

Socio-Economic Situation In The Water Management Of The Republic Of Uzbekistan And The Regulatory-Legal And Economical Frameworks For The Implementing Of Water-Saving Technologies

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Abstract

The use of water-saving technologies in the cultivation of crops in conditions of water scarcity due to climate change is one of the leading social-economic issues in the world. The organization of scientific and applied research in this field is requires increasing the efficiency of water-saving technologies and improving the economic mechanisms for their widespread implementation into practice. Therefore, this article analyzes the socio-economic situation in the water sector of the Republic of Uzbekistan and economical methods for improving the efficiency of water-saving technologies.

Key words: water-saving technologies, irrigation, enterprises of drip irrigation, localization of production, mechanism for allocating subsidies, scientific regulatory and legal framework.

Introduction

By 1994, 62-64 billion cubic meters of water resources were used in the country for various economical demands. In recent years, as a result of global climate change, the average annual volume of water has reached 51-53 billion cubic meters, of which 89-90% or 47.0 billion cubic

meters are directed to the agricultural.

About 80% of the water resources used in the economy of the Republic of Uzbekistan are formed due to glaciers in the territory of neighbor countries. The remaining 20 percent is formed in inland water bodies (Figure 1).

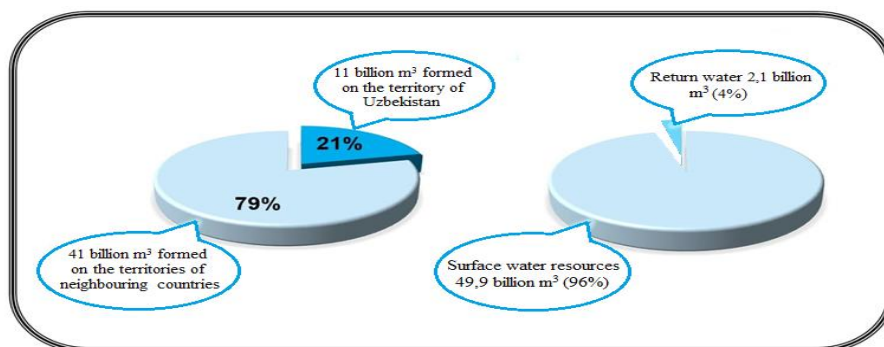


Figure 1. Average annual water volume and sources required for the economy of the country.

Global climate change has melted 30 percent of the more than 8,000 glaciers in Tajikistan and 16

percent of the nearly 10,000 glaciers in Kyrgyzstan. By 2030, another 15 to 20 percent of glaciers are expected to melt [4].

The future balance of water resources will be significantly affected by the rapid melting of

glaciers, which are the main sources of water in the region, other aspects of climate change, as well as the growing water demands of the population and industrial development (Figure 2).

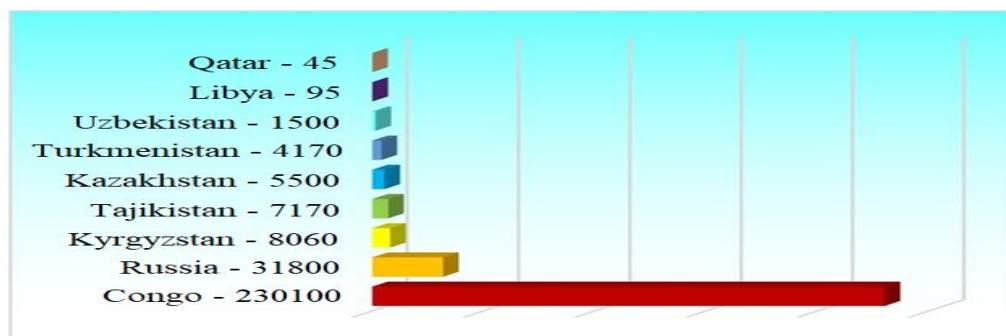


Figure 2. Water supply per capita, (m³/person)

Materials and methods

Uzbekistan is considered as one of the largest irrigation farming countries in Central Asia. Proper use of existing water and land resources can increase crop production and yields in the agriculture sector [5]. According to the analysis of studies [6,7], a 10-20% reduction in water supply can have serious consequences for the size of irrigated land and employment of the population, resulting in a decrease in gross national income. According to the World Institute of Water Resources, Uzbekistan is one of the 25 countries most prone to water stress.

