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IMPROVING THE ECOLOGICAL AND LEGAL MECHANISMS OF THE IRRIGATED LAND USE SYSTEM

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ABSTRACT

Currently, the Aral Sea problem remains a major environmental problem that cannot be solved within a single country. Excessive unauthorized use of irrigation water has led to a deterioration of the ecological situation in the Amudarya and Syrdarya basins.

This article analyzes the causes of the unfavorable environment in the Aral Sea and around the Aral Sea, and offers suggestions for improving the norms and laws governing the rights and obligations of water users.

Keywords: Aral Sea, basin, ecology, environment, norm, law, crop area, Amudarya, Syrdarya, water, land, resource, consumer.

INTRODUCTION

Increasing agricultural production will undoubtedly require an increase in the area under crops, as well as an increase in the amount of production grown per hectare of crop area.

One of the most important ways to increase the productivity of arable land is to irrigate these lands.

In the Action Strategy for the Development of the Republic of Uzbekistan for 2017-2021, President Sh.M. Mirziyoyev stressed the need to improve the reclamation of lands, further improve irrigation and reclamation facilities, expand the use of intensive methods of agricultural production, especially modern water-saving agro-technologies, the use of high-yield agricultural machinery [2].

Irrigation affects not only the irrigated crop areas, but also the adjacent areas, large water intake facilities, reservoirs, places where canals are located. In addition to the benefits of expanding irrigated areas, it poses problems that increase in intensity with the development of this activity. The negative effects of irrigation (salinization and swamping of lands, deterioration of water quality, etc.) have also been observed in the recent years. But these consequences were typical in the region.

The requirements of rational use of natural resources and environmental protection are not always followed in the adoption of technical and technological solutions in irrigation practice[7].

At present, the Aral Sea problem remains a major environmental problem that cannot be solved within a single country. Excessive unauthorized use of water (primarily for irrigation) has led to a sharp decline in freshwater resources in the Amudarya and Syrdarya basins. Now the Aral Sea area can easily be called as an ecological zone [8].

Poor irrigation (imperfect design of systems, their poor quality, inefficient use of irrigation water) is one of the main reasons for the violation of the ecological balance in developed areas, especially in the Aral Sea and around the Aral Sea.

Not enough attention is paid to “disposing” of drainage and sewage from irrigation and saline washing. So far, the practice of discharging such polluted and brackish water into rivers continues. This leads to a deterioration of water quality in the lower zones. Pollution of the Amudarya and Syrdarya rivers also leads to diseases in the population of the Aral Sea region. Many “unnecessary lakes” (such as Sarikamish, Arnasay) have formed as a result of the accumulation of collector-drainage water in the lowlands of the Aral Sea basin.

To save the Aral Sea, it needs at least 35 km³ of water per year. Due to the reconstruction of irrigation systems, the reconstruction of old irrigation networks, 8-9 km³ per year, up to 10 km³ of additional collector-drainage water can be pumped into the Aral Sea through the construction of a main collector on both sides of the Amudarya. However, the salinity concentration of these waters is 2-2.5 times higher than that of the Aral Sea and is much more toxic. In addition, almost thousands of kilometers have to be passed for the collector-drainage water to reach the Aral Sea. Even when this project is implemented, the Aral Sea will never receive this water. This water is absorbes and evaporates in the deserts and disappears.

One of the important problems in increasing the efficiency of irrigated agriculture is the creation of socio-economic, scientific-technical and organizational-economic conditions for the application of technologies that save irrigation resources and protect nature. One such condition is the application of improved methods in the practice of selecting an irrigation project. These projects provide an economic assessment of the quality of nature protection, as well as a quantitative assessment of it.

During the years of independence, significant work has been done in our country for the efficient use of land and water resources and nature protection:

- The process of liquidation of state and corporate forms of management in agriculture has been completely abolished;

- The country has moved from the administrative-territorial management of water resources to the basin management.

The Republic of Uzbekistan has adopted a number of legal and regulatory documents on the use of land and water resources and ecology: in May 1993 on "Water and Water Use", in December 1992 on "Nature Protection", in April 1998 "Land Code" In December 2013, laws such as the Law on Environmental Control were adopted.

President of the Republic of Uzbekistan dated 17.06.2019 "On measures to effectively use land and water resources in agriculture", 29.08.2017 "On measures to improve the protection of water objects" and 27.11.2017 "On the development of irrigation and reclamation of irrigated lands" These issues are considered in detail in the Resolutions of the President of the Republic of Uzbekistan and a number of government resolutions "On the State Program to improve the situation" [21].

In my opinion, the unfavorable socio-economic and environmental environment in the Aral Sea and around the Aral Sea, especially in the Republic of Karakalpakstan, Khorezm region, is not only due to the above reasons, but also due to imperfect norms and laws governing the rights and obligations of water users. The Law of the Republic of Uzbekistan on "Water and Water Use" stipulates the functions of water use, coordination of water relations, protection of water pollution, prevention and protection from harmful effects of water, improvement of water objects, as well as protection of the rights of enterprises, organizations, institutions and citizens issues are cited [1].

