исследование были включены мужчины в

возрасте от 30 до 65 лет с клинически подтверждённым диагнозом фибропластического заболевания полового члена (болезнь Пейрони и другие формы локализованного фиброза).

Результаты исследования. В исследование были включены пациенты с фибропластическими заболеваниями полового члена, которые были разделены на основную и контрольную группы. Пациенты основной группы получали комплексное лечение, включавшее лимфатическую терапию и методы, основанные на действии монооксида азота. Контрольная группа проходила стандартное медикаментозное лечение без применения дополнительных технологий.

Через три месяца терапии у больных основной группы отмечалось значительное уменьшение болевого синдрома, что подтверждалось снижением среднего показателя по визуальной аналоговой шкале более чем в два раза. Размер и плотность фиброзных бляшек по данным ультразвукового исследования уменьшились у большинства пациентов, тогда как в контрольной группе подобные изменения носили невыраженный характер. Степень искривления полового члена в основной группе снизилась в среднем на 15–20 %, что способствовало улучшению качества сексуальной жизни и снижению психологического дискомфорта.

По шкале IIEF-5 показатели эректильной функции в основной группе выросли на несколько баллов, что свидетельствовало о восстановлении потенции и способности к полноценной сексуальной активности. В контрольной группе положительная динамика также отмечалась, но её выраженность была значительно ниже.

Важно отметить, что ни у одного пациента основной группы не было зарегистрировано серьёзных побочных эффектов. Лечение переносилось удовлетворительно, наблюдались лишь незначительные местные реакции, не требующие отмены терапии.

Таким образом, результаты исследования показали, что сочетание лимфатической терапии и монооксидных методов обеспечивает более выраженный терапевтический эффект по сравнению со стандартным лечением, способствует уменьшению выраженности заболевания, улучшает эректильную функцию и повышает качество жизни пациентов.

Выводы. Проведённое исследование показало, что применение лимфатической терапии и методов, основанных на действии монооксида азота, при лечении фибропластических заболеваний полового члена обладает высокой клинической эффективностью и безопасностью. Использование комплексного подхода позволяет достичь значительного уменьшения болевого синдрома, снижения размеров и плотности фиброзных бляшек, а также уменьшить степень искривления полового члена. Это напрямую отражается на восстановлении эректильной функции и улучшении качества сексуальной жизни пациентов.

Полученные данные свидетельствуют о том, что сочетание лимфатических методов и терапии донаторами монооксида азота является

более результативным по сравнению со стандартной медикаментозной тактикой, так как обеспечивает выраженное улучшение функционального состояния и повышает качество жизни больных. Отсутствие серьёзных побочных эффектов подтверждает безопасность выбранной методики.

Таким образом, предложенный подход может быть рекомендован для широкого внедрения в клиническую практику в качестве эффективного направления лечения фибропластических заболеваний полового члена, что имеет важное значение для повышения уровня репродуктивного и психоэмоционального здоровья мужчин.

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МЕДИЦИНСКАЯ РЕАБИЛИТАЦИЯ ПАЦИЕНТОВ ПОСЛЕ ТРАНСУРЕТРАЛЬНОЙ РЕЗЕКЦИИ ПРИ ДОБРОКАЧЕСТВЕННОЙ ГИПЕРПЛАЗИИ ПРЕДСТАТЕЛЬНОЙ ЖЕЛЕЗЫ

Резюме: Доброкачественная гиперплазия предстательной железы (ДГПЖ) является одним из наиболее распространённых заболеваний у мужчин пожилого возраста. Трансуретральная резекция предстательной железы (ТУРП) остаётся «золотым стандартом» хирургического лечения данного состояния. Однако эффективность вмешательства во многом зависит от последующей медицинской реабилитации.

В статье рассматриваются основные направления реабилитационных мероприятий, включающие контроль мочеиспускательной функции, профилактику инфекционно-воспалительных осложнений, коррекцию сопутствующих соматических заболеваний, а также психологическую поддержку пациентов.

Комплексный подход позволяет улучшить качество жизни, ускорить восстановление и снизить риск послеоперационных осложнений.

Ключевые слова: доброкачественная гиперплазия предстательной железы, трансуретральная резекция, реабилитация, осложнения, качество жизни.

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MEDICAL REHABILITATION OF PATIENTS AFTER TRANSURETHRAL RESECTION FOR BENIGN PROSTATIC HYPERPLASIA

Resume: Benign prostatic hyperplasia (BPH) is one of the most common disorders among elderly men. Transurethral resection of the prostate (TURP) remains the "gold standard" in surgical treatment of this condition. However, the effectiveness of surgery largely depends on subsequent medical rehabilitation. This article discusses the main rehabilitation strategies, including monitoring of urinary

function, prevention of infectious and inflammatory complications, management of concomitant somatic disorders, and psychological support of patients. A comprehensive rehabilitation program improves quality of life, accelerates recovery, and reduces the risk of postoperative complications.

Keywords: *benign prostatic hyperplasia, transurethral resection, rehabilitation, complications, quality of life.*

Актуальность исследования. Доброкачественная гиперплазия предстательной железы (ДГПЖ) относится к числу наиболее распространённых заболеваний мужского населения старшей возрастной группы и занимает одно из ведущих мест в структуре урологической патологии[2,6]. По данным эпидемиологических исследований, к шестому десятилетию жизни клинически значимые проявления ДГПЖ наблюдаются у половины мужчин, а к восьмому десятилетию их распространённость превышает 80–90 %. Это определяет колоссальную медико-социальную значимость проблемы, поскольку ДГПЖ влияет не только на качество жизни, но и на уровень заболеваемости и инвалидизации населения. В условиях глобального старения общества актуальность изучения вопросов диагностики, лечения и последующей реабилитации больных с данной патологией становится всё более очевидной[7].

Трансуретральная резекция предстательной железы (ТУРП) на протяжении последних десятилетий признаётся «золотым стандартом» хирургического лечения ДГПЖ. Несмотря на внедрение минимально инвазивных и лазерных технологий, ТУРП сохраняет лидирующие позиции благодаря высокой эффективности, отработанной технике и приемлемому профилю безопасности[4,9]. Однако хирургическое вмешательство не является окончательным решением проблемы. Послеоперационный период сопровождается риском осложнений, влияющих на восстановление мочеиспускательной функции, сексуальное здоровье, психоэмоциональное состояние и социальную адаптацию пациентов. Именно поэтому медицинская реабилитация рассматривается как ключевой этап в комплексном ведении больных после ТУРП[1,5,11].

Актуальность темы исследования обусловлена рядом факторов. Во-первых, высокая распространённость и постоянный рост числа пациентов с ДГПЖ, требующих хирургического вмешательства. Современные демографические тенденции показывают устойчивое увеличение доли пожилых мужчин, у которых нередко диагностируются коморбидные заболевания сердечно-сосудистой, дыхательной, эндокринной и других систем[3]. Это значительно утяжеляет послеоперационный период и требует индивидуализированного подхода к реабилитации. Во-вторых, само по себе проведение ТУРП не гарантирует полного восстановления функций и отсутствия осложнений. Среди наиболее частых проблем — рецидивирующие инфекции мочевых путей, стриктуры уретры, нарушение эректильной функции, недержание мочи, синдром пострезекционной интоксикации. Все

эти осложнения снижают эффективность лечения и обуславливают необходимость разработки эффективных реабилитационных программ[1,8,10].

Кроме того, в последние годы в медицинской науке и практике усиливается внимание к качеству жизни пациентов как важнейшему показателю успешности лечения. Для больных, перенесших ТУРП, данный аспект приобретает особую значимость, так как даже при отсутствии угрозы жизни функциональные нарушения мочеиспускания или сексуальной сферы могут приводить к выраженному снижению психоэмоционального состояния, социальной изоляции и развитию вторичных психосоматических расстройств. В связи с этим актуально комплексное изучение реабилитационных мероприятий, включающих не только медикаментозное и физиотерапевтическое воздействие, но и психологическую поддержку, социальную адаптацию и образовательные программы для пациентов.

Следует подчеркнуть, что современные руководства по урологии уделяют внимание хирургической технике и показаниям к ТУРП, однако вопросы медицинской реабилитации нередко рассматриваются поверхностно. Между тем, накопленный клинический опыт свидетельствует о том, что без системной и целенаправленной реабилитации результаты операции могут быть неполными, а риск осложнений и повторных вмешательств возрастает. Это подтверждается данными крупных клинических наблюдений, показывающих, что при недостаточной реабилитации у значительной части пациентов сохраняются нарушения мочеиспускания и сексуальной функции, требующие дополнительного лечения[6].

Научная новизна и актуальность изучения данной проблемы заключается также в необходимости интеграции различных направлений медицины. Эффективная реабилитация после ТУРП предполагает участие специалистов разных профилей: урологов, физиотерапевтов, реабилитологов, психологов, диетологов и врачей смежных специальностей. Такой мультидисциплинарный подход обеспечивает индивидуализацию лечения, учитывает сопутствующие заболевания и повышает шансы на успешное восстановление пациента[3,7].

С точки зрения экономики здравоохранения, медицинская реабилитация пациентов после ТУРП имеет высокую значимость. Расходы на повторные госпитализации, лечение осложнений и социальные выплаты инвалидам существенно превышают затраты на своевременную и качественную реабилитацию. Таким образом, оптимизация программ реабилитации является не только медицинской, но и экономически целесообразной задачей, способствующей снижению нагрузки на систему здравоохранения и улучшению демографических показателей.

Важным аспектом актуальности исследования является и то, что подходы к реабилитации после ТУРП продолжают совершенствоваться. Появляются новые медикаментозные препараты, направленные на профилактику инфекционных осложнений и нормализацию уродинамики.

Разрабатываются инновационные методы физиотерапии, включающие использование лазерных и магнитных технологий, позволяющих ускорить регенерацию тканей и восстановить функциональные способности мочевого пузыря и уретры. Большое значение приобретают методы психотерапевтической коррекции, направленные на снижение тревожности, повышение приверженности лечению и формирование позитивного отношения пациента к процессу выздоровления[5].

Необходимо также отметить, что реабилитация после ТУРП имеет выраженную профилактическую направленность. Своевременное восстановление функций снижает вероятность повторных обострений, предупреждает развитие хронических воспалительных процессов и минимизирует риск инвалидизации. В этом контексте актуальны исследования, посвящённые разработке алгоритмов ранней диагностики осложнений и внедрению систем мониторинга состояния пациентов в амбулаторных условиях[8].

Медико-социальное значение проблемы трудно переоценить. ДГПЖ и её хирургическое лечение напрямую связаны с вопросами трудоспособности, социальной активности и качества жизни мужчин старшего возраста, которые составляют значительную часть экономически активного населения. Успешная реабилитация таких пациентов способствует не только улучшению их здоровья, но и сохранению социальной стабильности, снижению уровня инвалидизации и продлению активного долголетия.

С учётом вышеизложенного можно утверждать, что исследование вопросов медицинской реабилитации пациентов после трансуретральной резекции при доброкачественной гиперплазии предстательной железы имеет высокую актуальность. Оно отвечает современным потребностям здравоохранения, ориентированного на человека, предполагающего не только устранение симптомов болезни, но и полноценное восстановление функций, улучшение качества жизни и социальную интеграцию пациента.

