UTC:627.815.2

CREATING A DUTY SCHEDULE FOR EFFICIENT FILLING AND EMPTYING OF THE SOUTHERN SURKHAN WATER RESERVOIR

Ibragimov Ilhom Ahrorovich - Associate Professor of the Department of Hydraulic Constructions and Pumping Stations, PhD.

Sobirov Zafar Raximovich - Master's student in the specialty "Use of hydraulic structures, their reliability and safety"

Inomov Dilmurod Islom o'g'li – PhD student.

National Research University "TIIAME" Bukhara Institute of Natural Resources Management

Annotation. This article provides recommendations on organizing a duty schedule for filling the reservoir with water. It is necessary to save and efficiently use the water in reservoirs. Especially in our region in areas where grain and cotton are planted, irrigation works are carried out almost all year round. For this, it is necessary to strictly control the water supplied from the reservoir. This can be achieved every year, at the beginning of the year, by drawing up a dispatch schedule for the use of the reservoir.

Key words. Reservoir, dam, duty schedule.

JANUBIY SURXON SUV OMBORINI SAMARALI TO'LDIRISH VA BO'SHATISHDA NAVBATCHILIK GRAFIGINI TUZISH

Ibragimov Ilhom Ahrorovich–"Gidrotexnik inshootlar va nasos stansiyalari" kafedrasi dotsenti, PhD.,

Sobirov Zafar Raximovich- "Gidrotexnika inshootlaridan foydalanish, ularning ishonchliligi va xavfsizligi" mutaxassisligi magistranti

Inomov Dilmurod Islom o'g'li – doktorant.

"TIQXMMI" Miliy tadqiqot universiteti Buxoro tabiiy resurslarni boshqarish instituti

Annotatsiya. Ushbu maqolada suv omborini suv bilan to'ldirishda navbatchilik grafigini tashkil etish bo'yicha tavsiyalar berilgan. Suv omborlari zahirasidagi suvni tejab, samarali ishlatish lozim. Ayniqsa, bizning mintaqamizda,

_____

ya'ni g'alla va paxta ekiladigan maydonlarda sug'orish ishlari deyarli yil davomida olib boriladi. Buning uchun suv omboridan berilayotgan suv ustidan qattiq nazorat qilish kerak. Bunga har yili, yilning boshida suv omborini ishlatishning dispetcherlik grafigini tuzish yo'li bilan erishish mumkin.

Kalit so'zlar. Suv ombori, to'g'on, navbatchilik grafigi.

According to the natural geographical location and condition of the Southern Surkhan Reservoir, the reservoir is located in the area of Sho'rchi and Kumkurgan districts, 415 meters above sea level, in the middle of the Surkhan Darya, in the Zarkamar-Khujamulki forest. The annual average layer evaporation is 1500 millimeters. The water flowing along the road carries with it rocks and many mineral fertilizers. The long-term average water mineralization is 100 mgpl. In the South Surkhan Reservoir in winter, the direction of the wind is from the north and north-west. The amount of turbidity of water is 6.8 million/m^3 every year.

The general condition of the South Surkhan reservoir is a flowing river. It collects the water of the Surkhan river and works at the same time during the work process. Its main function is to supply water to the southern part of Surkhandarya region.

When drawing up the duty schedule, it is necessary to take into account the flow of water in the river supplying the reservoir, the volume of water collected in the reservoir until the beginning of the year, and the plan for delivering water to consumers in the accounting year. First, the change of water flow is studied on the basis of 15-30-year hydrological observations of the river supplying the reservoir, and the years with a lot of water, average and low water are found. Then, the input and output of the ten-day water balance of the water reservoir of these years are considered. After all the data is collected, a dispatch schedule is created to efficiently fill and empty the reservoir. In order to determine the ordinates of the boundary line of reservoir filling, it is necessary to monitor the inflow and outflow of water for ten days. The ordinates of the boundary line of reservoir filling are determined by the following relationship:

_____

$$w_j = w_{to'la} - S_{max} + \sum_{i=j}^{j} (A \sum K - \sum C$$

Here:

w_j- along the boundary line of the fill j – reservoir volume at the end of ten days, mln.m³; j= 1, 2, 3,…, 36 (numbers of ten days);

w_{full}-The full volume of the reservoir, mln. m³

$S_{max} = \sum_{i=1}^{k}(A \sum K - \sum C$ - the maximum value of the aggregate during the year, that is, the maximum volume of collected water reached since the beginning of the year, mln. m³;

k– the number of the decade in which the sum reached its maximum value;

$$A = \frac{w_6}{w_k}$$

w_p- the annual flow volume predicted for the accounting year, млн. м³

w_k - multi-year average flow volume, млн. mln. m³;

$\sum k$ - ten-day average inflow into the reservoir according to previous years' observations, mln.m³;

$\sum C$ – according to the plan, water output during ten days, mln.m³.

