



ACTUAL PROBLEMS OF JOINT MANAGEMENT OF WATER RESOURCES IN CENTRAL ASIA AND PROSPECTS FOR THEIR SOLUTION

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Received: 20 th February 2023 Accepted: 20 th March 2023 Published: 26 th April 2023	Water resources play a crucial role in ensuring sustainable development. Without them, the already range of services that are provided on their basis will not be possible to reduce poverty and carry out the social transformations demanded by society
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The water crisis is one of the global problems of mankind. This is largely due to unsustainable water management at the local, national and international levels. The complexity of such governance lies in the fact that it requires the participation of different stakeholders with divergent interests and competencies. Regulation of water use—is a key characteristic of safe water supply, which means that everyone has access to sufficient quantities of quality water at a reasonable price to lead a clean, healthy and fulfilling life, while protecting and reproducing the environment. The report proposes possible ways to comprehensively address this problem in the Central Asian region.

The UN outcome document "Transforming Our World: The 2030 Agenda for Sustainable Development" calls clean and accessible water resources the key to sustainable peace. For more than 40 percent of the world's population, water scarcity is now urgent and is projected to worsen. Currently, more than 1.7 billion people live in river basins, where water consumption exceeds the capacity to replenish water reserves [1]. The drama of the situation is exacerbated by the coronavirus pandemic and the ensuing global economic crisis, exacerbated against the backdrop of the military conflict in Ukraine. First of all, the consequences of the lack of fresh water are affected by countries with a low level of economy, living at the expense of agriculture.

Water resources play a crucial role in ensuring sustainable development. Without them, the already range of services that are provided on their basis will not be possible to reduce poverty and carry out the social transformations demanded by society. The availability of water resources affects not only the economic, but also the political development of countries. The degree of their availability becomes a serious security factor. Today, water is a more important strategic resource than oil and gas. Already, a ton of clean water in the arid climate of the Arab East is more expensive than oil [2]. That is why in the middle of the XX century. Water

issues were raised by far-sighted politicians at the international level, and the availability of water resources was put at the forefront of national security issues.

Due to its natural features and geographical location, Central Asia (CA) is one of the largest regions - owners of water resources. However, experts predict their deficit over the next decades. This is due to the increase in water consumption and the consequences of global climate change. Central Asia is a conglomerate of states with high population growth rates and a critical level of poverty. Territorially, Central Asia occupies 10% of the total Asian area. This is almost 4.5 million square kilometers. It consists of five sovereign states: Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan. Basically, the water resources of the region are used in agriculture, mainly for irrigation (80-90%). The area of irrigated land in the region is 7,695 thousand hectares. , but due to the low efficiency of most water management systems, there are huge irretrievable water losses. Once full-flowing and rich in biological resources, the Aral Sea has become the epicenter of a grandiose environmental disaster. In the center of the belt of the great deserts of Kyzylkum and Karakum, a new desert "Aralkum" was formed—, which is a continuous salt marsh consisting of marine sediments, coupled with deposits of mineral fertilizers and pesticides, washed out of irrigated lands. We are witnessing the process of desertification and degradation of the Aral Sea ecosystem, which also has global consequences. The former seabed has turned into an "anthropogenic volcano", emitting huge masses of salts and fine dust into the atmosphere. The effect of pollution is enhanced by the fact that the Aral Sea is located in the zone of passage of powerful air currents going from west to east. This contributes to the removal of salts and dust into the high layers of the atmosphere and their rapid spread over the vast Territory. The presence of toxic chemical compounds from the Aral

region is regularly recorded in areas located at a distance of many thousands of kilometers from it. In Central Asia, discussions about the value of water have long been commonplace. In state slogans and popular maxims, water is metaphorically equated with gold. Journalists, politicians and –environmental activists are all calling on society to value water. All the more paradoxical is the contradiction between the belief shared by all sectors of society about the super-value of water and how little is being done to support it with practical action status. And the reason for this lies not only in the economic sphere, but rather in the political sphere, when the leaders of neighboring states do not have sufficient political will to jointly address issues of fair and rational water use in the interests of the region as a whole, and not individual countries. However, the development of events will inevitably lead to the understanding that alone they will solve their water problems And it's impossible. We need joint carefully coordinated work, scrupulous consideration of the needs and capabilities of each country, and a willingness to compromise to achieve a common goal. Given the urgency and significance of water issues, it is necessary to involve the general public in this work, – from the expert community and the intellectual elite to the rank and file and citizens. Sustainable use and

