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Principal Areas of Efficient Use of Water Resources in Agriculture

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Annotation. The article studies and analyzes the current state of use of available water resources in agriculture. Emphasis is placed on the priorities that need to be implemented in the efficient use of water resources.

Keywords. Water resources, integration of water users, coefficient of water use, water norms, swimming method, water reform, orositelnye systems, amelioration, subirrigation, vodosberegayushchie technologies.

Introduction.

Efficient use of water resources in agriculture is a topical issue today, it is necessary to study the sources of water resources, analyze the current state of use in industry, government support for the introduction of water-saving technologies, identify priorities for water economy.

The main part.

Consistent reforms on efficient use of water resources, improvement of water resources management system, modernization and development of water facilities Law of the Republic of Uzbekistan "On Water and Water Use" No. 837-XII of May 6, 1993; The concept of "Development of water resources of the Republic of Uzbekistan for 2020-2030" was adopted in accordance with the Decree No. PF-6024 of July 10, 2020, on global climate change, The Republic of Uzbekistan is located in the Aral Sea basin, the main water source of which is the Amudarya and Syrdarya rivers, as well as the Amudarya and Syrdarya rivers. , inland rivers and streams, and groundwater. The average long-term flow of all sources in the Aral Sea basin is 116 billion cubic meters, of which 67.4% in the Amudarya basin and 32.6% It is formed in the Syrdarya basin. In particular, the total groundwater reserves are 31.2 billion cubic meters, of which 47.2% fall into the Amudarya basin and 52.8% into the Syrdarya basin. According to the schemes of integrated use and protection of water resources of the Amudarya and Syrdarya basins, the average long-term water intake limit for the Republic of Uzbekistan is 64 billion cubic meters. However, in the 1980s The country's annual water consumption is within the multi-year limit, and in recent years the average annual water use due to global climate change, as well as transboundary water use problems is 50 billion cubic meters, including 97.2% from rivers and streams, 1.9% from collector networks. , 0.9 percent of which is groundwater decreased by 20 percent relative to the withdrawal limit. The area of irrigated land in the country is 4.3 million hectares, with an average of 90% of total water resources in agriculture, 4.2% in public utilities, 1.3% in industry, 1.2% in fisheries, 2.3% in thermal energy. 1% was used in other sectors of the economy. In order to ensure a reliable supply of water to the economy, including agriculture, as well as to improve the reclamation of lands, the country has established a unique water management system. International from the waters of the Amudarya, Syrdarya and Zarafshan rivers flowing through the territory of Uzbekistan

used under contracts. However, since the independence of Central Asia, the position of water resources as a commodity has been growing year by year. This process creates a shortage of water in the supply of irrigated agricultural lands of the country. The amount of water consumed on irrigated lands varies by region and territory due to a number of factors. That is. the quality of irrigation systems and irrigation water leads to excessive or low water consumption. Every hectare of irrigated land In most areas of Andijan, Namangan and Fergana oblasts, where relatively little water is used, the quality of irrigation water is good or they are low in various minerals that negatively affect productivity.

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Table 1
Water resources formed and consumed on the territory of the states of the Aral Sea basin

States	Amudarya basin		Syrdarya basin		Total across the Aral Sea basin	
	Formed	consumed	Formed	consumed	Formed	consumed
Uzbekistan	5.14	38.91	6.39	17.28	11.53	56.19
Kyrgyzstan	4.04	0.38	26.79	4.03	30.83	4.41
Tajikistan	44.18	9.88	0.38	2.46	44.56	12.34
Kazakhstan	-	-	2.50	12.29	2.50	12.29
Turkmenistan	2.79	21.73	-	-	2.79	21.73
Afghanistan	22.19	7.44	-	-	22.19	7.44
Total	78.34	78.34	36.06	36.06	114.40	114.40

The main water resources that supply water to Central Asia are located in the Chatkal, Pamir-Alay and Tianshan ranges, which are in the form of permanent glaciers. 70-80% of Central Asia's water resources are located in the mountainous regions of Tajikistan, Kyrgyzstan and Kazakhstan (Table 1). At present, 8 million people live in the Aral Sea basin of Central Asia. hectares of land are irrigated. In the same area, 126 billion people a year are fit for drinking and irrigation. m3 of water is formed. The volume of water generated in this area is 15,750 m3 per hectare of irrigated land. Cotton per hectare of land The volume of water taken from the source for irrigation of one hectare of land is at least 10 thousand m3, if the average yield is 25-30 quintals. In conclusion, agriculture in these areas is carried out at the expense of excessive water consumption. m3 of water is consumed, of which 90% is spent on irrigated agriculture. An average of 10,000 m3 of water is used per hectare of irrigated land.

Water supply is the ratio of the amount of water actually consumed to the amount of water that must be supplied on a limit basis. The development of the region's productive forces, the availability and location of labor resources will depend on water supply. Water supply places higher demands on water quality than on other types of water management complexes. The following types of water supply are distinguished: communal, industrial, agricultural, railway, etc. water supply. Each type of water supply has its own characteristics (Table 2).

Table 2
Water use in the national economy

Sectors of the national economy	Distribution of water resources	
	Mlrd m3	Percentage,%
Domestic service	2,14	4,2
Energy	1,17	2,3
In other areas	0,51	1
Industry	0,67	1,3
Fishing	0,61	1,2
Agriculture	45,9	90

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The Fergana Valley accounts for 18% of the country's irrigation water, Tashkent for 6.2%, Jizzakh and Syrdarya for 10.5%, the Zarafshan Valley for 17.0%, the Lower Amudarya for 25.5% and Kashkadarya. , Surkhandarya accounts for 19.5%. In the future, water intake for agriculture will increase by about 1.2 times.

The main purpose of the efficient use of water resources of the Republic of Uzbekistan is to create the necessary conditions to meet the growing needs of the population, sectors of the economy and the environment, to ensure reliable and safe operation of water facilities and effective management and rational use of water resources. improving the situation, increasing water scarcity, as well as achieving water security in the context of global climate change.

Conclusion. In the effective use of water resources and in the future to provide agriculture with systematic water, it is necessary to pay attention to the following main priorities:

• forecasting of water resources, their calculation

improving the system of record keeping and database formation and ensuring transparency;

• Modernization of water facilities, reliable

Ensuring the operation and safety, organization of management of large water facilities on the basis of digital technologies, the widespread introduction of modern resource-saving technologies, expanding the attraction of foreign investment in the sector and ensuring the targeted and efficient use of allocated funds;

• Water-saving in the cultivation of agricultural crops

further expansion of the introduction of irrigation technologies and government incentives, attracting foreign investment and grants in this area;

• Improving the reclamation of irrigated lands and

application of effective technologies to ensure sustainability, increase soil fertility, reduce and prevent soil salinity;

• The principles of a market economy in water management, including

introduction of a system of gradual reimbursement of part of the cost of water supply by water consumers, directing the proceeds to the timely and quality repair of water facilities, the introduction of digital technologies and effective management;

• Introduce public-private partnerships and outsourcing in water management

to provide individual water facilities for use by farmers, clusters and other organizations, and to use the saved funds for the modernization of water facilities and the remuneration and incentives for staff;

• issues of transboundary water resources use

Development of interstate relations on water resources, development and promotion of mutually acceptable mechanisms for joint management of water resources and programs for efficient water use, ensuring a balance between the interests of Central Asian countries.

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