

WATER MANAGEMENT SYSTEM REFORMS: PROBLEMS AND RESULTS

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Abstract

It is known that in recent years consistent reforms have been implemented in our country on effective use of water resources, improvement of their management system, modernization and development of water management facilities. In this article, the changes in the water management system, its problems and the results of reforms carried out in the field are presented and conclusions are drawn.

Keywords: water scarcity, water-saving technologies, drip irrigation, sprinkler irrigation, discrete irrigation, portable flexible pipes, digitization of water management, irrigation networks, hydrotechnical structures.

Introduction

In recent years, consistent reforms have been implemented in our country on the effective use of water resources, improvement of their management system, modernization and development of water management facilities.

It is known that under the influence of the global climate, water resources in our region are decreasing, the demand for water is increasing year by year due to the increase in the population and the development of industry. Life itself proves that the only solution to alleviate the water shortage in such conditions is to save water and use it wisely.

Therefore, Uzbekistan is taking the initiative among the Central Asian countries in introducing water-saving technologies and expanding the possibilities of using modern technologies in water management to reduce the water shortage.

In 2021, they set the task of increasing the land area where water-saving technologies will be introduced to 430,000 hectares by 5 times, and developing 90,000 hectares of new land due to water conservation. The execution of these tasks was fully ensured. Water-saving technologies were introduced on 516.6 thousand hectares, including drip irrigation on 198.9 thousand hectares, sprinkler irrigation on 11.2 thousand hectares, discrete irrigation on 5.9 thousand hectares, 78.8 1,000 hectares were irrigated through a portable flexible pipe and 20,900 hectares were irrigated by the method of laying a film, 200,900 hectares of cropland were leveled using laser equipment. 751.4 billion from the State budget for 93.7 thousand hectares of cotton area where drip irrigation technology has been introduced. Soum subsidy was allocated. 2.4 billion during the season due to the introduction of water-saving technologies. m³ water saving was achieved .

4,440.8 bln. from the State budget to water management exploitation organizations. funds were allocated in the amount of 789.2 billion soums. soums for wages and allowances, 3,651.6 bln. soums were allocated to other expenses (3,131.8 billion soums for electricity). 5 thousand 459 km of highway and inter-farm irrigation networks were repaired and cleaned at the expense of operating costs, 5 thousand 839 hydrotechnical structures and 5 thousand 818 hydroposts were repaired.

185 pumps and 237 electric motors were replaced with new energy-efficient ones, 2,522 pumping units and 1,198 irrigation wells were repaired. 7 billion in 2021 due to the great focus on energy saving, 295 mln. kW hours of electricity consumed. Average electricity consumption in the last three years (2018-2020) is 7 billion. 525 mln. kW 230 mln. in 2021. kW hours of electricity saved.

755.0 billion within the framework of 171 irrigation projects implemented at the expense of centralized capital funds. 340.9 km of canals, 137.9 km of channel network, 16.5 km of pressure pipeline, 27 hydrotechnical facilities, total capacity of 16.5 m³/sec. pumping stations, 62 irrigation wells were built and reconstructed. As a result of these works, the water supply of 301 thousand hectares has been improved.

299.1 billion soums were allocated as part of 85 projects on land reclamation facilities, 699.9 km of collector-drainage network, 50 hydraulic facilities, 17 drainage wells and 10 the bridge was built and reconstructed.

In addition, 365.2 billion soums were allocated within the framework of 220 land reclamation projects, and about 17,000 km of collector-drainage network and 319 vertical drainage wells were repaired and restored. As a result, the land reclamation condition of more than 200,000 hectares has been radically improved, areas with strong and medium salinity have decreased by 20,000 hectares, the area with a water level of up to 2 meters has decreased to 48,100 hectares, 16,100 hectares land reclamation stability was ensured, about 100,000 hectares of land was brought back into use.

A new direction in water management is the introduction of public-private partnership and outsourcing, the provision of individual water management facilities to farmers, clusters and other organizations, the modernization of water management facilities with the saved funds, and Priority is given to the remuneration and incentives for the work of employees. The cost of introducing public-private partnership in 2021 is 1,216 billion. Agreements on 100 projects worth soums were signed and entered into the register. In particular, the irrigation-reclamation facilities in the Lower Chirchik district of the Tashkent region were given to "TST Agro Cluster" LLC, and the irrigation-reclamation facilities and pumping stations in the Narpay district of the Samarkand region were given to "Marokand Sifat" LLC on the basis of a full public-private partnership.

Within the framework of these projects, private partners spent 112.3 billion in the first 3 years. investment in the amount of 152.9 billion soums will be achieved.