В настоящее время сохраняется ряд нерешённых вопросов, касающихся оптимальных сроков и объёмов реабилитационных мероприятий, выбора наиболее эффективных методов физиотерапии и медикаментозного сопровождения, а также оценки их влияния на долгосрочные результаты лечения. Недостаточно изучено взаимодействие соматических и психоэмоциональных факторов в процессе реабилитации. Всё это подтверждает необходимость дальнейших научных исследований и разработки комплексных программ, направленных на повышение эффективности реабилитации.

Таким образом, актуальность исследования определяется высокой распространённостью доброкачественной гиперплазии предстательной железы, значительным числом выполняемых операций ТУРП, сохраняющимся риском послеоперационных осложнений и необходимостью улучшения качества жизни пациентов. Комплексный подход к медицинской реабилитации позволяет рассматривать её как важнейший элемент

современной урологической практики, что обуславливает научную и практическую значимость проводимого исследования.

Цель исследования. Определить эффективность и разработать оптимальные направления медицинской реабилитации пациентов после трансуретральной резекции предстательной железы при доброкачественной гиперплазии с учётом клинических, функциональных и психоэмоциональных факторов, направленных на улучшение качества жизни, снижение риска осложнений и повышение общей результативности лечения.

Материалы и методы исследования. Исследование проведено на базе урологического отделения клиники Андижанского государственного медицинского института.

В исследование были включены пациенты мужского пола в возрасте от 50 до 80 лет, перенёвшие трансуретральную резекцию предстательной железы по поводу доброкачественной гиперплазии.

Результаты исследования. В исследование были включены 75 пациентов, перенёвших трансуретральную резекцию предстательной железы. Средний возраст составил 38 лет. Пациенты были распределены на основную группу ($n=$), *где применялась расширенная программа медицинской реабилитации, и контрольную группу ($n=50$)*, получавшую только стандартное послеоперационное лечение.

В течение наблюдения отмечена выраженная положительная динамика в основной группе. Уже на 7–10 сутки после операции у большинства пациентов наблюдалось значительное улучшение уродинамических показателей: средняя максимальная скорость потока мочи увеличилась на 36 %, а объём остаточной мочи снизился более чем вдвое по сравнению с исходными данными. В контрольной группе аналогичные изменения происходили медленнее и были менее выраженными.

Частота инфекционно-воспалительных осложнений (цистит, уретрит, простатит) в основной группе составила всего 54%, что почти в 2 раза ниже, чем в контрольной группе (47 %). Значительно реже отмечались эпизоды острого задержания мочи и необходимость в повторных катетеризациях.

В отношении сексуальной функции также отмечены различия: у пациентов основной группы показатели эректильной функции (по шкале IIEF-5) улучшились в среднем на 12 баллов, в то время как в контрольной группе положительная динамика была минимальной.

Качество жизни по шкале IPSS-QoL в основной группе улучшилось значительно быстрее: через 3 месяца после операции средний балл снизился с 14 до 7, тогда как в контрольной группе — с 12 до 5. Большинство пациентов основной группы оценивали своё состояние как «удовлетворительное» или «хорошее», в то время как в контрольной группе сохранялась доля пациентов с жалобами на ночную полиурию, учащённое мочеиспускание и снижение эректильной функции.

Таким образом, проведённое исследование показало, что комплексная программа медицинской реабилитации после трансуретральной резекции

предстательной железы позволяет ускорить восстановление уродинамических функций, снизить риск осложнений, улучшить сексуальное здоровье и качество жизни пациентов по сравнению со стандартным подходом.

Выводы. Доброкачественная гиперплазия предстательной железы остаётся одной из наиболее актуальных проблем урологии, требующей не только хирургического лечения, но и последующей целенаправленной медицинской реабилитации.

Трансуретральная резекция является «золотым стандартом» хирургического вмешательства при ДГПЖ, однако её эффективность во многом зависит от полноты и своевременности проведения реабилитационных мероприятий.

Комплексная реабилитационная программа, включающая медикаментозную терапию, физиотерапевтические процедуры, психоэмоциональную поддержку и обучение пациентов навыкам самоконтроля, способствует более быстрому восстановлению мочеиспускательной функции и снижению частоты осложнений.

У пациентов, получавших расширенную реабилитацию, отмечено достоверное улучшение уродинамических показателей, снижение остаточной мочи, более высокие показатели сексуального здоровья и значительное повышение качества жизни по сравнению с контрольной группой.

Медицинская реабилитация после ТУРП имеет важное медико-социальное значение, так как позволяет снизить уровень инвалидизации, повысить социальную активность и продлить период активного долголетия у мужчин пожилого возраста.

Полученные результаты подтверждают необходимость широкого внедрения комплексных программ реабилитации в практику урологических клиник для оптимизации исходов лечения пациентов с доброкачественной гиперплазией предстательной железы.

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ЭФФЕКТИВНОСТЬ ДЛИТЕЛЬНОГО ЛЕЧЕНИЯ ПАЦИЕНТОВ С ДОБРОКАЧЕСТВЕННОЙ ГИПЕРПЛАЗИЕЙ ПРЕДСТАТЕЛЬНОЙ ЖЕЛЕЗЫ ПРЕПАРАТОМ ДУТАСТЕРИД

Резюме: Доброкачественная гиперплазия предстательной железы (ДГПЖ) является одним из наиболее распространённых заболеваний у мужчин пожилого возраста, существенно влияющим на качество жизни и сопровождающимся высоким риском осложнений. Медикаментозная терапия в последние годы приобрела особое значение как альтернатива хирургическому лечению. Среди лекарственных средств особое место занимает дутастерид — ингибитор 5-альфа-редуктазы, обладающий способностью блокировать оба типа фермента (I и II), что обеспечивает выраженное снижение уровня дигидротестостерона и торможение прогрессирования гиперплазии.

Длительное лечение дутастеридом способствует уменьшению объёма предстательной железы, улучшению уродинамических показателей, снижению частоты острой задержки мочи и потребности в хирургическом вмешательстве. Проведённый анализ показывает, что терапия данным препаратом безопасна и эффективна при длительном применении, а также позволяет достичь существенного повышения качества жизни пациентов.

Исследование эффективности дутастерида имеет высокую актуальность, так как позволяет уточнить его место в комплексной терапии ДГПЖ, определить долгосрочные преимущества и выработать практические рекомендации по оптимизации медикаментозного лечения.

Ключевые слова: доброкачественная гиперплазия предстательной железы, дутастерид, ингибиторы 5-альфа-редуктазы, длительная терапия, эффективность лечения, качество жизни.

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EFFICACY OF LONG-TERM TREATMENT OF PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA USING DUTASTERIDE

Resume: Benign prostatic hyperplasia (BPH) is one of the most common urological diseases in elderly men, significantly affecting quality of life and often leading to complications. In recent years, pharmacological therapy has gained increasing importance as an alternative to surgical treatment. Among available drugs, dutasteride — a dual 5-alpha-reductase inhibitor — plays a key role due to its ability to block both type I and type II isoenzymes, resulting in a marked reduction of dihydrotestosterone levels and inhibition of prostatic growth.

Long-term therapy with dutasteride contributes to a decrease in prostate volume, improvement of urinary flow parameters, reduction in the incidence of acute urinary retention, and decreased need for surgical intervention. Clinical data indicate that dutasteride is both safe and effective for prolonged use, providing significant improvement in patients' quality of life.

The study of long-term dutasteride therapy remains highly relevant, as it helps to clarify its role in comprehensive BPH management, determine its long-term advantages, and develop practical recommendations for optimizing pharmacological treatment in urological practice.

Keywords: benign prostatic hyperplasia, dutasteride, 5-alpha-reductase inhibitors, long-term therapy, treatment efficacy, quality of life.

Актуальность исследования. Доброкачественная гиперплазия предстательной железы (ДГПЖ) является одной из наиболее распространённых урологических патологий у мужчин пожилого возраста. По данным эпидемиологических исследований, признаки ДГПЖ выявляются более чем у 40 % мужчин старше 50 лет и почти у 90 % пациентов старше 80 лет[4]. Заболевание характеризуется прогрессирующим увеличением объёма предстательной железы, что приводит к нарушению мочеиспускания, снижению качества жизни и повышенному риску развития осложнений со стороны мочевыводящих путей[1].

С увеличением продолжительности жизни населения проблема ДГПЖ приобретает особую медико-социальную значимость. Это заболевание не только снижает физическое и психологическое благополучие пациентов, но и требует значительных затрат системы здравоохранения, связанных с диагностикой, лечением и последующим наблюдением[3].

Классическим подходом к лечению ДГПЖ долгое время оставалась хирургическая тактика, в частности трансуретральная резекция простаты. Однако далеко не все пациенты могут быть подвергнуты оперативному вмешательству из-за сопутствующих заболеваний, высокого операционного риска или отказа самого пациента. Кроме того, даже после хирургического лечения сохраняется вероятность осложнений и рецидивов[2].

В этой связи особую значимость приобретают медикаментозные методы лечения, позволяющие контролировать рост предстательной железы, облегчать симптомы нижних мочевых путей и снижать риск прогрессирования заболевания. Среди лекарственных средств центральное

место занимают ингибиторы 5-альфа-редуктазы, к которым относится дутастерид[8].

Дутастерид представляет собой препарат, способный блокировать оба типа фермента 5-альфа-редуктазы (I и II), что отличает его от других представителей данной группы. Благодаря этому достигается более выраженное снижение уровня дигидротестостерона — основного гормона, стимулирующего гиперпластические процессы в предстательной железе. Клинические исследования показали, что длительное применение дутастерида приводит к уменьшению объёма простаты, улучшению уродинамических показателей, снижению риска острой задержки мочи и необходимости хирургического вмешательства[6].

Актуальность изучения эффективности дутастерида в долгосрочной перспективе связана с несколькими факторами. Во-первых, препарат применяется преимущественно у пациентов старшего возраста, имеющих сопутствующие соматические заболевания, поэтому требуется всесторонняя оценка его безопасности и переносимости. Во-вторых, результаты длительной терапии позволяют судить о влиянии препарата не только на симптомы, но и на естественное течение заболевания. В-третьих, важным направлением является изучение качества жизни пациентов, которое становится одним из ключевых показателей успешности терапии[7].

Особое внимание следует уделить сопоставлению дутастерида с другими группами препаратов, применяемыми при ДГПЖ, например, альфа-адреноблокаторами. Если последние обеспечивают относительно быстрое облегчение симптомов, то дутастерид оказывает патогенетическое влияние, препятствуя дальнейшему увеличению предстательной железы. Комбинированная терапия, включающая оба этих подхода, в последние годы активно изучается, однако остаётся актуальным вопрос о месте монотерапии дутастеридом в общей стратегии лечения[9].

Важно подчеркнуть, что длительное лечение ДГПЖ должно быть направлено не только на уменьшение симптомов, но и на предотвращение прогрессирования заболевания и развития осложнений, таких как острая задержка мочи, хроническая почечная недостаточность или повторные инфекции мочевых путей. В этом плане дутастерид демонстрирует значительные преимущества, снижая вероятность необходимости хирургического вмешательства и обеспечивая более стабильные результаты терапии.

