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ANALYSIS OF ANNUAL WATER FLOW IN "TOSHRABOT" HYDRO UNIT.

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Annotation. It is known that we are paying special attention to the radical improvement of the melioration of irrigated lands during the agricultural reform. This task has been and will continue to be one of the most important priorities. Because the efficiency of production in agriculture, ensuring the economic and food security of our country, increasing the material well-being of not only rural workers, but also the population of Uzbekistan as a whole, is inextricably linked with the productivity of our land, which is our priceless wealth, and regular improvement of its quality.

Key words. Hydro unit, canal, water consumption.

TOSHRABOT GIDROUZELIDAGI YILLIK SUV OQIMI TAHLILI.

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Annotatsiya. Ma’lumki, biz qishloq xo‘jaligini isloh etishda sug‘oriladigan yerlarning meliorativ holatini tubdan yaxshilashga alohida e’tibor bermoqdamiz. Bu vazifa eng muhim ustuvor yo‘nalishlardan biri bo‘lib kelgan va bundan keyin

ham shunday bo‘lib qoladi. Chunki, qishloq xo‘jaligida ishlab chiqarishning samaradorligi, mamlakatimizning iqtisodiy va oziq-ovqat xavfsizligini ta’minlash, nafaqat qishloq mehnatkashlari, balki butun O‘zbekistonimiz aholisining moddiy farovonligini oshirish bebaho boyligimiz bo‘lgan yerimizning unumdorligi, uning sifatini muntazam yaxshilab borish bilan uzviy bog‘liqdir.

Kalit so’zlar. Gidrouzel, kanal, suv sarfi.

The relevance of the case is that bringing Amudarya waters to Bukhara region was a long-standing idea. In the 20s of the last century, V. M. Chapligin was one of the first to write a book about bringing water to the Zarafshan Valley. In the following years, "UZGIP", "Uzdavsuvloyiha" institutes worked on schemes and projects to bring Amudarya water to Zarafshan and Kashkadarya lands. Water supply to the Zarafshan-Hazara river through the Amu-Bukhara car canal led to a quick solution to this issue. In 1967, the Toshrabot hydroelectric plant was launched on the Zarafshan river in order to provide water to Gijduvan and Shofirkon of Bukhara region, Kyziltepa district of Navoi region.

It has been 55 years since the Amu-Bukhara car canal was put into operation (1965). During this period, a lot of changes and processes took place in the life of the Canal. Therefore, in order to use the water in the Zarafshan River and the Amu-Bukhara machine Canal rationally, it is an important task today to carry out water calculations in the distribution of water in hydro nodes.

The Toshrabot hydroelectric system consists of distributing the water flow of the Zarafshan river and the Amu-Bukhara machine Canal in order to provide water to 27150 hectares of Gijduvon district of Bukhara region and 29304 hectares of Shofirkon district, as well as 30885 hectares of irrigated land areas of Kyziltepa district of Navoi region. The area of land to be irrigated through canals under the project is given in Table 1 below.

Table 1.

Name of Canal	Water consumption	Area of irrigated land
Zarafsho-Toshrabat	200	-
Bosh Shofirkan	70	56210
Mayta	1.50	950
Oq rabat	0.5	300
Gijduvan	7.0	2806
Oghitma	100	-

In order to analyze the annual water consumption in the Toshrabot hydroelectric system, a chronological graph for the year 2022 of the water-carrying Zarafshan-Hazara, Shofirkon branch canal and branching Zarafshan-Toshrabot and Bosh Shofirkon channels of the hydroelectric system was created.