Another priority in the field is digitalization of water management. In 2021, 5,567 modern information and communication technologies, including 3,099 "Smart Water", 426 pumping stations, and 2,022 reclamation monitoring wells will be equipped with water indicators and soil mineralization. an online monitoring device was installed and 20 water management facilities were automated. As a result, 771.0 mln. m³ water saving was achieved.

Also, management processes in the "Mirishkor" and "Qamashi" canals in Kashkadarya region were fully automated based on the technologies of the Australian company "Rubicon water".

As a result of these works, real-time control of water in water management facilities, its accounting, online monitoring of water resources supplied at the border of the region and district, and accurate calculation of water were achieved. Reduction of the human factor in water management processes, prevention of technical losses of water, transparent and fair use of water based on the set limit was established.

2173 automated electrical measuring devices were installed at 1688 pumping stations and integrated into the unified electronic information system for the republic, and the possibility of "online" control of electricity consumption was created.

Research projects of 8.1 billion soums on a total of 32 topics by scientific research and educational institutions in the field, including 9 practical and innovative fundamental and 23 scientific research projects within the framework of state scientific and technical programs. experimental construction works were carried out. More than 35 recommendations and guidelines were developed and put into practice in the areas of water resources management, water-saving technologies, irrigation networks and hydrotechnical facilities repair, and more than 10 research landfills were established in the regions.

The implementation of the results of scientific and practical, fundamental research in the field will increase the level of water resources use and distribution among consumers by 15-20 percent, the efficiency of pumping stations by 15-20 percent, and the economy of electricity consumption by 3-5 percent, agriculture It made it possible to increase the productivity of vegetable crops up to 30%, as well as to save water and other material and technical resources by up to 20%.

Effective management of water resources, economical use of water is a matter of constant attention of the head of state and government. In particular, within the framework of the state program for the implementation of the development strategy of New Uzbekistan for the period of 2022-2026 in the "year of human dignity and active neighborhood", at least 7 billion will be spent on effective use of water resources. The task of saving m3 of water has been assigned, and the program developed to ensure the execution of this task is being implemented consistently.



Figure 1. Overview of the automation system of water bodies used for irrigation of agricultural fields [12]

Uzbekistan is considered to be the country with the most developed irrigation network and large water management infrastructure in the Central Asian region, 4.3 mln. A total of 28 thousand 570 km long irrigation networks, 38 thousand 781 units of hydrotechnical facilities, 19 thousand 752 units of hydroposts serve to provide stable water supply to hectares of irrigated croplands and other sectors of the economy.

As a result of the irrigation-reclamation activities carried out in the last six months within the framework of the 2022 social and production infrastructure development program, the water

supply of more than 102,000 hectares and the land reclamation of 58,000 hectares have been improved.

The reform of the water management system is aimed at solving problems related to water quality, management and use of water resources, which are important factors of sustainable development and environmental protection. Let's look at the main problems that the water system reforms are trying to solve and their results.

The main problems of the water supply system:

1. Factors causing water pollution: industrial wastewater and household waste, agrochemicals and fertilizers entering water bodies from agricultural fields and petroleum products and heavy metals.
2. Scarcity of water resources: excessive consumption of water in agriculture and industry, climate change leading to drought and changes in precipitation patterns.
3. Outdated service systems: deterioration of water supply and sewage systems, low efficiency of water treatment systems.
4. Uneven distribution of water: disparity between water-rich and water-scarce areas.

The main directions of reforms:

1. Improvement of the legislative framework: introduction of new water quality standards, strengthening control over the emission of pollutants.
2. Investments to improve infrastructure: modernization of water supply and sewage systems, construction and reconstruction of treatment facilities.
3. Introduction of modern technologies: use of water saving technologies in agriculture (for example, drip irrigation), use of water treatment and reuse methods in industry.
4. Raising public awareness: water conservation education programs and companies, promoting the rational use of water in everyday life.

Results of the reform:

1. To improve water quality: Reduce water pollution through stricter standards and controls, reduce the concentration of harmful substances in irrigation water.
2. Water conservation: reduction of water consumption in agriculture and industry, improvement of water efficiency in urban systems.
3. Infrastructure renewal: reducing water losses in water supply networks, improving the operation of treatment plants and sewage systems.
4. Sustainable water management: balance between consumption and replenishment of water resources, equal distribution of water between regions.

In conclusion, reforming the water management system is a complex and multi-step process that requires the participation of the state, business and society. They are aimed at improving water quality, ensuring sustainable use of water resources and protecting the environment. Successful implementation of reforms will allow solving current problems and create a basis for long-term sustainable development.

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