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Digitalization makes it possible to rationally solve the problems of water shortages in Uzbekistan

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If the trends observed over the past 20-30 years, such as climate change and the melting of glaciers, continue, the flow of two major rivers—the Amu Darya and Syr Darya, which are the main sources of water for the region—could decrease by 10-15% in the coming years. As a result, water availability per capita and agricultural productivity could drop by 25% from current levels.

In response, Uzbekistan is placing great emphasis on the rational use of water resources, further improving water management systems, and modernizing and developing water management infrastructure. The "Uzbekistan-2030" strategy outlines the concept for water management development in the country for the period 2020-2030 and sets specific goals in this regard.

To achieve these objectives, 11,446 Smart Water devices have been installed at water management facilities across Uzbekistan in recent years. These devices allow for online monitoring of water consumption, enabling accurate measurement, efficient usage, and operational management of water resources. Additionally, 1,704 pumping stations have been equipped with online water quantity meters, and 6,746 melioration monitoring wells now have online water level monitoring systems. Management processes at 65 major water facilities have also been automated.

For example, on the Mirishkor-Kamashi canals in the Kasbi district of the Kashkadarya region, 26 modern gates were installed using technologies from the Australian company Rubicon Water, fully automating canal control processes.

Analysis shows that the introduction of digital technologies in water management has significantly improved water control and accounting, enabling real-time resource management. As a result, water savings amounted to 350 million m^3 in 2021, 410 million m^3 in 2022, and 530 million m^3 in 2023.

With support from international organizations, several electronic systems (information systems, databases, software, and mobile applications) have been developed, allowing for the maintenance of water resource balances and cadastral records, as well as monitoring the

melioration status of lands. Special attention is being paid to digitization and automation in projects involving foreign investment.

For instance, the SCADA system, was installed at the pumping stations "Amu-Bukhara-1", "Amu-Bukhara-2", "Kyzyltepa", "Kyzyltepa-1", and "Kuyimozor," which supply water to the Bukhara and Navoi regions. The SCADA system is also being installed on the 69 km-long Boston canal, which passes through the Turtkul, Ellikkala, and Beruni districts of the Republic of Karakalpakstan, as well as on secondary channels with a total length of 727 km.

Efforts are ongoing to fully automate water resource management, eliminate human intervention, and introduce modern approaches, science, and innovation into the field.