When using canals, it is important to assess quantitative indicators of the state of reliability associated with such adverse effects as wear of canals under the influence of dangerous filtration currents, subsidence, and elevation of canal sections relative to the area [8]. Efficient use of water resources to meet the needs of irrigated agriculture, utilities and industry, the environment and other sectors, the widespread implementation of science-based and innovative developments in the sector, is crucial to ensure sustainable economic development of the country [9,10,11].

In recent years, positive work is being done in the country to improve the water management system. In particular, extensive work is being done to radically improve the water resources management system, improve the technical condition of irrigation networks, improve the reclamation of irrigated lands and increase their water supply, implementation of modern water-saving technologies, install automated

management and monitoring systems, develop agricultural products. Extensive attention is paid to diversification of production [1,2,3].

In particular, the Decree of the President of the Republic of Uzbekistan dated October 9, 2019 DP-4486 "On measures to further improve the water resources management system" and October 25, 2019 "On measures to expand mechanisms to encourage the implementation of water-saving technologies in agriculture" DP-4499 were adopted, the scientific regulatory and legal framework for the radical improvement of the water management system, the widespread implementation of water-saving technologies in agriculture was created. As a result, there is ample opportunity to implement water-saving technologies in the cultivation of agricultural crops. In particular, in 2017-2021, a total of 584.6 thousand hectares of agricultural land in the country, including 280.0 thousand hectares of drip irrigation, 12.3 thousand hectares of sprinkler irrigation, 8.4 thousand hectares of discrete irrigation and 283 thousand hectares were irrigated by flexible pipes.

Also, in 2021, the areas where water-saving technologies, including drip irrigation of cotton, were implemented in the country amounted to 136,647 hectares, and the distribution by the regions of the country and of the Karakalpakstan.

With the widespread implementation of water-saving technologies, the country has created significant benefits for producers of raw cotton and enterprises producing components for drip irrigation. For drip irrigation technology implemented on one hectare of cotton field, the country will allocate 8-11 mln. Uzbek Sum (UZS), plus 6% of the loan amount (Figure 3).