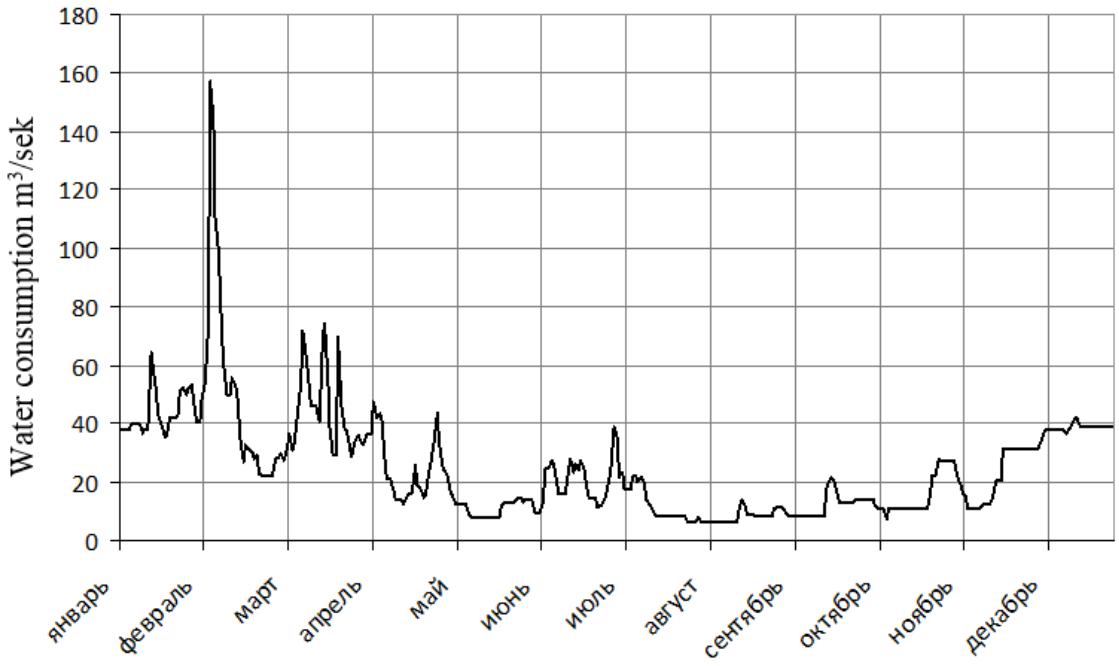

Figure 1. Chronological graph of change of water consumption (m3/sec) at Zarafshan-Hazara water measuring point (year 2022).