Granting the legal rights to use water to large water objects (along with enterprises, organizations, institutions, etc.) abolishes the rule of water distribution to them on the basis of the "remainder principle", which has lived a lifetime.

At present, water is supplied to natural water objects in our country after meeting the water needs of crops, agricultural water supply, industrial production, drinking water and other entities [11] (Figure 1). Legal issues of water use related to irrigated lands are covered in the works of many scientists: M. Ataev [3], OS Kolbasov [5], NB Storojev [9], SG Strumilin [10], Y.P.Balcheski [4], M.M.Shedova [4].

Paying special attention to the legal relations of water consumers, M. Ataev said: “The population, industry and agriculture, influencing the hydrogeological regime of nature and its natural state, receive large amounts of water for their consumption every day from water objects that form a single water fund.

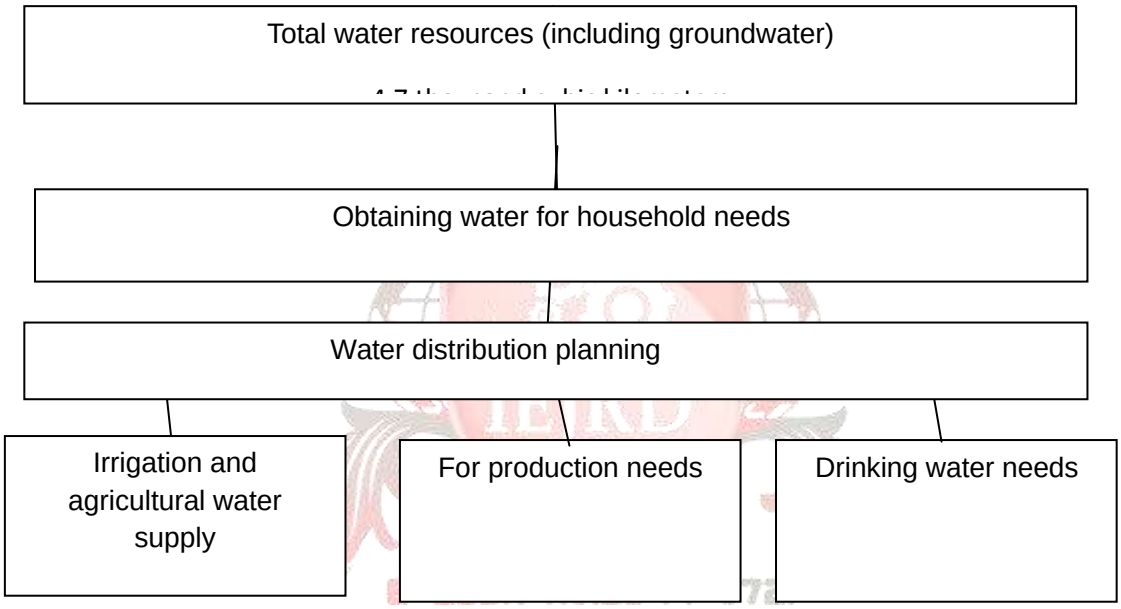

Figure 1. Water distribution planning.

For example, as a result of large-scale water abstraction from the Amudarya and Syrdarya rivers by water users, its level has sharply decreased in recent years due to a decrease in the volume of water flowing into the Aral Sea. This negatively affected the natural conditions of the Aral Sea region.

Along with the recent increase in water consumption in the region, the amount of wastewater added to natural water sources has also increased significantly.

Currently, the distribution of water on the basis of the "reminder principle" does not ensure the guaranteed flow of river water to the Aral Sea and the surrounding Amudarya, Syrdarya deltas.

Commenting on the mutual rights and obligations of water consumers, O.S. Kolbasov noted that due to the needs of the economy, various sectors and the population, many water users are interested in using one object - the sea, lake, reservoir, canal and other water sources. In many cases, utilities, industry, agriculture, energy, fisheries, transportation, etc. use a single water body for their own needs at the same time. In such cases, if the mutual rights and obligations of different categories of water users are not resolved fairly and clearly, conflicts may arise between them [5].

The growth of water consumption on the one hand, and the deterioration of water quality on the other, require the creation of legislative norms of water use that legally coordinate the attitude of consumers to water resources.

Granting access to water to large water sources will radically change the current and future water distribution planning practices. In this case, large water bodies (in our case, the Aral Sea) should have equal access to water in agriculture, industry, utilities, domestic water supply and other entities (Figure 2).

The volume of water flowing into large water bodies should be planned according to the principle of maintaining water quality on the basis of the balance between the flow and evaporation and filtration.

Maintaining water quality plays an important role in the development of fisheries in water bodies.

In addition, the water distribution works should take into account the recreational nature of the water body, its role and importance in water transport.

