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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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