republics, combining electricity generation and the development of the agricultural sector of the economy. In this case, the evaluation criterion was the maximum *overall* benefit . The transition to a market economy, with a reduction in investment, the forced change in the mode of operation of large reservoirs (transfer from irrigation to energy) - all this pushed the countries of the region to unilateral actions for their own benefit. Increasing the production of hydropower by the upstream countries (Kyrgyzstan, Tajikistan) was contrary to the interests of the downstream countries (Uzbekistan, Kazakhstan, Turkmenistan), whose irrigation policy required a different approach to the use of water resources. Such inconsistencies and divergences of interests have exacerbated relations between individual Central Asian countries and had a negative impact on interstate relations in the region. That is why today it is so important to solve problems effective management of water resources, due to which the region annually loses up to 3% of GDP [3]. After gaining independence, the Central Asian countries were able to dispose of the water resources of transboundary rivers at their discretion. At the same time, in relations with each other, they initially tried to take advantage of the experience that was accumulated during the Soviet period. However, the difference in



conservation of water resources should become a clear necessity and goal for the entire 80 million population of Central Asian countries, and the call for *cooperation for survival* should be firmly on the current agenda. Most of the water used in the region is taken from the two main rivers - the Syr Darya and the Amu Darya, which are formed in the Tien Shan and Pamir mountains. In the USSR, the regulation of river flow of transboundary rivers was aimed at the balanced economic development of all five Central Asian

national interests led to non-compliance with the agreements in force within the framework of the USSR on the exchange of water and energy resources. Tajikistan and Kyrgyzstan, located in the upper reaches of the two main rivers of the region, preferred to maximize the use of water resources to generate electricity for their own needs and for export, especially in winter. The filling of reservoirs to meet the winter peak electricity demand took place during the growing season. But from the – downstream countries – ,

Kazakhstan, Uzbekistan and Turkmenistan were, on the contrary, vitally interested in maximum access to water in the summer months for irrigation. They were also concerned about winter floods, which caused us to

discharge water from reservoirs in neighboring countries during the period of maximum electricity generation.

SHARED WATER RESOURCES OF CENTRAL ASIA *Figure 1*

The first symptoms of conflict appeared in 1993, when Uzbekistan left Kyrgyzstan without gas for debts. In response, Bishkek discharged from the Toktogul reservoir. The authorities explained their actions by a sharp increase in electricity consumption due to the actions of Tashkent. As a result, the work of the Toktogul cascade was changed. Water began to accumulate in the summer, and in the winter it began to be thrown. Tajikistan has taken similar steps. As a result, the countries of the lower reaches in the summer, during the period of the greatest demand for water, began to experience its shortage, and in winter they faced flooding and flooding of water management facilities.

The upstream countries have great prospects for the development of their own hydropower. According to the latest estimates of the Eurasian Development Bank (EDB), the hydropower potential of Kyrgyzstan and Tajikistan is used by no more than 10% [4]. At the same time, agriculture, which is actively developing in the downstream countries, faces serious difficulties with decreasing water resources and an increasing population. For the rest of the century, diametrically opposite processes have been taking place in the countries of the upper and lower reaches of transboundary rivers. While downstream countries are developing programs to reduce water scarcity, upstream countries are working on large-scale plans for the construction of new large hydroelectric power plants, due to which it is supposed to solve their economic problems.

Despite the existing agreements and initiatives of the governments of the Central Asian region to create various interstate institutions for the management, accounting and distribution of water resources, these organizations are not able to really resolve recurring conflicts. Meanwhile, "as a result of global climate change over the past 50-60 years, the area of glaciers in Central Asia has decreased by about 30%. According to calculations, by 2050 it is expected to reduce water resources in the Syr Darya basin - up to 5%, in the Amu Darya basin - up to 15%. By 2050, the shortage of fresh water in the Central Asian region could lead to an 11% drop in GDP" [5]. Therefore, the prospects become real when, against the background of accelerated demographic growth, the total volume of water consumption by priority sectors can reach a level where their water demand can be met only by reducing water supply for agricultural needs. And this, in turn, will lead to the need to reduce irrigated areas and, accordingly, reduce employment.

The situation with water resources in Central Asia is fraught with significant conflict potential. The problem of access to water resources of transboundary

rivers has become a source of periodic friction between the countries of the region. No less acute is the problem of water quality. In all major rivers of the Aral Sea basin, it is polluted by domestic and industrial effluents. This leads to the degradation of the natural environment and poses a threat to public health.