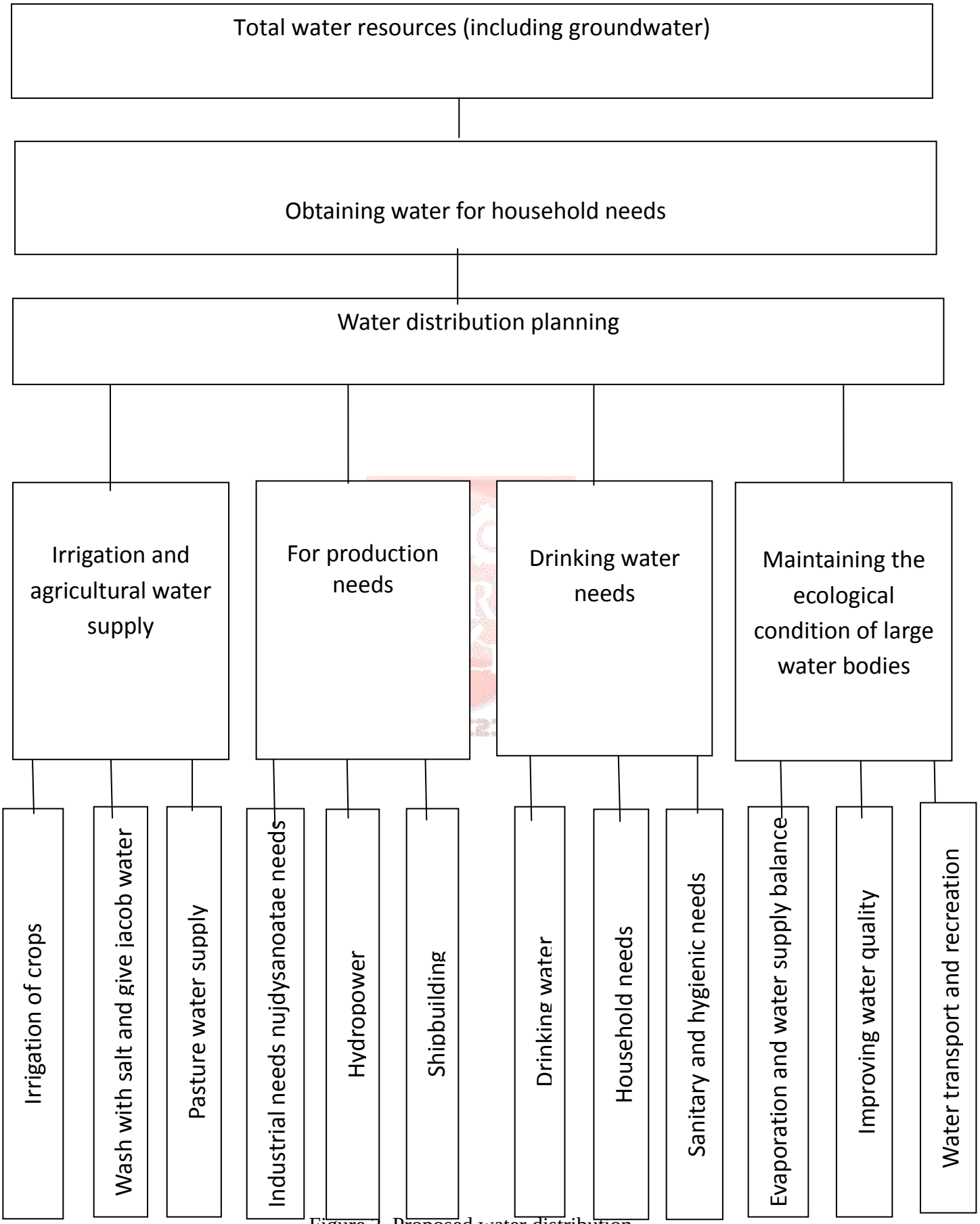

Figure 2. Proposed water distribution

In some cases, the negative consequences of the widespread development of irrigation are associated with the type of economic activity carried out, rather than with the mistakes made in decision-making in land reclamation technologies. It should not be wrongly concluded that the widespread development of irrigation is incompatible with environmental protection. Proper irrigation plays an important role in the positive impact of agricultural production on nature.

According to the information above, the following conclusion can be drawn.

1. Irrigation should be viewed as a comprehensive measure aimed at the conservation of ecological balance, the careful use of land and water resources in order to provide the population with agricultural products for the benefit of present and future generations;
2. Currently, the planning of water distribution to large water bodies is based on the "reminder principle". Accordingly, water is flowing into the Aral Sea after meeting the water needs of other water consumers;
3. Due to the sharp deterioration of the ecological environment in areas where irrigation is widely developed, the importance (urgency) of rational use of land and water resources and environmental protection is growing. In addition to technical, technological and organizational measures to solve this problem, the legislation that provides the right of large water bodies to use water (in order to provide water in the specified volume and quality) on an equal basis with other water consumers (agricultural, industrial, domestic and drinking water supply), also plays an important role.

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