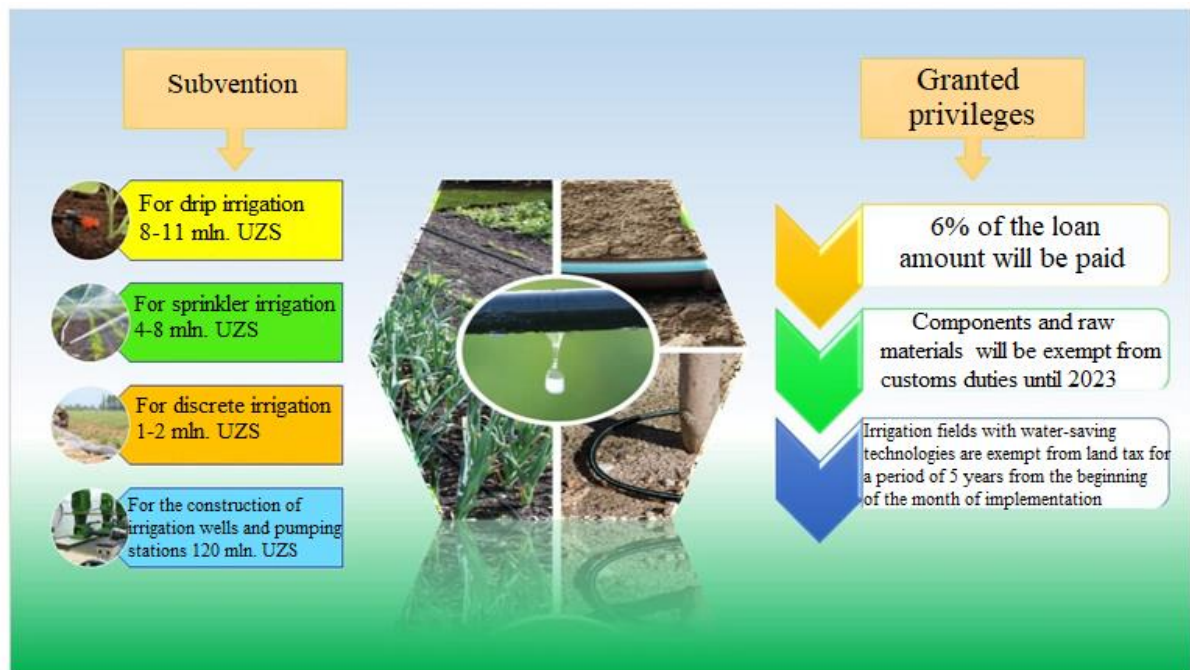


Figure 3. Privileges provided by the government for the implementation of drip irrigation technologies.

The creation of a regulatory framework for the implementation of water-saving technologies

has created great opportunities for the development of local enterprises that save water, including the production of drip irrigation systems. Currently, there are more than 30 enterprises producing drip irrigation technology in the country (Figure 4).



Figure 4. Local enterprises producing equipment and components of water-saving irrigation technologies.

Consistent measures are being taken by the government to support the reform of water resources, rational use of water resources, the implementation of water-saving technologies.

In particular, starting from 2019, a new system of government supports was created for the implementation of water-saving technologies in the country - a mechanism for allocating

subsidies.

As a result, over the past five years, a total of 891.4 thousand hectares, including 290.3 thousand hectares of drip irrigation, 13.5 thousand hectares of rainfall, 10.6 thousand hectares of discrete irrigation technologies and 299.3 thousand hectares of flexible pipes, 91.9 thousand hectares of under plastic irrigation technologies have been implemented. At the same time, 185.8 thousand hectares of land were leveled with laser equipment. Thereby, in 2021

alone, the implementation of water-saving irrigation technologies was achieved on 490.1 thousand hectares.

In the implementation of these technologies, service and installation teams consisting of more than 6,000 specialists from organizations within the Ministry of Water Resources were established to assist in the construction and installation work.

In 2019, 125.4 billion UZS will be allocated to agricultural enterprises that have implemented water-saving irrigation technologies, in 2020 this indicator was - 236.1 billion UZS. Starting from this year, the amount of subsidies from the government budget will be calculated based on the quality of the technology, and in 2021 allocated 846.4 billion UZS, including 745.8 billion UZS for technologies implemented in cotton fields were allocated as subsidies.

Results and discussions. In most areas, where water-saving irrigation technologies have been implemented, up to 35-40% of water resources, as well as mineral fertilizers and other resources have been saved, and yields have increased by 15-30 centners.

It is estimated that in alone 2021, more than 2.3 billion cubic meters of water resources will be saved in areas where water-saving technologies have been implemented.

The infrastructure for the production of water-saving irrigation technology components has been formed in the country. If by 2019 the number of local organizations producing components of water-saving technologies was 3, today their number has reached 40.

For example, due to the localization of production by enterprises, the cost of production has been reduced from 25 million UZS to 20.0 million UZS, and this season has saved about 175 billion UZS for agricultural producers.

CONCLUSION:

The Decree of the President of the Republic of Uzbekistan dated October 9, 2019 No. DP-4486 "On measures to further improve the water resources management system" and October 25, 2019 "On measures to expand mechanisms to encourage the implementation of water-saving technologies in agriculture" DP- 4499 were adopted, the scientific, regulatory and legal framework for the radical improvement of the water management system, the widespread implementation of water-saving technologies in

agriculture was created. A new mechanism for calculating subsidies to cover the cost of implementation of water-saving technologies has been approved. implementation of water-saving irrigation technologies in irrigation of agricultural crops from 175 thousand hectares to 1 million hectares by 2025, up to 2 million hectares by 2030, including drip irrigation technology from 77.4 thousand to 2025 to 300 thousand hectares in order to expand the use of modern water-saving irrigation technologies and to reach 600,000 hectares by 2030.

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