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ABOUT STUDY OF SURKHANDARYA'S BAZIN RIVER WATER AND SPENT SUSPENDED RUNOFF

Annotation. *The article examines the number of hydrological posts in which the consumption of water and suspended runoff in rivers is observed on the example of rivers in the Surkhandarya basin. For this purpose, the data of about 50 hydrological posts located in the basin were analyzed. In 22 of the studied rivers, the discharges of suspended streams were observed. The catchment areas of the studied rivers, the average elevations of the basin, the average perennial water consumption, and the suspended flow rates vary.*

Keywords: *river, river basin, water consumption, runoff consumption, average height of the basin, hydrological post.*

A number of hydrometeorological monitoring networks have been set up in Uzbekistan, including the Surkhandarya basin. All of them, that is, those that used to operate and are still operating today, were built primarily to assess the variability of the main climatic indicators and, secondly, the hydrological quantities of the rivers and lakes that are their product. Of course, in determining the number of hydrometeorological networks operating in the Surkhandarya basin, the issues of their optimal placement were taken into consideration.

At present, the world practice has sufficient experience in the use of materials collected as a result of observation of turbid streams in rivers (Yu.N.Ivanov, 2010). In this regard, below we will focus on the study of the flow of water and suspended flows in the Surkhandarya basin. At the same time,

attention is paid to the distribution of hydrological monitoring networks by basin area and height, the reliability of monitoring and water measurements performed in them, so their implementation in accordance with standard requirements.

In order to clarify the hydrological study of the rivers of the Surkhandarya basin, we will first dwell on the study of water consumption, and then on the expenditure of hanging streams.

As in any river, the hydrological study of the Surkhandarya basin has begun to develop in accordance with the requirements of the national economy. It is known that hydrological observations in the rivers of the Surkhandarya basin have been carried out since the beginning of the second quarter of the XX century, more precisely in 1927. In the same year, water metering began at hydrological posts near the villages of Arpapoya and Manguzar in Surkhandarya.

Since 1928, water metering works were carried out at 9 hydrological posts on rivers such as Topolang (Zarchob), Karatag (Karatag and Khatib), Sherkent (Debivak), Sangardak (King-Guzar), Khalkajar (Karlyuk), Sherabad (Sherabad).

Since that time, more serious attention has been paid to the measurement of water consumption in the rivers of the Surkhandarya Basin. By 1930 in the basin, the number of observations increased to 3, the number of hydrological posts reached 12. Then, in 1931-55 years, the work began to be carried out to measure water consumption in 6 more hydrological posts. On the basis of the collected data, a graph of the year-by-year change in the number of posts with water consumption in the rivers of the Surkhandarya basin was drawn (Figure 1).

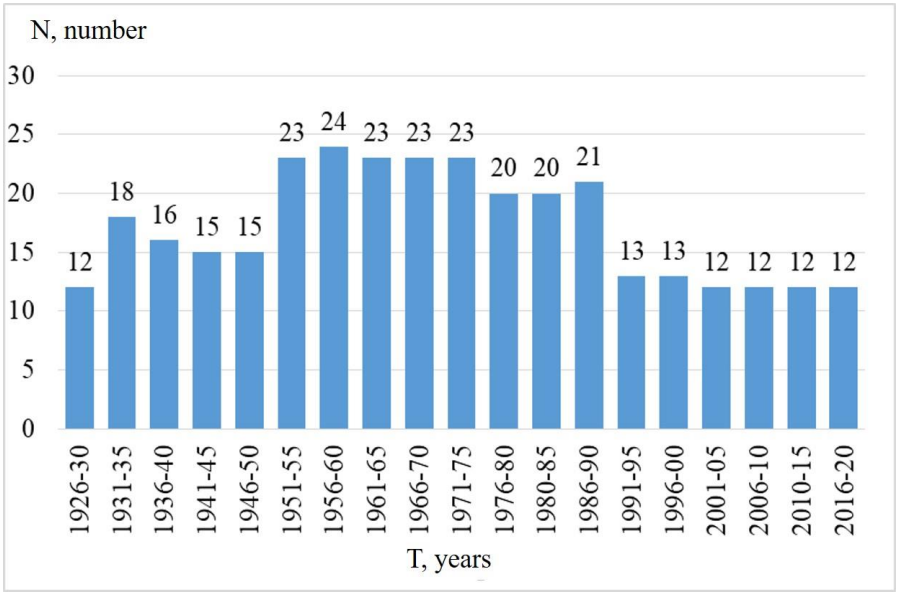

Figure 1. Annual change of the number of hydrological posts in the rivers of the Surkhandarya basin

By 1940, water consumption began to be observed in 16 hydrological posts in the Surkhandarya Basin. But during this period, the activity of some geological posts was suspended. For example, in 1938, the hydrological post, located 2,0 km above the confluence of the Tupolang River into the Obizarang River, was closed.

As can be seen from the picture 1 above, the work on water consumption monitoring in the basin was organized by 1960, they were consisted of 24. Also, during 1986-90 years, a total of 21 units in the basin, 1991-95 years, slightly decreased, 13 units of water measurement was carried out in hydrological posts. This negative situation can be explained by the cessation of the activity of geological posts in the Surkhandarya region of Tajikistan.

