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COMPOSITION ANALYSIS OF IRRIGATED LAND USE SYSTEM AND ITS STATISTICAL EVALUATION

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	Article history:	Abstract:
Received:	20 th September 2023	In this article, the structural structure of the irrigated land use
Accepted:	20 th October 2023	system is explained in detail and it is statistically evaluated. Also, practical
Published:	24 th November 2023	recommendations for solving problems related to the use of irrigated land
		and the use of irrigated land have been developed.

Keywords: Irrigated lands, land and water resources, economic-ecological efficiency, water management, farmers and peasant farms.

Management of the water management system is carried out by managing the activities of water management complexes, because the use of large-scale water resources occurs with changes in the established interrelationships between nature and the economic system. This change can have a positive effect on economic sectors as well as negative effects to their interests. Such negative contrary consequences can be minimized if we consider the entire water management system as a single complex based on the long-term forecasting of various water demands of economic sectors.

In making the agreed decisions on the distribution and use of water, it is established that, in addition to the above-mentioned state power and state management bodies, other ministries and agencies will participate: the Ministry of Agriculture, the Ministry of Energy, the Ministry of Uzgidromet, the Ministry of Communal Economy, the Cabinet of Ministers of the Republic of Uzbekistan. is carried out by the inspection of the control of the Agro-industrial complex.

The Law "On Water and Water Use" states the following about water use and water consumption:

for agricultural needs - water use and water consumption - occurs in order to create an effective water regime in irrigated lands, agricultural enterprises, institutions, organizations, farmers' and peasant farms, as well as citizens;

the use of water bodies for agricultural needs is carried out for general and special water use and water consumption;

The water intake limit for farmers and peasant households cannot be changed without their consent, except in cases of depletion of water sources ¹.

It is known that the main participants of the water management complex are water users. When studying the use of water resources, it is necessary to distinguish between the terms water use and water consumption. If the use of water is carried out by taking water from reservoirs and water streams, such water users should be included in the group of water consumers. In this case, a part of the water does not return to the composition of the product or evaporates. The main water consumers include industry, communal economy, and agriculture. If water is used for various technological operations without taking it from the water source, such water users belong to the group of water users. Water use includes meeting the needs of the population and the economy (water transport, sanitation, fisheries, etc.) for water resources. But as the use of water resources is studied in depth, the border between water users and water consumers is washed away (disappears). In this study, the term "water supply" refers to engineering structures consisting of water supply and distribution, pipes, irrigation equipment, etc. In this work, the words "water user", "water consumers" and "agricultural enterprises" have the same meaning.

At the same time, the water management complex can be viewed as a set of activities and structures necessary for the rational use of water and other related natural resources, optimally satisfying the needs of all water users. Household service, drinking water supply, recreation, irrigation, drainage, hydropower, fishery, industry and water transport entities are participants of the water management complex.

SXK should ensure maximum efficiency for the entire economy, not a single sector, while avoiding harmful effects on the environment. For example,

¹"On Water and Water Use" - Law of the Republic of Uzbekistan-T.: Uzbekistan, 1993.



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when using a reservoir of energy importance, a significant part of water is lost due to evaporation and filtration before it reaches other participants of the water management complex. Such situations can be observed in reservoirs built for the cooling system of nuclear and thermal power plants, as well as in fish farms. Therefore, in the complex use of water resources, it is necessary to achieve a maximum reduction of useless loss of water.

It is known that reclamation is mainly divided into two types, i.e., irrigation and drainage types: irrigation reclamation refers to the sum of economic, engineering and organizational activities carried out in the use of irrigated lands. It will be directed to the supply and distribution of irrigation water to cultivated fields under natural conditions of water shortage. The reclamation of Zakhokir is engaged in the fight against soil salinization and swamping. In the climatic conditions of the country, agricultural intensification is mainly achieved with the help of irrigation. As the irrigated area expands, the opportunities for intensification expand there.