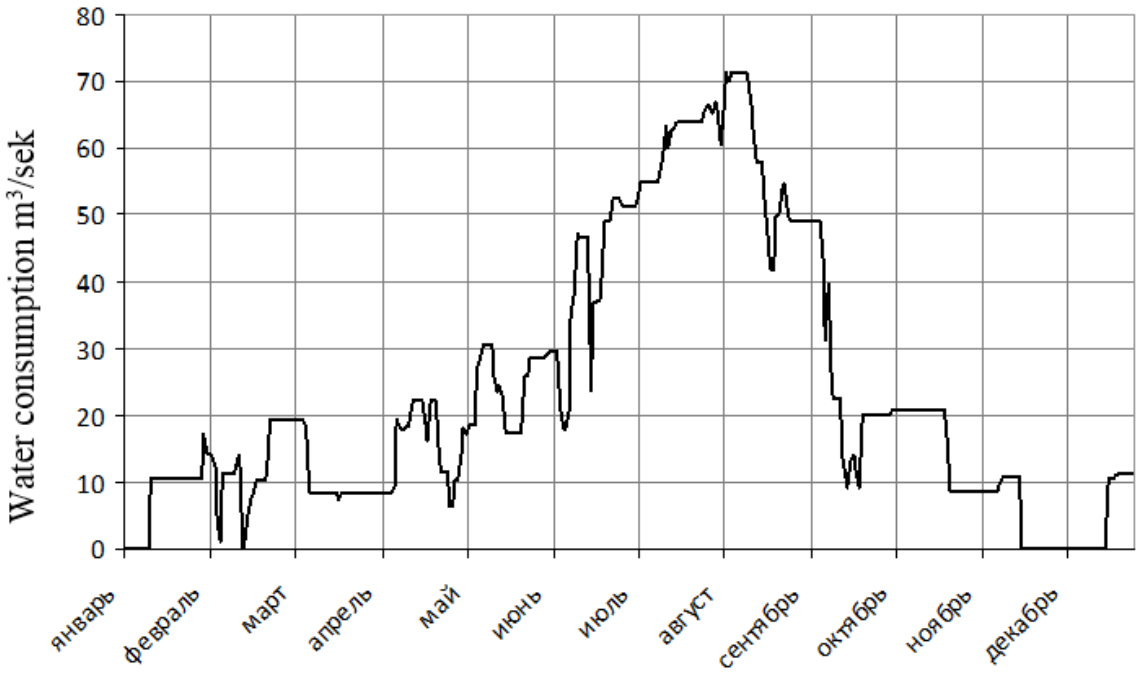

Figure 2. Chronological graph of the change of water consumption (m3/sec) at the water measurement point of the Shafirkon network channel (year 2022).

In conclusion, it should be noted that if we analyze the water consumption from the Toshrabot hydroelectric plant in the last 12 years (2010-2022), the average annual water consumption in the Zarafshon Hazara and Shafirkon branch canals, which bring water to the hydroelectric plant, is 48.83 m3/s, the annual water consumption was 48.41 m3/s, and the loss between the input and output water consumption was 0.42 m3/s. These indicators showed that the average annual efficiency ratio (FIC) of the hydroelectric plant in water use was 0.99.

References:

[1] Ibragimov, I.A., Juraev, U.A., Inomov, D.I. Hydromorphological dependences of the meandring riverbed forms in the lower course of the Amudarya river. IOP Conference Series: Earth and Environmental Science, 2022, 949(1), 012090

[2] Ibragimov, I.A., Inomov, D.I., Ramazonov, A.I., Idiev, N.Q., Makhmudov, M.B. Calculation of river deformation under conditions of regulated flow of Amu-Darya. IOP Conference Series: Earth and Environmental Science, 2023,

1138(1), 012005

[3] Ibragimov, I.A., Inomov, D.I., Xaydarova, F.T. Coefficient roughness of the riverbeds in conditions of regulated water flow. BIO Web of Conferences, 2022, 53, 01003

[4] Ibragimov I.A., Inomov D.I., Yavov A.U. Recommendations for Strengthening the Hydraulic Calculation and Coastal River of the River in Amudarya with Adjusted Conditions. INTERNATIONAL JOURNAL ON ORANGE TECHNOLOGY (2021-11-12, Volume: 3 Issue: 11, 25-29 б.)

[5] ХА Исмагилов, ИА Ибрагимов. К вопросу о коэффициенте шероховатости русел рек в условиях зарегулированного стока воды. Журнал: ГИДРОТЕХНИКА. (2013. №4. 40-45 с.)

[6] И.А. Ибрагимов. Методы гидравлического расчета русла реки для условий зарегулированного стока воды. (Монография) Источник: ООО "Sadriddin Salim Buxoriy" Durdona nashriyoti. (2021. 150 с.)

[7] IA Ibragimov, F Ch Sobirov. Hydraulic Resistances Of Fluvial Channels In Conditions Regulated Water Streams. Эффективность Применения Инновационных Технологий И Техники В Сельском И Водном Хозяйстве (2020. 210-213 б.)

[8] И.А. Ибрагимов. Совершенствование методов гидравлического расчета русла реки для условий зарегулированного стока воды. диссертация доктора философии (PhD) по специальности // Гидравлика и инженерная гидрология. (2018. 188 б.)

[9] Ibragimov I.A., Inomov D.I., Jumaboeva Sh.Y. Movement of High-Flood Waters in Channels in Conditions of Regulated a Water Flow. International Journal of Innovative Analyses and Emerging Technology (2021-11-02, Volume: 1 Issue: 5, 253-257 б.) http://openaccessjournals.eu/index.php/ijiaet/article/view/550