Average discharge for ten days - $\sum k_j$-can be obtained from a year with a multiyear average discharge.
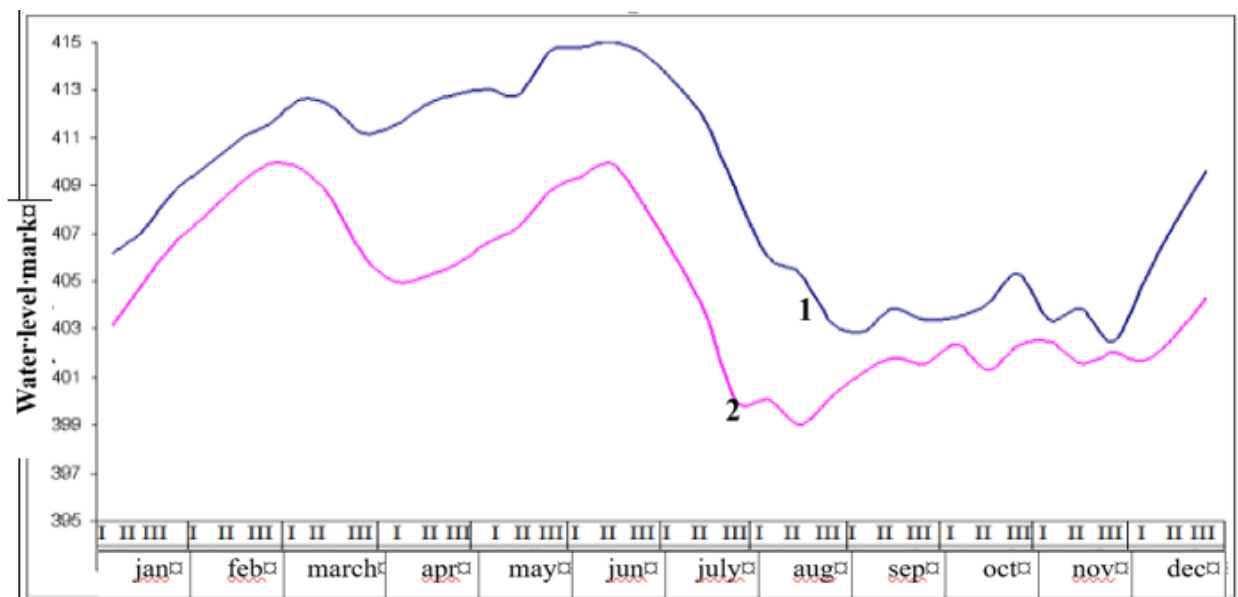

Figure 2.1 Queuing chart for effective reservoir filling and emptying.

_____

1-Watering boundary line. 2-Filling boundary line

The distribution of the dispatch schedule of the South Surkhan reservoir by months during the year and its schedule changes are presented in the following graphic.

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.) https://journals.researchparks.org/index.php/IJOT/article/view/2372

[5] ХА Исмагилов, ИА Ибрагимов. К вопросу о коэффициенте шероховатости русел рек в условиях зарегулированного стока воды. Журнал: ГИДРОТЕХНИКА. (2013. №4. 40-45 с.) https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=B0DZEakAAAAJ&citation_for_view=B0DZEakAAAAJ:1sJd4Hv_s6UC

[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.) https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=B0

DZEakAAAAJ&citation_for_view=B0DZEakAAAAJ:8AbLer7MMksC

[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.) https://www.elibrary.ru/item.asp?id=44435920

[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.) https://scholar.google.com/citations?view_op=view_citation&hl=ru&user=B0DZEakAAAAJ&citation_for_view=B0DZEakAAAAJ:vV6vV6tmYwMC

[9] Mirzayev M.A., Inomov D.I., Ibragimov I.A. Roughness coefficient in the general erosion area. Экономика и социум. (2023-09-25, №9(112). https://www.iupr.ru/9-112-2023

[10] Mirzayev M.A., Inomov D.I., Ibragimov I.A. Coefficient of roughness of river bads. Экономика и социум. (2023-09-25, №9(112). https://www.iupr.ru/9-112-2023

[11] 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