С точки зрения экономики здравоохранения длительная терапия дутастеридом также имеет актуальность[5]. Снижение числа хирургических операций, осложнений и госпитализаций способствует уменьшению финансовой нагрузки на систему здравоохранения и на самих пациентов. Более того, улучшение качества жизни мужчин старшего возраста позволяет дольше сохранять их социальную и профессиональную активность, что имеет важное значение для общества в целом.

Несмотря на убедительные данные клинических исследований, в реальной практике остаются вопросы, требующие дальнейшего изучения. К ним относятся оптимальная длительность терапии, индивидуальные различия в эффективности и переносимости препарата, влияние сопутствующих заболеваний и комбинаций с другими лекарственными средствами. Не до конца изучено и влияние дутастерида на сексуальную функцию пациентов при длительном применении, что также требует отдельного анализа, учитывая значимость этого аспекта для качества жизни.

Таким образом, исследование эффективности длительного лечения пациентов с доброкачественной гиперплазией предстательной железы препаратом дутастерид имеет высокую актуальность. Оно позволяет уточнить роль данного препарата в комплексной терапии заболевания, определить его долгосрочные преимущества и возможные ограничения, а также разработать практические рекомендации для оптимизации фармакотерапии в урологической практике.

Цель исследования. Оценить клиническую эффективность и безопасность длительной терапии дутастеридом у пациентов с доброкачественной гиперплазией предстательной железы, определить её влияние на динамику объёма простаты, уродинамические показатели, частоту осложнений и качество жизни, а также уточнить роль препарата в комплексной стратегии лечения ДГПЖ.

Материалы и методы исследования. Исследование проводилось на базе урологического отделения клиники Андижанского государственного медицинского института).

В исследование были включены мужчины в возрасте от 50 до 80 лет с подтверждённым диагнозом доброкачественной гиперплазии предстательной железы (ДГПЖ), у которых имелись клинически значимые симптомы нижних мочевых путей (по шкале IPSS не менее ____ баллов) и увеличение объёма предстательной железы.

Результаты исследования. В исследование были включены пациенты с доброкачественной гиперплазией предстательной железы, которые в течение длительного времени получали терапию дутастеридом в стандартной дозировке 0,5 мг ежедневно. Средний возраст больных составил около шестидесяти пяти лет. Длительность наблюдения составляла от двенадцати до двадцати четырёх месяцев. Уже через полгода лечения у большинства пациентов отмечалось уменьшение объёма предстательной железы, снижение объёма остаточной мочи и улучшение показателей урофлоуметрии. По мере продолжения терапии положительная динамика становилась более выраженной. К концу первого года средний объём предстательной железы уменьшился почти на треть, а максимальная скорость мочеиспускания значительно увеличилась по сравнению с исходными данными.

Субъективная оценка симптомов по международной шкале IPSS также показала выраженное улучшение: пациенты отмечали уменьшение частоты ночных мочеиспусканий, ослабление чувства неполного опорожнения

мочевого пузыря и снижение дискомфорта при мочеиспускании. Показатели качества жизни, оцениваемые по специальным опросникам, существенно повысились. Важно, что за весь период наблюдения частота острых задержек мочи была минимальной, и ни одному пациенту не потребовалось хирургическое вмешательство. Это подтверждает способность дутастерида предотвращать прогрессирование заболевания и уменьшать риск осложнений.

Переносимость лечения в целом была хорошей. Побочные явления наблюдались у ограниченного числа пациентов и выражались в снижении полового влечения, лёгкой эректильной дисфункции и единичных случаях гинекомастии. Эти изменения носили обратимый характер и не приводили к отмене препарата.

Таким образом, результаты исследования свидетельствуют о том, что длительное лечение дутастеридом является эффективным и безопасным методом терапии доброкачественной гиперплазии предстательной железы. Оно обеспечивает уменьшение размеров простаты, улучшение уродинамики, предотвращение осложнений и значительное повышение качества жизни пациентов.

Выводы. Проведённое исследование показало, что длительная терапия дутастеридом у пациентов с доброкачественной гиперплазией предстательной железы является эффективным и безопасным методом лечения. У большинства больных удалось достичь уменьшения размеров предстательной железы, улучшения уродинамических показателей и выраженного снижения симптомов нижних мочевых путей. Пациенты отмечали повышение качества жизни и снижение дискомфорта, связанного с заболеванием. Важно, что терапия дутастеридом позволила существенно снизить риск острой задержки мочи и необходимость в хирургическом вмешательстве, что подтверждает его профилактическую ценность. Побочные эффекты наблюдались редко, носили лёгкий и обратимый характер и не требовали отмены лечения. Полученные данные свидетельствуют о том, что дутастерид может рассматриваться как препарат выбора для длительной терапии доброкачественной гиперплазии предстательной железы, позволяющий не только стабилизировать течение болезни, но и улучшить качество жизни пациентов пожилого возраста.

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СРАВНИТЕЛЬНАЯ ЭФФЕКТИВНОСТЬ УЛЬТРАЗВУКА И КОМПЬЮТЕРНОЙ ТОМОГРАФИИ ПРИ ДИАГНОСТИКЕ УРЕТРАЛЬНЫХ КАМНЕЙ

Резюме: Работа показывает принципиальную возможность визуализации мочеточника при синдроме почечной колики. Разработанная схема протокола ультразвукового исследования мочеточников позволяет более достоверно диагностировать конкремент в мочеточниках. Предложенная модификация ультразвукового метода исследования расширяет возможности УЗИ при синдроме почечной колики, вызванном конкрементом в мочеточнике.

Метод позволяет определить степень дилатации мочевыводящих путей, изучить структуру стенки мочеточника, размеры конкрементов.

Описанные ультразвуковые критерии и оценка обструкции позволяют в короткие сроки выбрать тактику и метод лечения пациентов.

Ключевые слова: уретролитиаз, ультразвуковая диагностика.

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COMPARATIVE EFFECTIVENESS OF ULTRASOUND AND COMPUTED TOMOGRAPHY IN THE DIAGNOSIS OF URETHRAL STONES

Resume: The work shows the fundamental possibility of visualizing the ureter in renal colic syndrome. The developed scheme of the protocol for ultrasound examination of the ureters allows more reliable diagnosis of calculus in the ureters. The proposed modification of the ultrasound research method expands the capabilities of ultrasound in renal colic syndrome caused by calculus in the ureter.

The method allows to determine the degree of dilatation of the urinary tract, to study the structure of the ureteral wall, the size of calculi.

The described ultrasound criteria and the assessment of obstruction make it possible to select the tactics and method of treatment of patients in a short time.

Key words: urethrolithiasis, ultrasound diagnostics.

Актуальность. Мочекаменная болезнь является одним из распространенных урологических заболеваний. По данным медицинской статистики, нефролитиазом страдает 10-15% жителей мира, преимущественно это лица в возрасте от 20 до 50 лет[3].

Больные с различными формами этой патологии занимают 35 – 50% коечного фонда урологических стационаров. Из всех больных, страдающих мочекаменной болезнью, на камни мочеточников приходится около 50%[5]. По мнению многих авторов, в связи с ухудшением экологической ситуации, это заболевание имеет тенденцию к росту.

Помимо высокой заболеваемости населения уролитиазом, актуальность проблемы состоит и в том, что болезнь имеет длительное, часто рецидивирующее течение с прогрессирующим нарушением анатомического и функционального состояния почек и мочевыводящих путей, заканчивающимся хронической почечной недостаточностью[1].

Все это значительно ограничивает работоспособность больных[4]. Среди причин инвалидности, вследствие урологических заболеваний, мочекаменная болезнь занимает третье место вслед за злокачественными новообразованиями и пиелонефритом. Социальную значимость этих больных подчеркивают данные первичной инвалидности по основным группам урологических заболеваний, где доля мочекаменной болезни составляет от 6,0 до 14,4%[6].

Опасность быстрого развития инфекционно-токсических осложнений у больных МКБ с окклюзией верхних мочевых путей требует применения неотложных лечебных мероприятий, что выдвигает вопросы диагностики уретеролитиаза и его осложнений на первый план. До настоящего времени диагностика уретеролитиаза в основном базируется на результатах рентгенологического исследования, но его эффективность недостаточна. Для улучшения диагностики рекомендуется комплексное применение лучевых методов, включая УЗИ, КТ. При этом большинство авторов предлагают шире использовать КТ, как более информативный метод.

Несмотря на углубленные работы ведущих специалистов в области ультразвукового исследования мочевыделительной системы, вопросы диагностики уретеролитиаза к настоящему времени изучены недостаточно. Роль ультразвукового исследования при уретеролитиазе сводится к оценке состояния лоханки и к исследованию нижнего отдела мочеточника.

Возможности УЗИ в диагностике конкрементов, локализованных в других отделах мочеточника, а в равной степени выявление изменений в

мочеточниках и прилежащих к нему тканях, при уретеролитиазе изучены недостаточно[2].

Так, отсутствует единый подход к методике проведения УЗИ различных отделов мочеточника при уретеролитиазе, недостаточно определена ультразвуковая семиотика в зависимости от локализации конкремента, не определена диагностическая значимость отдельных ультразвуковых симптомов уретеролитиаза.

Недостаточно используется метод ультразвукового исследования для изучения транспортной функции мочевых путей, в выявлении нарушения уродинамики. Для определения места УЗИ в комплексной лучевой диагностике уретеролитиаза важно провести сравнение возможностей УЗИ и рентгенологических методов исследования. Решению этих вопросов посвящено настоящее исследование.

Цель исследования. Обоснование возможностей широкого применения ультразвукового метода исследования для диагностики уретеролитиаза и контроля его лечения на различных этапах.

Материалы и методы исследования. Ретроспективному анализу подвергнуты результаты 64 исследования клинических ситуаций острых болей в подвздошной области в сочетании с дизурией и эритроцитурией у пациентов, направленных на обследование в экстренном порядке.

Результаты исследования. Усовершенствована методика УЗИ мочеточников при уретеролитиазе посредством применения ЦДК и доплерометрии. Асимметрия потоков мочи при ЦДК является признаком обструкции мочевыводящих путей. Допплерометрия позволяет выявить степень расстройства уродинамики.

ЦДК и доплерометрия в сочетании с В-режимом являются эффективными методами в оценке сократительной функции мочеточников при уретеролитиазе. Точность исследования составляет 97,5%, чувствительность 98,5%, специфичность 96,5%.

Спектр потока мочи может быть представлен кривой с различным количеством пиков отличающихся по амплитуде, продолжительности и максимальной скорости потока или вовсе не содержать пиков, такая кривая напоминает кривую ламинарного течения крови по венам, а ее спектр называется «венозным».

Наличие на доплерограмме коротких или продолжительных пиков с различной амплитудой свидетельствует о сохранении способности к самостоятельному изгнанию конкремента или его фрагментов после ДУВЛТ. Появление «венозного спектра» является отражением исчерпанных возможностей мочеточника для изгнания конкремента.