The above, as can be seen from the picture 1, the most observed period of water consumption falls on 1956-60 years. During these years, more than 24 hydrological postings in the basin have been carried out to measure water consumption. On the contrary, in 1991-2013, however, the number of positions where water consumption is determined has decreased compared to previous years due to the above-mentioned reasons.

In accordance with the water consumption in the rivers of the Surkhandarya basin, the monitoring of the flow of suspended streams began in 1927 (Surkhandarya-Arpapoya). However, for some reason, the work of tracking the

flow rates in this hydrological post was stopped in 1937. By 1929, monitoring of the flow of sediments in the basin began on the Topalang and Karatag rivers (Table 1).

Table 1. Annual change in the number of hydrological posts in the rivers of the Surkhandarya basin

№	Years	Number of posts	№	Years	Number of posts
1	1926-30	7	10	1971-75	13
2	1931-35	4	11	1976-80	11
3	1936-40	9	12	1980-85	13
4	1941-45	6	13	1986-90	13
5	1946-50	7	14	1991-95	12
6	1951-55	9	15	1996-00	10
7	1956-60	8	16	2001-05	10
8	1961-65	9	17	2006-10	10
9	1966-70	11	18	2010-15	10

On the basis of the data collected, the annual chart of changes in the number of posts on the rivers of the Surkhandarya Basin, which will monitor the consumption of hanging Oaks, was drawn **(Figure 2).**

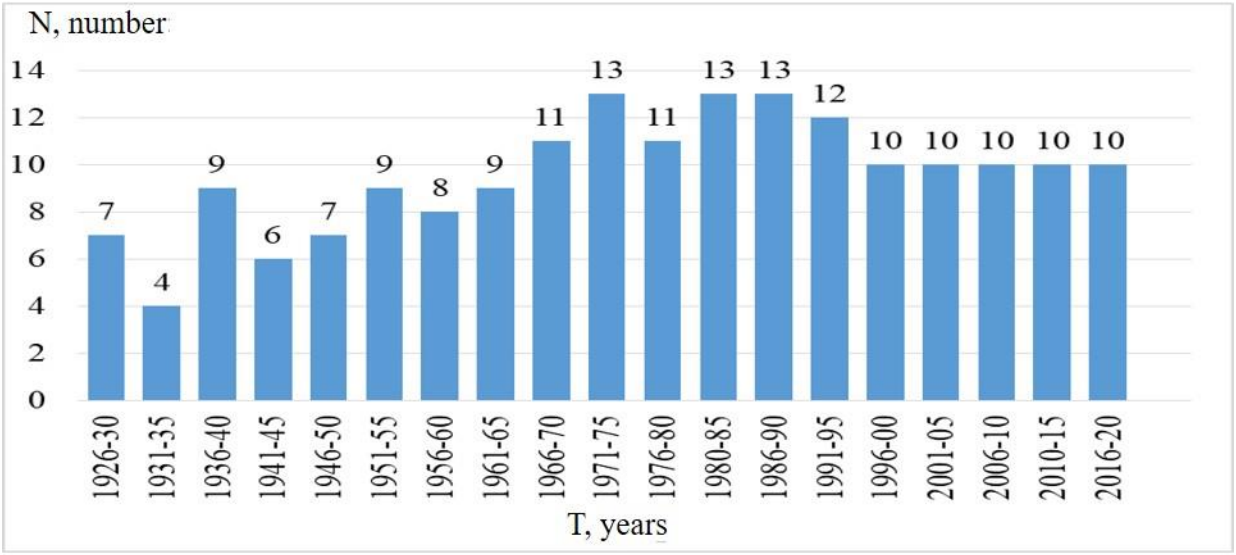

Figure 2. Annual change in the number of posts where the consumption of suspended flows in rivers of the Surkhandarya basin

From 1929 onwards, the Topolang and Karatag rivers in the basin, and from

1930 at the Zhdanov and Manguzar hydrological posts in Surkhandarya, also began to record runoff. Thus, by 1930, the number of posts measuring the consumption of suspended solids in the basin had risen to seven. However, in 1931-35, the work of monitoring the consumption of suspended solids significantly decreased. At the Surkhandarya-Shurchi (82 years) hydrological post in the basin, the Topolang (Obizarang d.q.) is the river with the highest water consumption, while the water consumption has been observed for many years. The consumption of sediments in this river has been observed for a total of 81 years in different years (1931, 1940-68, 1970-2020).

In general, the intervals of 1971-75, 1981-85 and 1986-90 of the last century are distinguished by the large number of posts (13) in which the consumption of suspended logs was observed. During these years, 11-13 hydrological posts in the basin have been monitored annually.

In summary, the water consumption in the rivers of the Surkhandarya basin has been observed for many years. (82 years), the most frequently observed river flow is the Topalang (Obizarang d.q.). The consumption of sediments in this river has been observed for a total of 81 years in different years (1931, 1940-68, 1970-2020). Based on the analysis of the hydrological study of the Surkhandarya basin, observations were made at more than 50 posts in the basin in different years. In more than 20 of them, the consumption of suspended solids was determined. In future research, the main focus should be on the methods of observation of suspended solids, their quality and accuracy.

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