Despite the divergence of interests, the Central Asian countries are trying to resolve differences on the distribution and sharing of water resources. However, the adopted documents are not comprehensive, taking into account the interests of both individual countries and the well-being of the region as a whole. In fact, there is a permanent, hidden from the public conflict of national development programs of all Central Asian states. The reasons for this should be sought, including in the legislative sphere. In all Central Asian countries, water is clearly positioned as a resource owned by the state, which regulates its use at its discretion. This approach was particularly evident in the upstream countries, which from the very beginning and contrary to international practice began to defend the position of sole ownership of water resources. As a result, countries are divided into those who are interested in the energy regime of the reservoirs, and those who are in favor of the irrigation regime.

The lack of effective mechanisms for water *fission* and conflict management, insufficient information interaction are serious obstacles to regional cooperation in the field of water resources use. From the countries of the region, they are trying to share *the benefits* of access to water, rather than the water itself, which leads to the complication of the joint use of transboundary rivers.

In order for water, which once historically united the peoples of Central Asia, not to become an instrument for solving opportunistic political problems, 100% coordination of actions on water and other natural resources, sharing responsibility between all parties is needed. The heads of state of Central Asia face a very difficult but solvable task. For this, it is necessary to create a unified legal and economic mechanism for the use of water resources. Most likely, in the near future, this need may become inevitable. And you need to prepare for it ahead of time. The author's vision of the horizon of the possible development of events is illustrated by the following conclusions.

First. The states of the region (under appropriate conditions, including Afghanistan, which consumes the waters of the Amu Darya for irrigation), on the basis of world historical experience and taking into account modern realities, should sign and ratify in their parliaments a comprehensive "Convention on the Sharing of Single Resources" Central Asia" with a clear

statement of the principles and rules of water allocation, i.e. the rules of *water allocation*. limiting water consumption. And due to the vital importance of the water problem for all Central Asian countries, the Convention must be given constitutional status. The share (limit) of each state should be determined by the number of its population and the country's contribution to the formation of common water resources. Without the adoption of such a Convention, it is impossible to alleviate the severity of the water problem in the long term, because the absence of a fundamental and binding normative legal act that has the force of law will inevitably lead to the use of limited water resources on "an ad hoc basis in the future". And this is likely to give impetus to more violence.

Second. For an impartial and objective resolution of possible conflicts and disputes, the parties agree on the basis of consensus to choose any of the existing supranational courts (for example, the International Court of Justice or the CIS Economic Court) as the supreme arbitrator. The Convention should enshrine the obligation of the parties to strictly comply with the arbitrator's decisions.

Third. The basic framework governing the use of water both within each country and jointly with neighboring countries should be as unified as possible and interpreted by the countries of the region in a single way, without discrepancies.

Fourth. Promotion of regional agricultural specialization and cooperation, which involves the rational, scientifically based use of each individual territory and within the Central Asian region, taking into account its characteristics and development prospects agricultural sector. Such cooperation should be based on market mechanisms and the principle of mutual benefit. This will open up the possibility of a significant reduction in regional water supply due to its greater balance.

Pyatoe. To establish the Central Asian Bank for the Development of Water Infrastructure. Its main task should be to finance the repair and operation of the unified water system of the region. In the future, the Bank's funds can be replenished on an ongoing basis through the phased introduction by the Central Asian states of fees for the use of irrigation systems at mutually agreed tariffs.

Shestoe. Introduction of market mechanisms for *water allocation* through the creation of the Water Bank of the Central Asian region. Each of the countries – participating in the Convention should have its share in the total water resources and the ability to sell the unused part of its water share at a fixed tariff to each other party to the Convention, similar to the carbon dioxide emission quotas under the Kyoto Protocol.–

And finally, *the seventh.* In society, it is necessary to form a morality and behavioral model of *water ethics* based on the best traditions and common values of the peoples of Central Asia. People need to be sure that water resources are used for the common good, and not for the selfish interests of

individual groups and categories of the population. Water is a public resource and belongs to everyone.

A key role in the organization of preparatory work prior to the signing of the Convention should belong to international organizations such as the UN, the SCO, and the CIS; financial institutions represented by the World Bank, the Asian Development Bank, the Islamic Development Bank; – authoritative expert organizations in the field of international water law. This will not only attract the necessary intellectual and financial resources, but also provide powerful information support that allows the world community to fully monitor all the vicissitudes of the ongoing processes.

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