Наличие на доплерограмме коротких или продолжительных пиков с различной амплитудой свидетельствует о сохранении тонуса и сократительной способности мочевыводящих путей и может определять дальнейшую тактику ведения больного в пользу ДУВЛТ.

Появление «венозного спектра» является отражением исчерпанных возможностей мочеточника для изгнания конкремента и может послужить одним из оснований для инструментального вмешательства.

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ИНФОРМАЦИОННЫЕ И КОММУНИКАТИВНЫЕ ТЕХНОЛОГИИ

УДК 332.05

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ВЕДЕНИЕ БЛОГА НА САЙТЕ КОМПАНИИ КАК ФАКТОР ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ РАБОТЫ САЙТА

***Аннотация:** В статье рассматривается вопрос увеличения видимости веб-сайта компании посредством ведения собственного блога. Проанализированы варианты решения и предложен список тем для блога с учетом специфики деятельности для конкретной компании.*

***Ключевые слова:** веб-сайт, блог, SEO*

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BLOGGING ON A COMPANY'S WEBSITE AS A FACTOR IN IMPROVING WEBSITE PERFORMANCE

***Abstract:** The article discusses the issue of increasing the visibility of the company's website by maintaining its own blog. The solution options are analyzed and a list of topics is proposed, taking into account the specifics of the activity for a particular company.*

***Keywords:** website, blog, SEO*

Повышение позиции в поисковой строке для любой организации является важнейшей задачей при формировании стратегии SEO-продвижения. Низкая поисковая видимость снижает эффективность привлечения клиентов. Была проанализирована эффективность работы веб-сайта ЧП «Кропас». Данная компания занимается разработкой веб-сайтов и оказанием услуг в сфере интернет-маркетинга для малого, среднего и крупного бизнеса преимущественно на территории Беларуси и стран СНГ. В ходе анализа были выявлено, что наблюдается проблема с низким ранжированием сайта в

поисковых системах. Только 24 % целевых запросов находятся в ТОП-10. На повышение видимости ресурсов влияет много факторов, одним из которых является ведение блога. Помимо улучшения SEO качественный блог привлечет дополнительный трафик, так как увеличится количество посетителей на сайте. В дальнейшем это может повысить доверие к сайту, и посетитель перейдет в статус клиента.

С нашей точки зрения, для написания статей можно воспользоваться услугами копирайтеров на специализированных платформах либо нанять сотрудника в штат. Преимущество внештатных исполнителей — это низкая стоимость. Например, цена может варьировать от 2 до 6 белорусских рублей за 1000 знаков [1]. Однако при таком подходе сложно обеспечить стабильное качество текстов, так как задания выполняют разные авторы с индивидуальными стилями. Также возможны задержки в сроках: заказ могут долго не принимать или затягивать доработку. Эффективнее, когда в компании работает штатный копирайтер, что позволит получить такие преимущества как:

- единый стиль всех текстов;
- глубокое понимание специфики компании и её целевой аудитории, что положительно сказывается на содержании;
- возможность написания контента не только для ЧП «Кропас», но и для клиентов, что расширяет спектр услуг;
- сокращение сроков подготовки материалов и быстрая адаптация под изменяющиеся задачи;
- улучшенное взаимодействие с другими отделами (дизайн, маркетинг, продукт).

SEO-специалист должен отвечать за подбор тем, составление технических заданий и контроль качества контента. Рекомендуется Оптимальный объём — 8–10 статей в месяц. При необходимости тексты на продвигаемых страницах также должны корректироваться.

Для эффективного продвижения важно определить цель статьи, целевую аудиторию, ключевые вопросы и желаемое действие пользователя (например, подписка, заявка или скачивание материалов). На основе анализа конкурентов рассматриваемой компании был составлен перечень тем и требований к статьям на месяц, представленный в таблице.

Таблица — Список статей для сайта ЧП «Кропас» на 1 месяц и требования к ним

Тема для статьи	Требования к статье (объем текста и ключевые слова)
Как правильно создать структуру сайта?	Величина текста: 7200-7500 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): структура сайта, требования к структуре сайта, правила разработки структуры сайта, типы структуры сайтов. Величина текста: 8300-8500 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): SEO аудит сайта, аудит сайта, оценка качества сайта, анализ трафика, внутренний аудит сайта, технический аудит сайта.
Аудит сайта перед началом работ.	
Что эффективнее, SEO или контекстная реклама?	Величина текста: 9100-9300 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): контекстная реклама и SEO. Разница, что лучше SEO или контекстная реклама.
Самостоятельный анализ сайта: список бесплатных и платных программ.	Величина текста: 5600-5800 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): бесплатные сервисы для анализа сайта, инструменты аудита сайта, инструменты для технического аудита.
Топ-5 CMS для SEO-продвижения.	Величина текста: 5300-5500 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): CMS для SEO, лучшие CMS, рейтинг CMS, популярные CMS, лучшая CMS для SEO.
Важность качественного дизайна сайта.	Величина текста: 8200-8500 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): дизайн сайта для SEO, роль дизайна при разработке, важность дизайна для сайтов, SEO дизайн.
Для чего проводить юзабилити аудит?	Величина текста: 8500-8700 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): аудит юзабилити, UX аудит, как провести юзабилити аудит сайта.
Апдейт Google в 2025 году.	Величина текста: 5800-6000 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): апдейты гугл 2025, обновления Google в 2025, Google core update, обновление Google март 2025.
Какие факторы влияют на ранжирование в Яндекс.	Величина текста: 5900-6100 символов (с пробелами). Обязательные ключевые слова (использовать 1 раз в точном вхождении): факторы ранжирования Яндекс, факторы Яндекс 2025.

Примечание — Источник: собственная разработка Шарейко А.А.

Общие требования ко всем материалам должны включать:

- отсутствие грамматических, орфографических и смысловых ошибок;
- наличие информативных заголовков и списков (от 1 до 3);
- полезность, логичность и содержательность текста без «воды»;
- уникальность от 95 %, «заспамленность» до 30 % (по text.ru);

– связность предложений в абзацах и раскрытие темы [2].

Помимо написания статей, копирайтер занимается оптимизацией текстов на продвигаемых страницах на основе ТЗ от SEO-специалиста. При обновлении семантического ядра или снижении позиций сайта тексты необходимо перерабатывать.

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СОВРЕМЕННЫЕ ТЕХНОЛОГИИ УПРАВЛЕНИЯ ОРГАНИЗАЦИЕЙ

УДК 339.138

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МАРКЕТИНГОВОЕ ИССЛЕДОВАНИЕ ВОСТРЕБОВАННОСТИ АВТОМОБИЛЕЙ CHERY В РОССИИ

Аннотация: в статье представлены результаты исследования потребительского восприятия китайских автомобилей, в частности бренда Chery, среди двух ключевых групп: граждан России и граждан КНР, проживающих в РФ. Исследование проводилось методом анонимного анкетирования (165 респондентов) с использованием пяти закрытых вопросов, направленных на оценку готовности к покупке, восприятия надёжности, осведомлённости о прямом импорте, доверия к дилерам и лояльности к бренду. Также внимание уделено таможенным аспектам прямого импорта Chery с 2025 года, включая анализ логистических вызовов. Статья будет полезна маркетологам, исследующим российский авторынок, а также компаниям, планирующим продвижение китайских брендов в условиях возможной конкуренции с европейскими и корейскими производителями. Результаты подкреплены практическими рекомендациями по улучшению восприятия бренда Chery.

Ключевые слова: Китай, Chery, логистика, таможня, производство, утильсбор, инновационный маркетинг, российский автомобильный рынок.

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MARKETING RESEARCH ON THE DEMAND FOR CHERY CARS IN RUSSIA

Annotation: the article presents the results of a study of the consumer perception of Chinese cars, in particular the Cher brand, among two key groups: Russian citizens and China citizens living in the Russian Federation. The study was conducted by anonymous survey (165 respondents) using five closed issues aimed at evaluating readiness to buy, perception of reliability, awareness of direct imports,

trust in dealers and brand loyalty. Attention has also been paid to the customs aspects of the Chery direct imports since 2025, including the calculation of duties and logistics challenges. The article will be useful to marketers studying the Russian car market, as well as companies planning to promote Chinese brands in conditions of competition with European and Korean manufacturers. The results are backed up by practical recommendations for improving the perception of the Chery brand.

Keywords: *China, Chery, logistics, customs, production, utilization fee, innovative marketing, Russian automobile market.*

Введение

Chery сегодня остаётся одной из самых востребованных китайских марок на российском рынке. Её успех объясняется не только доступной ценой, но и развитой сетью дилеров, а также активными маркетинговыми кампаниями, адаптированными к особенностям российского потребителя и направленными на укрепление доверия к бренду [1]. Это показывает, что конкурентоспособность автопроизводителя формируется не только за счёт качества и стоимости продукции, но и благодаря гибкой логистике и инновационным методам продвижения, позволяющим быстро реагировать на внешнеэкономические изменения и динамику спроса [2,3].

Вместе с тем в 2025 году стратегия присутствия Chery в России столкнулась с серьёзными трудностями. До этого ключевым производственным партнёром оставался калининградский завод «Автотор», где крупноузловым методом собирались модели Tiggo 4, 7 Pro, 8, 8 Pro, а также премиальные Exeed⁸⁸ TXL и VX. Помимо «Автотора», рассматривались и другие площадки — например, в Калуге⁸⁹, но именно Калининград был главным центром сборки и логистики. В 2025 году серийная сборка там была приостановлена, и компания вынуждена перейти на прямой импорт из Китая. Это потребовало кардинальной перестройки цепочек поставок и привело к росту затрат, увеличению сроков доставки и усложнению планирования логистики.

⁸⁸ Exeed – премиальный суббренд Chery Automobile

⁸⁹ Бывший завод Volkswagen



Рис. 1. Автомобиль Omoda – суббренд Chery на стоянке в российском железнодорожном логистическом хабе в Московском регионе

Связь логистики и маркетинга особенно чётко проявляется в автомобильной отрасли, где успех бренда во многом зависит не только от качества продукции, но и от того, насколько быстро, стабильно и выгодно она доходит до конечного потребителя, как быстро потребитель может получить автомобиль с требуемой комплектацией. В случае с компанией Chery, которая перешла к прямому импорту из Китая, логистика становится не просто элементом операционной деятельности, а важной частью маркетинговой стратегии.

В современных условиях логистика становится неотъемлемым элементом маркетинга, а её грамотная организация — залогом успешного продвижения бренда. Для Chery это особенно актуально в контексте трансформации бизнес-модели и стремления обеспечить присутствие на российском рынке даже в условиях временного отсутствия локального производства [3]. Однако настолько ли устойчивы позиции бренда Chery на российском рынке чтобы не уходить с него, а выстраивать сложную логистику поставок? Для ответа на этот вопрос, автором было проведено маркетинговое исследование.

На сегодняшний день восприятие китайских автомобильных брендов, в том числе Chery, всё ещё во многом связано с представлением о сниженной надёжности и уступающем качестве по сравнению с продукцией европейских или корейских производителей. На российском рынке потребители традиционно проявляют большее доверие к давно зарекомендовавшим себя маркам, однако интерес к автомобилям из Китая устойчиво растёт, особенно в условиях изменения логистики и структуры предложения [6].