Today, solving the problem of increasing the economic-ecological efficiency of the use of land and water resources requires foresight and forecasting based on a scientifically based, irrigated land use system.

The irrigated land area in the republic is 4.3 million hectares, on average, 90-91% of the total water resources are in agriculture, 4.5% in the utility sector, 1.4% in industry, 1.2% in fisheries, 0.5% in heat energy, and 1 percent is used in other sectors of the economy. In recent years, due to the rapid development of industrial and energy sectors, their need for water is increasing. It is estimated that by 2030, the water needs of industry (including the energy sector) will increase from 2 km ³ to 3.5 km ^{3 per year}.

In the country's agriculture, fish farming is also developing rapidly. There are more than 3,600 fish farms in the whole country, and the total area of water bodies where fish products are grown exceeds 595,000 hectares. They usually use clean drinking water for fish farming. But in recent years, due to water shortage, fish farms located on the banks of the river are forced to use saline wastewater .

The main problem of using available water resources is the delivery and consumption of water resources to irrigated areas. The problem under consideration has institutional, technological and personnel reasons.

Radical changes in the agricultural sector have a significant impact on the management of water resources in the republic. Phased cancellation of state orders for cotton and wheat cultivation, introduction of market mechanisms and, in this regard, reform of the agricultural state management system are the main directions of these changes. They require adaptation to the modern model of water resources management, depending on the progress of economic reforms in the country. These require changes in the management and distribution of water resources, as well as the creation of infrastructure and services that respond more efficiently and precisely to consumer demands.

Based on the above, we consider it appropriate to consider the following.

1. Despite the research work on the regulation of the use of land resources in agriculture and the protection of the environment, the creation of methodological bases for the formation of the concept of regulation of the use of irrigated land, optimization of their interaction in the economic and ecological spheres has not yet been completed.

2. The use of irrigated land resources in agriculture by the economy and society reflects a nonstop objective process, because the used land resources have a multi-purpose and multi-functional character due to the need to satisfy various material and other needs of the society. Therefore, the characteristics of irrigated land as a "natural resource", economic resource-capital", "object of property" and "object of economic management" related to the directions of use as a circle of production relations and production forces, as well as their scientific-theoretical and methodological practical aspects research is one of the conceptual problems.

3. The economic-ecological mechanisms of regulating the system of irrigated land use are aimed at the management, organization, planning, promotion and regulation of compliance with environmental requirements in irrigated areas, which arise in the processes of disposal, ownership and use of land and water. organizational-legal, economic-ecological, social, technical-technological and other instruments implemented by land users in the implementation of the use of land and water as a "natural resource", "economic resource" and "object of management" and "taxation" is a set.

4. The system of using irrigated land should be considered as a comprehensive measure aimed at the careful use of land and water resources and the preservation of ecological balance in order to provide the population with agricultural products for the benefit of current and future generations;

5. The lack of improvement in the design of irrigation and land use systems, their low-quality



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implementation, the failure of irrigation techniques and technology to meet the requirements of the time, can be cited as the reasons that led to the violation of the ecological balance in the irrigated lands of these regions. The World Resources Institute predicts that by 2040, Uzbekistan will be among the 33 countries with the highest water scarcity. If drastic measures are not taken, by 2050 cotton and wheat yields in the Syrdarya basin are expected to decrease by 11-13% and 5-7%, respectively, and in the Amudarya basin by 13-23% and 10-14%. Such a decrease has serious consequences for the food security of the republic, which requires sustainable management of land and water resources in the country;

6. Currently, the planning of water distribution to large water bodies is carried out on the basis of the "residual principle". Accordingly, water enters the Aral Sea after satisfying the water needs of other water consumers, and due to the sharp deterioration of the ecological environment in areas with extensive irrigation, the importance of rational use of land and water and environmental protection is increasing. In order to positively solve this problem, in addition to technical, technological and organizational measures, it is necessary to give the status of a legal entity equal to other water consumers (agricultural, industrial, domestic and drinking water supply) to large water bodies (in order to provide water of a given volume and quality).

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