Проведенное исследование и его методика

С целью более глубокого понимания отношения различных групп населения к китайским автомобилям в целом и к бренду Chery в частности, мною было проведено анкетное исследование в формате анонимного опроса. В качестве респондентов я выбрал две группы, с которыми активно взаимодействую в рамках профессиональной деятельности и личного общения: во-первых, это граждане КНР, проживающие в России; во-вторых, граждане России — мои коллеги, партнёры и друзья.

Опрос проводился в период прохождения производственной практики. Распространение анкет осуществлялось через электронную почту, и все ответы обрабатывались конфиденциально: мне была известна лишь принадлежность респондента к одной из двух групп. Это исследование позволило не только получить первичные данные о потребительском восприятии, но и стало для меня важным этапом в формировании навыков сбора и анализа информации, а также в освоении инструментов статистической обработки данных. Дополнительно отмечу, что общение с респондентами способствовало улучшению моего уровня владения русским языком, что особенно важно в условиях профессиональной коммуникации.

Всего удалось собрать около 165 ответов, из которых около 100 поступили от граждан России, а 65 — от граждан КНР или россиян с длительным опытом жизни в Китае.

Возможные вопросы, включённые в анкету (и рекомендованные для дальнейшего исследования):

Сформулированы 5 закрытых вопросов для анкетирования потребителей по отношению к китайским автомобилям в целом и бренду Chery в частности. На каждый из них предполагается ответ "Да" или "Нет":

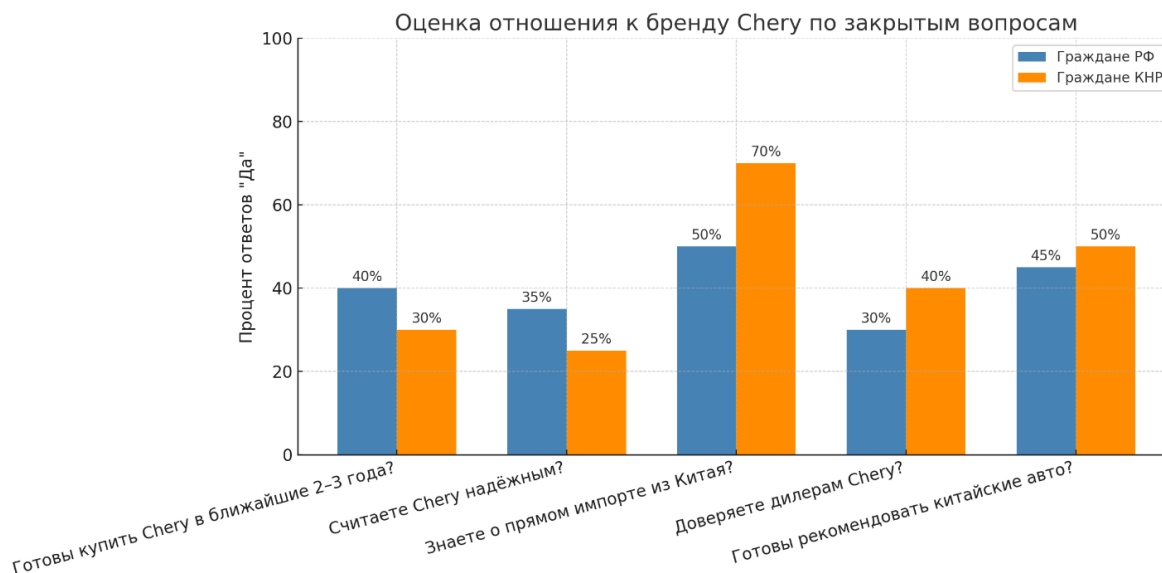
1. Рассматриваете ли вы возможность покупки автомобиля марки Chery в ближайшие 2–3 года?
2. Считаете ли вы автомобили китайского производства (в том числе Chery) достаточно надёжными для эксплуатации в российских условиях?
3. Знаете ли вы, что автомобили Chery сейчас поставляются в Россию напрямую из Китая, без сборки на территории РФ?
4. Доверяете ли вы официальным дилерам Chery в вопросах обслуживания и гарантийного ремонта?
5. Готовы ли вы рекомендовать автомобили китайских брендов своим друзьям и знакомым?

Результаты исследования

На основе полученных данных был составлен график, показывающий сколько респондентов ответили «да» на поставленные вопросы (рис.1).

На графике показаны результаты опроса граждан России и граждан КНР, проживающих в РФ, по пяти закрытым вопросам, связанным с восприятием бренда Chery. Видно, что российские респонденты проявляют чуть больший интерес к покупке и рекомендации автомобилей Chery, тогда как китайские

респонденты, несмотря на лучшее информирование, более сдержанны в оценках — вероятно, из-за предпочтения других китайских марок, таких как Geely. Это связано с тем, что бренд Geely известен в Китае стремлением к улучшению качества продукции, а в моделях используются передовые технологии, заимствованные у Volvo [5]. Многие модели Geely, например Coolray и Atlas, приобрели репутацию одними из самых беспроblemных среди китайских машин



автомобилям Chery

На основе результатов опроса уже сейчас можно предложить следующие **маркетинговые решения** для улучшения репутации Chery в России и укрепления позиций на фоне конкурентов, например, Geely (табл. 1).

Таблица 1
Матрица по укреплению бренда Chery в РФ

№	Проблема	Причина	Решение	Формат реализации	Ожидаемый эффект
1	Только 45% считают Chery надёжным	Недостаток доказательств и доверия к китайским авто	Кампания "Реальные тесты" в сложных условиях, гарантийные улучшения	Видео с блогерами, полевые тесты, расширенная гарантия, бесплатное ТО	Повышение восприятия надёжности до 60–65%
2	Только 38% доверяют дилерам	Жалобы на обслуживание, отсутствие прозрачности	Рейтинг дилеров, обучение персонала	Онлайн-платформа с отзывами, стандарты сервиса	Рост удовлетворённости и, повышение доверия до 50%
3	Geely предпочтительнее (ассоциация с Volvo)	Стереотип премиальности, сильная коммуникация Geely	Сравнительная реклама, фокус на практичность	Кейсы, таблицы сравнений, обзоры с блогерами	Увеличение доли клиентов, выбирающих Chery, рост продаж
4	40% не знают об адаптации Chery к РФ	Недостаточная коммуникация о локализации	Кампания "Сделано для России", экскурсии	Видео, инфографика, медиа-туры	Повышение осведомлённости, рост доверия к качеству
5	Только 32% готовы рекомендовать Chery	Недостаток положительного опыта и кейсов	Программа рекомендаций, истории владельцев	«Приведи друга», контент из жизни владельцев	Рост рекомендаций до 50%, органические продажи
6	Китайцы в РФ выбирают Geely	Стереотип о «премиальности», слабая работа с диаспорой	Скидки через сообщества, мероприятия	Инфлюенсеры, мероприятия, контент на китайском	Рост лояльности китайской аудитории, рост продаж в сегменте

Вывод

В условиях турбулентного автомобильного рынка России, характеризующегося как снижением присутствия западных брендов, так и возможностью их возвращения, Chery сталкивается с необходимостью не просто удержания позиций, но и стратегического укрепления бренда через маркетингово обоснованную инновационную деятельность.

Проведённый анализ показал, что успешное развитие Chery в России возможно при системной работе по шести ключевым направлениям: повышению доверия к надёжности, улучшению репутации дилерской сети, эффективному противодействию конкуренции (в частности — Geely), повышению информированности о производственных реалиях, стимулированию потребительских рекомендаций и целевой работе с китайской аудиторией в РФ.

Матрица решений демонстрирует, что именно грамотная интеграция маркетинга и операционного менеджмента (форматы сборки, локализация, коммуникации) позволяет не только формировать устойчивое восприятие бренда, но и оптимизировать затраты, ускорять адаптацию к рынку и создавать предпосылки для получения государственной поддержки.

Таким образом, маркетинговое обоснование инновационной активности выступает неотъемлемым элементом стратегического управления брендом в условиях неопределённости. Полученные результаты имеют практическую значимость не только для Chery, но и для других международных компаний, стремящихся внедрять инновации на нестабильных рынках через продуманные маркетинговые решения.

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УСТОЙЧИВЫЙ HR-МЕНЕДЖМЕНТ КАК КОНКУРЕНТНОЕ ПРЕИМУЩЕСТВО: ПРАКТИКИ ВНЕДРЕНИЯ ESG-ПРИНЦИПОВ В РАБОТУ С ПЕРСОНАЛОМ

Аннотация: Актуальность данной статьи обусловлена тем, что современная интерпретация концепции устойчивого развития ориентирована на все аспекты бизнеса предприятий, в том числе на систему управления персоналом, с учетом трех взаимосвязанных аспектов: экономического прогресса, сохранения окружающей среды и социальной справедливости.

В последние годы тренд на ответственность и экологичность распространился на многие сферы жизни, все чаще в компаниях, организациях и бизнесе начали применять ESG-принципы. Под ними понимается идея ответственности перед обществом, природой и ответственным управлением.

Ключевые слова: управление персоналом, корпоративная социальная ответственность (КСО), корпоративное управление.

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SUSTAINABLE HR MANAGEMENT AS A COMPETITIVE ADVANTAGE OF IMPLEMENTING ESG PRINCIPLES IN HR WORK

Abstract: The relevance of this article is due to the fact that the modern interpretation of the concept of sustainable development is focused on all aspects of the business of enterprises, including the personnel management system, taking into

account three interrelated aspects: economic progress, environmental conservation and social justice. In recent years, the trend towards responsibility and environmental friendliness has spread to many areas of life, and ESG principles have increasingly been applied in companies, organizations, and businesses. They are understood as the idea of responsibility to society, nature and responsible management.

Keywords: *human resources management, corporate social responsibility (CSR), corporate governance.*

В настоящее время планета находится на том этапе истории, когда наблюдаются экологические последствия растущей и ускоряющейся промышленной и производственной деятельности, которая в рамках присущего ей цикла влияет на общество и экономику, поскольку и общество, и экономика ограничены экологическими пределами. Однако модель, принятая промышленностью, обращает этот цикл вспять: экономический аспект преобладает над социальным и экологическим, что создает ситуацию, в которой уже наблюдаются неблагоприятные последствия, такие как большое количество выбросов парниковых газов и CO₂, разрушение озонового слоя, истощение абиотических ресурсов экосистем, чрезмерное образование отходов, социальное неравенство и другие.

ESG (от англ. environmental – окружающая среда, social – социальная ответственность, governance – управление) является важным предметом дискуссий на глобальной арене. Основное внимание в ESG-концепции уделяется изучению влияния корпораций как на общество, так и на окружающую среду.

Современные исследования в области устойчивого развития демонстрируют растущий разрыв между декларацией ценностей ESG и их реальным внедрением в систему управления персоналом. Многие организации ограничиваются формальными мерами, не затрагивающими глубинные процессы кадровой политики, что снижает эффективность преобразований. В то же время возрастает запрос со стороны сотрудников, инвесторов, регуляторов и потребителей на прозрачность, социальную ответственность и экологическую ориентированность бизнеса. Это создает необходимость разработки научно обоснованных моделей управления персоналом, которые бы гармонично сочетали экономическую эффективность, социальную справедливость и экологическую безопасность.

В настоящее время существуют ключевые тенденции и специфику реализации ESG-принципов в различных отраслях. Для системной оценки эффективности применяемых стратегий в рамках настоящего научного исследования разработана методика, включающая расчетные показатели по трем направлениям: экологическая устойчивость (E), социальная ответственность (S) и качество корпоративного управления (G). Интегральная оценка рассчитывается как средневзвешенное значение нормализованных показателей с учетом отраслевых коэффициентов значимости.

Экологический блок (E) фокусируется на операционной деятельности компаний в контексте их воздействия на окружающую среду в регионах присутствия. Учитывая направленность оценки на управление персоналом, в качестве первого элемента взяты расходы на экологию, так как они отражают объемы инвестиций в сохранение окружающей среды в местах проживания сотрудников корпораций.

Доля возобновляемых источников энергии позволяет оценить вовлеченность сотрудников компании в ответственное производство за счет переработки используемых в операционной деятельности материалов. Доля возобновляемых источников энергии (ВИЭ) в общем объеме производства электроэнергии в России невелика. По разным данным, она составляет порядка 1,15%⁹⁰, в то время как в 2024 году более 40% мировой электроэнергии было произведено из возобновляемых источников.

Социальный блок (S) включает метрики, отражающие вклад компании в развитие человеческого капитала. Центральным элементом оценки выступает уровень инклюзивности, измеряемый через долю женщин в руководящем составе и процент трудоустроенных лиц с ограниченными возможностями здоровья. Для устранения искажений, связанных с размером компании, применяется относительный показатель – соотношение числа сотрудников целевых групп к общей численности персонала. Инвестиции в развитие персонала оцениваются через два взаимодополняющих параметра: расходы на обучение персонала и объем расходов на дополнительные социальные гарантии (ДМС, программы оздоровления). При этом учитывается отраслевая специфика – например, для IT-сектора акцент смещается на непрерывное профессиональное развитие, тогда как в производственных отраслях приоритет отдается технике безопасности.

Показатели охраны труда стандартизируются через коэффициент LTIFR (Lost Time Injury Frequency Rate), рассчитываемый как количество несчастных случаев с потерей трудоспособности на 200 000 отработанных часов.

Управленческий блок (G) направлен на оценку институциональных основ реализации ESG-принципов. В качестве информационной базы было использовано исследование RAEX - оценка качества управления в компаниях, которая проводится на основе анализа различных аспектов корпоративного управления, включая структуру собственности, прозрачность, раскрытие информации, защиту прав акционеров и другие. RAEX присваивает рейтинги, которые отражают уровень развития корпоративного управления в компании, от низшего к высшему, например, РКУ 6 (Развитие практики корпоративного управления)⁹¹.

Анализ мотивационных факторов выявил устойчивую значимость трех ключевых аспектов: возможность решения нетривиальных задач,

⁹⁰ Интерфакс: Доля ВИЭ в энергопотреблении РФ к 2035 году может достичь 3% // <https://reda.ru/news/smi-o-nas/2634/>

⁹¹ ESG-рэнкинг компаний [Электронный ресурс]// ESG-рэнкинг компаний - URL: https://raex-rr.com/ESG/ESG_companies/ESG_rating_companies/2025.1/ (дата обращения: 31.08.2025)

профессиональное окружение и стабильность компании. Примечательно, что 84% опрошенных сотрудников выделили социальную ответственность бизнеса как важный критерий оценки работодателя. Более того, 36% респондентов указали на регулярное обсуждение в рабочих коллективах возможностей применения разрабатываемых продуктов для решения актуальных социальных и экологических проблем.

Рассмотрим действующие Правила деловой и корпоративной этики на примере группы компаний Яндекс⁹².

В кадровой политике компания придерживается принципа меритократии, исключая любые формы дискриминации в трудовых отношениях. Географическое происхождение, гендерная идентичность, расовая принадлежность, мировоззренческие позиции и иные вне-профессиональные критерии не влияют на оценку компетенций кандидатов. Отбор специалистов осуществляется исключительно на основе их способности эффективно выполнять функциональные обязанности.

На основе анализа Правил можно сделать вывод, что по своей структуре они точно отражают направления ответственного поведения бизнеса, а именно: честность, прозрачность, подотчетность и социокультурные нормы.

По результатам исследования, становится возможным определить влияние корпоративной культуры Яндекса на ответственное поведение бизнеса. Общую идеологию такой взаимосвязи можно определить кратко: внутрикорпоративные ценности и культурная специфика, проходя через особенности технологического процесса компании напрямую отражаются на ее ответственном поведении с клиентами, бизнесом, обществом.

Фокус на инновациях и развитии стимулирует ответственное поведение, так как компания стремится к устойчивому развитию и созданию решений, улучшающих жизнь людей, а также заблаговременному предотвращению возможных рисков, связанных с новыми технологиями. Инструкции по безопасности самокатов, замещение опасных операций на складских производствах – все это внедряется заблаговременно до наступления несчастных случаев. Это, безусловно, можно характеризовать как ответственный подход к ведению бизнеса.

Оценка соответствия системы управления персоналом «Яндекса» принципам устойчивого развития позволяет сделать вывод о её высокой степени адаптивности и социальной ориентированности. Компания не только соблюдает базовые требования к трудовым правам и условиям работы, но и активно развивает инновационные практики, такие как программы стажировок, инклюзивное трудоустройство и масштабные образовательные инициативы. Однако дальнейшее развитие могло бы включать более детальную публичную отчётность по показателям управления персоналом, а также углублённое изучение воздействия кадровых программ на

⁹² Правила деловой и корпоративной этики группы компаний Яндекс В редакции от 3 сентября 2024 // <https://yandex.ru/company/rules/code/>

долгосрочную устойчивость бизнеса. Тем не менее текущие данные подтверждают, что «Яндекс» является одним из лидеров в реализации устойчивого подхода к управлению персоналом в российской IT-индустрии.

Исследование, опубликованное в этой статье, подтвердило, что концепция устойчивого развития оказывает значительное влияние на управление персоналом, способствуя формированию социально ответственных, экологически ориентированных и экономически устойчивых бизнес-моделей. Яндекс одна из наиболее успешных российских компаний, которая не только формально соблюдает ESG-принципы, но и интегрирует их в корпоративную культуру и систему управления, обеспечивая баланс между экономической эффективностью, социальной справедливостью и экологической безопасностью.

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ВЫБОР ITSM-СИСТЕМЫ: ПРОЕКТ ПОВТОРНОГО ВНЕДРЕНИЯ В БАНКЕ

Аннотация: Современные банки функционируют в условиях усиливающейся конкуренции и непрерывной цифровой трансформации. Клиенты ожидают от финансовых организаций круглосуточной доступности сервисов, высокой скорости обработки запросов и прозрачности взаимодействия. В этих условиях эффективность ИТ-сервисов становится не только внутренним фактором устойчивости, но и важным элементом клиентского опыта.

Одним из ключевых инструментов, обеспечивающих поддержку и развитие банковских процессов, являются ITSM-системы (IT Service Management). Они позволяют стандартизировать процессы, снизить операционные риски и обеспечить предсказуемость обслуживания. Однако в практике многих банков наблюдаются ситуации, когда первичное внедрение ITSM-решения не достигает поставленных целей. В таких случаях возникает необходимость повторного внедрения, учитывающего накопленный опыт, изменившиеся бизнес-требования и новые технологические возможности.

Настоящая статья рассматривает проект повторного внедрения ITSM-системы в одном из крупнейших банков Казахстана. Основное внимание уделено обоснованию выбора решения Atlassian Jira Service Management и Jira Software как наиболее эффективного инструмента организации ИТ-процессов.

Ключевые слова: ИТ-процессы; IT Service Management (ITSM); Jira Service Management; Jira Software; Atlassian; цифровая трансформация; клиентское обслуживание; SLA; автоматизация; банковский сектор; повторное внедрение; управление изменениями; сервис-деск.

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SELECTING AN ITSM SYSTEM: REIMPLEMENTATION PROJECT IN A BANK

Abstract: *Modern banks operate in the context of increasing competition and continuous digital transformation. Customers expect financial institutions to provide 24/7 availability of services, high-speed processing of requests, and transparent interaction. In this environment, the efficiency of IT services becomes not only an internal factor of sustainability, but also an important element of the customer experience. One of the key tools that support and develop banking processes is ITSM (IT Service Management) systems. They allow to standardize processes, reduce operational risks, and ensure the predictability of service. However, in the practice of many banks, there are situations where the initial implementation of an ITSM solution does not achieve the desired goals. In such cases, it becomes necessary to re-implement the solution, taking into account the accumulated experience, changed business requirements, and new technological capabilities. This article discusses the project of re-implementing an ITSM solution.*

Keywords: *IT processes; IT Service Management (ITSM); Jira Service Management; Jira Software; Atlassian; digital transformation; customer service; SLA; automation; banking sector; reimplementation; change management; service desk.*

ВВЕДЕНИЕ

Банковский сектор Казахстана переживает активную фазу цифровой трансформации, где ключевым фактором конкурентоспособности становится качество и устойчивость информационных технологий. В условиях растущей зависимости бизнеса от цифровых каналов обслуживания, клиенты ожидают от банков бесперебойной работы сервисов, минимального времени реакции на запросы и высокой прозрачности взаимодействия.

Для обеспечения этих требований банки всё чаще прибегают к внедрению и развитию систем IT Service Management (ITSM), которые позволяют стандартизировать и автоматизировать процессы управления ИТ-услугами. Использование ITSM-подхода способствует повышению эффективности взаимодействия между подразделениями, снижению операционных рисков и улучшению клиентского опыта.

Однако практика показывает, что первичные проекты внедрения ITSM в организациях не всегда дают ожидаемый результат. Причинами могут быть ограниченность охвата процессов, недостаточная интеграция с бизнес-целями или низкая адаптивность инструмента к специфике компании. В таких случаях оправданным шагом является повторное внедрение, опирающееся на накопленный опыт и новые технологические возможности.

В настоящей статье рассматривается опыт банка, который инициировал проект повторного внедрения ITSM-системы для организации процессов поддержки и развития. Основная цель исследования — обосновать выбор стека Atlassian Jira Service Management и Jira Software как оптимального комплексного решения для автоматизации ИТ-процессов в банковской сфере,

а также показать взаимосвязь внедрения ITSM с повышением качества клиентского обслуживания.

Цели повторного внедрения

Банк имеет успешный опыт разработки собственного решения для управления ИТ-процессами на базе платформы Camunda. Однако, учитывая высокие требования рынка скорости вывода новых продуктов и качеству клиентского обслуживания, при повторном внедрении инструмента управления ИТ-процессами банк формулирует следующие стратегические цели:

Повышение качества клиентского обслуживания с опорой на лучшие практики:

ITIL 4 — современная версия международной библиотеки лучших практик управления ИТ-услугами (Information Technology Infrastructure Library), ориентированная на ценность для бизнеса и клиентов.

HDI (Help Desk Institute) — международная профессиональная ассоциация и сообщество специалистов по клиентской поддержке и сервис-менеджменту, определяющая стандарты качества и сертификации.

Omni-channel support (омни-канальная поддержка) — подход, при котором все каналы взаимодействия объединены в единую систему, и пользователь получает бесшовный опыт независимо от выбранного канала (чат, телефон, мобильное приложение и др.).

Кардинальное изменение подходов в работе подразделений поддержки через полную автоматизацию процессов обслуживания с использованием современных технологий в области AI и RPA.

Построение целостной экосистемы, где все ИТ-процессы работают согласованно: от регистрации обращения клиента до анализа влияния изменений на бизнес.

Внедрение практики мониторинга работы ИТ-процессов за счёт использования системы измерений, дашбордов и аналитических отчётов, обеспечивающих прозрачность SLA, NPS и других ключевых метрик.

Поддержка сервисной стратегии банка

Повторное внедрение инструмента управления ИТ-процессами рассматривается не как технический апгрейд или проект автоматизации. Речь идёт о переходе от модели «служба поддержки как изолированный back-office» к модели, где ИТ становится неотъемлемой частью клиентского опыта. Традиционная модель Service Desk фокусировалась на реактивной обработке инцидентов — пользователь сообщает о проблеме, а ИТ устраняет последствия. В новой сервисной стратегии акцент переносится на:

- проактивный мониторинг с прогнозированием сбоев;
- использование AI и машинного обучения для предиктивной аналитики;
- автоматическое информирование клиентов и сотрудников о возможных нарушениях в процессах обслуживания.

Поддержка процессов сервисной стратегии заключается в смещении фокуса с внутренней эффективности ИТ на конечный опыт клиента.

Повторное внедрение ITSM-инструмента становится не просто ИТ-инициативой, а частью стратегии конкурентного позиционирования банка на рынке.

АНАЛИЗ ПРИЧИН ПОВТОРНОГО ВНЕДРЕНИЯ

Первое внедрение ITSM-системы в банке позволило стандартизировать часть процессов поддержки, однако практика показала, что достигнутые результаты оказались ограниченными и не соответствовали стратегическим целям организации. По итогам эксплуатации были выявлены следующие проблемные зоны, послужившие основанием для повторного внедрения:

1. Фрагментарность охвата процессов. Используемый инструмент не обеспечил унифицированного подхода ко всем ИТ-подразделениям. Часть сервисов банка продолжала обслуживаться в разрозненных системах, что затрудняло централизованное управление и контроль SLA.

2. Недостаточная интеграция с бизнес-задачами. Первая система фокусировалась преимущественно на внутренних ИТ-процессах, не отражая приоритетов клиентского обслуживания. В результате не было обеспечено прямое влияние на показатели удовлетворенности клиентов (CSAT, NPS).

3. Рост нагрузки и масштабируемость. Увеличение числа клиентов банка, рост транзакционной активности и расширение спектра цифровых услуг привели к существенному росту инцидентов и сервисных запросов. В старой системе обнаружены ограничения в масштабируемости и автоматизации.

4. Сложность кастомизации и высокая стоимость поддержки. Внесение изменений в конфигурацию требовало значительных ресурсов, что снижало гибкость в условиях быстро меняющихся бизнес-требований.

5. Низкая прозрачность и слабая аналитика. Отсутствие единой системы метрик и дашбордов затрудняло управление инцидентами, мониторинг выполнения SLA и анализ эффективности процессов.

Повторное внедрение стало не просто обновлением инструмента, а стратегическим проектом по перестройке всей системы управления ИТ-услугами, ориентированным на повышение зрелости процессов, улучшение клиентского опыта и соответствие международным практикам управления.

МЕТОДОЛОГИЯ ВЫБОРА ИНСТРУМЕНТА

Выбор ITSM-системы в рамках проекта повторного внедрения в банке основывался на многоэтапной методологии, сочетающей международные подходы и внутренние требования банка.

Таблица 1. Цели повторного внедрения ITSM-системы

№	Цель	Ожидаемый эффект
1	Соответствие международным практикам (ITIL 4, COBIT 2019, Lean IT)	Повышение зрелости ИТ-процессов и улучшение соответствия требованиям регуляторов
2	Поддержка процессов Run (эксплуатация) и Change (развитие) в единой системе	Сокращение времени на устранение инцидентов, ускорение внедрения изменений, повышение устойчивости сервисов
3	Повышение качества клиентского обслуживания	Рост показателей удовлетворенности клиентов (CSAT), индекса лояльности (NPS) и уровня SLA
4	Масштабируемость и интеграция с ключевыми банковскими системами (CRM, BPM, мониторинг, эквайринг и др.)	Централизованное управление сервисами, расширенная аналитика и снижение количества «ручных» интерфейсов
5	Автоматизация рутинных операций и использование AI-модулей	Снижение операционных затрат, минимизация ошибок и рост производительности сотрудников

Повторное внедрение ITSM-системы в банке ориентировано не только на технологическую модернизацию, но и на стратегическое повышение зрелости ИТ-процессов. Основные цели охватывают стандартизацию управления услугами, поддержку процессов эксплуатации и развития, а также улучшение качества клиентского обслуживания. Особое внимание уделяется масштабируемости и интеграции с ключевыми банковскими системами, что обеспечивает комплексный подход к управлению. Автоматизация рутинных операций позволяет снизить затраты и повысить эффективность, укрепляя позиции банка в условиях цифровой конкуренции.

Таблица 2. Критерии оценки ITSM-систем

Критерий	Содержание	Значимость
Функциональные	Поддержка ITIL-практик, SLA/OLA, каталог услуг, портал самообслуживания	Высокая
Технологические	Масштабируемость, интеграция (API), гибкость кастомизации	Высокая
Экономические	Совокупная стоимость владения (TCO), лицензии, сопровождение	Средняя
Пользовательские	Удобство интерфейса, простота обучения, наличие локальной поддержки	Средняя
Аналитические	Дашборды, KPI, отчётность, прогнозирование	Высокая

Ключевыми приоритетами выступают функциональные, технологические и аналитические критерии, так как именно они напрямую определяют зрелость процессов, масштабируемость решений и эффективность управленческой аналитики. Экономические и пользовательские факторы имеют среднюю значимость, поскольку рассматриваются как ограничивающие или поддерживающие условия, но не как стратегические драйверы изменений. Такой подход отражает баланс между требованиями регуляторов, бизнес-потребностями и ожиданиями конечных пользователей.

Таблица 3. Сравнительный анализ альтернативных решений

Система	Функциональность	Интеграции	Стоимость владения	Удобство для пользователей	Итоговый балл (по 10-балльной шкале)
ServiceNow	10	10	6	8	34
BMC Helix	9	9	7	7	32
OTRS/GLPI	6	6	10	6	28
Atlassian (JSM + Jira Software)	9	9	8	9	35

Результаты анализа показывают, что наиболее сбалансированным решением для повторного внедрения является экосистема Atlassian (Jira Service Management и Jira Software), получившая максимальный итоговый балл. Она сочетает развитую функциональность, широкие интеграционные возможности и относительно низкую стоимость владения по сравнению с глобальными лидерами рынка (ServiceNow и BMC Helix). При этом Atlassian выигрывает за счёт высокой пользовательской удобности и гибкости кастомизации, что особенно важно в банковском контексте. OTRS/GLPI демонстрируют минимальные показатели по функциональности и

интеграциям, хотя и обладают низкой стоимостью владения, что делает их более подходящими для небольших организаций, но не для крупного банка.

Таблица 4. Результаты пилотного внедрения (PoC)

Проверяемый аспект	Результат
Управление инцидентами	SLA выдержаны в 95% случаев, среднее время решения сокращено на 20%
Управление запросами	Успешная автоматизация 40% типовых заявок
Интеграция с каталогом AD	Реализована полная синхронизация пользователей
Интеграция с мониторингом	Настроена автоматическая регистрация инцидентов при сбоях
Удобство портала	85% сотрудников отметили упрощение подачи заявок

Следовательно, методология выбора позволила не только провести формальное сравнение альтернатив, но и проверить их на практике, что снизило риски неэффективного повторного внедрения.

Техническая архитектура комплексного решения

Техническая архитектура повторного внедрения ITSM в банке основана на продуктах Atlassian и представляет собой комплекс взаимосвязанных сервисов. Решение строится по модульному принципу и обеспечивает согласованное функционирование всех ИТ-процессов — от регистрации инцидента до управления изменениями и коммуникации с клиентами.

Основные компоненты архитектуры:

- **Jira Service Management (JSM)** — единый портал заявок, инцидентов, запросов и изменений с поддержкой SLA.

- **Jira Software** — управление проектами и изменениями по agile-подходам (Scrum, Kanban).

- **Confluence** — база знаний и регламентов, интегрированная с JSM для self-service (портал самообслуживания).

- **Assets (ex-Insight)** — CMDB для управления конфигурациями и зависимостями сервисов.

- **Opsgenie** — платформа для дежурств и оперативного реагирования, интегрированная с JSM.

Таблица 5. Архитектурные слои и назначение

Слой	Компоненты	Назначение
Портал поддержки	Jira Service Management	Инциденты, запросы, SLA, каталог услуг
Разработка/Change	Jira Software + Bitbucket/CI	Бэклог, релизы, управление изменениями
Знания	Confluence	База знаний и регламенты
CMDB/активы	Assets (ex-Insight)	Реестр CI, связь инцидентов и сервисов
Оповещения/On-call	Opsgenie	Алерты и эскалации из мониторинга
Идентификация	SSO/SAML + SCIM	Централизованное управление доступом

Для банковских организаций характерно наличие строгих требований по локализации и защите данных. В этой связи возможно применение следующих архитектурных моделей:

1. On-premise Data Center — полный контроль над инфраструктурой, включая хранение и обработку данных в пределах юрисдикции.

2. Облачная модель Atlassian Cloud — ускоренное внедрение, минимизация эксплуатационных затрат, при этом данные могут быть закреплены в конкретном регионе.

3. Гибридная модель — оптимальный выбор для банков: ключевые элементы (каталог услуг, CMDB, инцидент-менеджмент) остаются в Data Center, а менее чувствительные сервисы (Opsgenie) функционируют в облаке, обеспечивая баланс между требованиями регуляторов и удобством эксплуатации.

ЗАКЛЮЧЕНИЕ

Проект повторного внедрения ITSM-системы в банке представляет собой не просто технологическую модернизацию, а стратегическую инициативу, направленную на повышение зрелости ИТ-процессов и укрепление конкурентных преимуществ. В ходе исследования показано, что использование методологий ITIL 4, COBIT 2019 и ISO/IEC 20000 в сочетании с современными инструментами позволяет обеспечить согласованное функционирование процессов эксплуатации (Run) и развития (Change), что в условиях цифровизации финансового сектора является критически важным фактором устойчивости.

Сравнительный анализ альтернативных решений подтвердил, что стек Atlassian (Jira Service Management + Jira Software) демонстрирует оптимальный баланс между функциональностью, стоимостью владения, удобством для пользователей и гибкостью интеграций. Проведённое пилотное внедрение (PoC) показало практическую эффективность выбранного инструмента: среднее время решения инцидентов было сокращено на 20%, SLA выдержаны в 95% случаев, а автоматизация рутинных операций позволила сократить до 40% типовых заявок. Эти результаты доказывают, что

повторное внедрение ITSM-системы способствует не только повышению операционной эффективности, но и росту качества клиентского опыта (CSAT, NPS).

Практическая значимость исследования состоит в том, что предложенный подход может быть использован финансовыми организациями Казахстана и других стран для выбора и повторного внедрения ITSM-систем. Разработанная модель обеспечивает снижение операционных рисков, улучшение клиентского опыта и достижение соответствия регуляторным требованиям. Кроме того, представленная методология позволяет существенно сократить риски неэффективного внедрения за счёт использования пилотных проектов и объективных критериев оценки.

В целом, повторное внедрение ITSM-системы на базе стека Atlassian можно рассматривать как важный шаг в цифровой трансформации банка, позволяющий одновременно повысить эффективность внутренних процессов и качество обслуживания клиентов.

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РОССИЙСКАЯ И МЕЖДУНАРОДНАЯ ПРАКТИКА СЕТЕВЫХ ОРГАНИЗАЦИОННО-УПРАВЛЕНЧЕСКИХ РЕШЕНИЙ НА РЫНКЕ СТОМАТОЛОГИЧЕСКИХ УСЛУГ

Аннотация: Представлены результаты ключевых тенденций и перспектив развития управления стоматологическими клиниками, включая сетевые формы. Проанализированы особенности функционирования рынков стоматологических услуг в России, США, Японии, Китае, Германии, Южной Корее, Индии, Бразилии, Канаде. Сделан вывод о перспективности и результативности сетей стоматологических клиник как наиболее эффективных форм интеграции ресурсов для реализации управленческих решений в стоматологическом бизнесе.

Ключевые слова: сетевое управление, стоматологическая клиника, бренд клиники, конкурентные преимущества, внутрисетевые управленческие решения.

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RUSSIAN AND INTERNATIONAL PRACTICE OF NETWORK ORGANIZATIONAL AND MANAGEMENT SOLUTIONS IN THE DENTAL SERVICES MARKET

Abstract: The results of key trends and prospects for the development of dental clinic management, including network forms, are presented. The peculiarities of functioning of dental services markets in Russia, USA, Japan, China, Germany, South Korea, India, Brazil, Canada are analyzed. The conclusion is made about the prospects and effectiveness of dental clinic networks as the most effective forms of resource integration for the implementation of management decisions in the dental business.

Keywords: network management, dental clinic, clinic brand, competitive advantages, network management solutions.

Рынок стоматологических услуг в России развивается темпами, превышающими темпы прироста в самых доходных секторах розничного

бизнеса – среднегодовой темп прироста за последние 5 лет составил около 20%, что делает рынок с подобными показателями очень привлекательным для бизнеса, однако это рынок довольно специфический, что требует отдельного исследования в отношении особенностей поведения компаний на этом рынке (стоматологических клиник) и принятия управленческих решений со стороны их менеджмента и владельцев.

Эти тенденции соответствуют и устойчивому росту мирового рынка стоматологических услуг [1] (годом исключения стал только 2020 год в период пандемии – в период с 2014 по 2019 годы рынок рос примерно на 4,2% в год) – в среднем он составляет около 6,6% за последние 10 лет, при этом во всех странах преимущественно повышается доля услуг по профилактическому осмотру, основываясь на технологической модернизации в стоматологии на основе цифровых технологий [2], в общем тренде взаимосвязи общего здоровья и состояния полости рта и ценности собственных зубов для людей. В целом мировой рынок стоматологических услуг показывает последовательный рост (в развитых странах – устойчивый рост, в развивающихся странах – быстрый рост). Если проанализировать динамику рынка стоматологических услуг в страновом разрезе, то следует отметить следующие тенденции:

- США является крупнейшим рынком в мире с преимущественно частной моделью стоматологической практики в силу специфики медицинского страхования, при этом рынок считается одним из самых высокотехнологичных благодаря развитой системе инвестирования (включая венчурное) в стоматологический бизнес как таковой;

- Китай считается одним самых быстрорастущих рынков, но очень сильно дифференцированным в силу большей доступности услуг городскому населению при достаточно низком показателе обеспеченности стоматологами (2,3 стоматолога в расчете на 10 тыс. населения [3]);

- в Японии рынок с устойчивым темпом роста около 3%, что объясняется достаточно высоким уровнем обеспеченности стоматологами и его специализацией на гериатрической стоматологии и тенденциями роста эстетической стоматологии – особенно это проявляется во внедрении прогрессивных технологий в стоматологии;

- в Германии рынок определяется тем, что обязательное медицинское страхование покрывает базовую стоматологическую помощь и преобладают услуги по профилактике заболеваний полости рта – этому также способствует высокая обеспеченность стоматологами в стране (8,5 стоматологов в расчете на 10 тыс. населения [3]);

- Индия, как и Китай, относится к быстрорастущим рынкам, где преобладает частная стоматология (14,2% темп роста за 10 лет), при этом рынок дифференцирован и большей части населения страны недоступен и в силу дороговизны услуг и очень низкой кадровой обеспеченности;

- Бразилия является популярной для стоматологического туризма для жителей европейских стран, Латинской Америки, США и Канады – этому

способствует высокая обеспеченность стоматологами, а также собственное производство высокотехнологичного стоматологического оборудования с широким охватом мирового экспорта;

- в Канаде ориентированы на расширение перечня стоматологических услуг и категорий участников в федеральной программе финансирования, в рамках реализации национального плана стоматологической помощи для повышения доступности услуг, при устойчивом росте корпоративной стоматологии;

- в Южной Корее наиболее распространены услуги по эстетической стоматологии и учитывая рост стоматологического (в совокупности в медицинском) туризма, темпы роста рынка стоматологических услуг (6,5%) меньше темпа роста инвестиций в отрасль (18,1%), что является благоприятной тенденцией в свете широкого использования прогрессивной цифровой стоматологии в сравнении с западными технологиями.

В современной медицинской индустрии с учетом законодательных ограничений представлен формат как частной практики (индивидуальной и групповой), так и функционирования государственных учреждений. В стоматологии также присутствуют разные модели организационного функционирования, и в разных странах они представлены по-разному с учетом степени развития рынка, обеспеченности специалистами и доступности инвестиционных возможностей с учетом развития технологий в современной стоматологии.

Анализ международной практики показывает, что создание сетей стоматологических клиник является динамично развивающимся направлением с учетом как необходимости обеспечения доступности стоматологических услуг для населения, так и важности оптимизирования затрат, обеспечения качества и соответствия стандартам медицинских услуг и в целом устойчивое развитие бренда и репутации клиники. Так, в США развиты сети клиник по модели франчайзинга и как бизнес-платформы для частно-практикующих стоматологов; в Европе имеется тенденция к слияниям клиник в единую сеть; в Азиатском регионе развитие сетей обусловлено географическими характеристиками и, соответственно, необходимостью распространения услуг. В России же можно констатировать наличие конкурентного рынка стоматологических услуг – здесь нет монополий и достаточно много частных стоматологических клиник (как универсальный формат ведения стоматологического бизнеса), но есть крупные участники рынка – сегодня функционирует около 150 сетей, которые рассматривают стратегии по расширению деятельности и регионов присутствия бизнеса.

Следует отметить, что именно на российском рынке стоматологических услуг сетевые формы организации бизнеса показывают как целесообразность, так и реально отличные результаты в прибыльности и в повышении конкурентных преимуществ и углубления доверия со стороны пациентов. Исследования [4, 5] показывают, что это явилось результатом становления рынка в целом, когда изначально именно частные стоматологические

кабинеты предоставляли возможность более быстрой и технологичной помощи по сравнению с государственными клиниками, однако с развитием рыночных отношений, модернизации системы здравоохранения и изменениями в системе контроля за оказанием медицинских услуг стали создаваться стоматологические клиники, которые существенно усилили конкуренцию на рынке, предоставляя новый формат сервиса и комфорта для пациентов и достигая впечатляющих финансовых результатов, что становилось источником их последующего роста и укрупнения.

На современном этапе происходит консолидация российского рынка стоматологических услуг, характеризующаяся:

- структурой рынка в части сетевой и несетевой формы организации бизнеса с сокращением роста отдельных клиник, массовым сокращением частных стоматологических кабинетов и усилением роли сетей клиник;
- перенасыщенностью стоматологических услуг, что требует постоянного внедрения новых организационных и технологических подходов для повышения конкурентных преимуществ, которые способны реализовать преимущественно крупные участники рынка;
- смещением от ценовой конкуренции к неценовой на основе оптимизированной ассортиментной политики услуг с учетом сегментирования региональных рынков и продвижения собственного бренда на основе согласованных маркетинговых технологий.

Сеть стоматологических клиник, по сравнению с другими моделями организации бизнеса в стоматологии, позволяет получить определенные преимущества, которые и делают эту модель более эффективной:

- стандартизация процессов, которая заключается в разработке и реализации единых для сети протоколов оказания стоматологических услуг и контроля их качества, конкретно лечения, проведения хирургических операций и процедур в области эстетической стоматологии;
- технологическая интеграция, которая заключается в проектировании единой информационной системы, которая обеспечивает администрирование клиник в составе сети, планирование и учет всех видов ресурсов с исключения дублирования ресурсов для устойчивой работы каждой клиники и сети в целом;
- финансовая оптимизация за счет управления ресурсами при осуществлении закупок оборудования и стоматологических материалов;
- реализация единой маркетинговой стратегии в рамках продвижения бренда сети стоматологических клиник (в том числе реализация «маркетинга взаимодействия»), реализации программы лояльности для пациентов и оптимизации бюджетов на использование маркетинговых технологий MarTech (Marketing Technology), которые дополняют классические маркетинговые инструменты цифровыми сервисами и продуктами и позволяют развивать маркетинговых образ сети клиник, учитывая повышение цифровой грамотности пациентов и изменения потребностей и предпочтений пациентов и их потребительского поведения;

- потенциал кадрового и профессионального роста для стоматологов за счет возможностей инвестирования в повышение квалификации и формирование внутрисетевых программ мотивации, а также содействие в продвижении личного бренда врачей;

- юридическая поддержка, включая вопросы лицензирования в сфере оказания медицинских услуг и управление правовыми рисками, правовые аспекты взаимодействия с пациентами и работа с судебными исками со стороны пациентов;

- доверие как объединяющий элемент, который позволяет как согласовывать действия между участниками сети, так и планировать будущее в рамках сети, реализуя возможности обмена информацией внутри сети;

- корпоративная культура, которая позволяет транслировать характеристики бренда и фирменного стиля сети;

- получение синергетического эффекта за счет использования совокупных ресурсов сети – для реализации инвестиционных проектов, включая сделки слияний и поглощений, привлечения источников финансирования, снижения транзакционных издержек, сокращения административных расходов.

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