

National water policy of Tajikistan in the context of sustainable development

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Abstract. This article discusses the main problems and trends in the formation of a national water policy during the period of state independence, highlights the features and key directions for optimizing national and regional water use, gives a brief description of the main parameters of the national water policy, characterizes global water initiatives, clarifies the main tasks and priorities for their implementation, the need to develop a global long-term comprehensive plan for managing the water crisis and its strategic directions is noted, the need for a transition to a sustainable water use model that allows maximum consideration of the economic, social and environmental aspects of sustainable development of individual countries and the region as a whole is substantiated, the importance of coordinating the parameters of national water policy with the tasks and the priorities of global water initiatives, the most profitable areas for optimizing water use in agricultural sectors have been identified, energy, water and sanitation, ecosystem services, melting glaciers, and the interdependence of water and sustainable development.

1 Introduction

The transition to a sustainable development model implies the need to optimize the use of natural, primarily water resources, both at the national and regional and global levels in order to ensure stable socio-economic development of the country, improve the standard of living of the population and preserve natural ecosystems. The solution of this problem is largely associated with the formation of a national model of water use in close coordination with the mechanisms of international cooperation in the field of use and management of water resources. In recent decades, water initiatives have also become important, which are of global importance in terms of the availability and preservation of aquatic ecosystems, access to water resources, primarily clean water, poverty reduction, adaptation to climate change, etc.

In modern conditions, water resources are considered as renewable resources and the process of their restoration is highly dependent on natural conditions. Unfortunately, in recent years, due to climate change on the planet and in the region and the increase in water consumption, serious problems have arisen related to the use and protection of water

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resources. Over the past decade, climate change and degradation of the planet's ecosystems have begun to have a significant negative impact on the state of water resources in individual countries and the world as a whole, which is reflected in the growing shortage of clean water, melting glaciers, premature rains, floods, drought, etc. Meanwhile, under current conditions "... the solution of the problems of sustainable development of the countries of the world is closely connected with the prospects for the conservation and improvement of ecosystems (water, mountain, agricultural, etc.) as sources of the formation of water, energy and other resources in the region and the conditions for the formation and development of the ecosystem services market." [1].

An analysis of regional and global development shows that the preservation of a nature-intensive (water-intensive) model of economic development in modern conditions is closely related to the extremely low efficiency of state water policy, when the quality and availability of water resources and, especially, the ability to derive social and economic benefits from them, are often under threat. The recent increase in the rate of demand for fresh water and the imbalance in the availability and consumption of water can further exacerbate the problem of water scarcity, degradation of aquatic ecosystems, and an increase in poverty in various countries and regions of the world.

Global water demand is known to be affected, *inter alia*, by population growth, urbanization and food and energy security policies, as well as economic developments such as the globalization of trade, changing dietary habits and increased consumption. By 2050, global demand for water is expected to grow by 55%, mainly due to industrial production, thermal energy production and domestic demand. Growing demand and competition in the water sector from various water users and sectors of the economy may continue to lead to certain difficulties in making decisions on the allocation of water resources. Sectors critical to sustainable development, such as food and energy production, will be particularly affected by such restrictions. Competition for water between different water users and users increases the risk of local conflicts, exacerbates existing inequalities in access to services, and thus has a serious impact on the economy and human well-being.

2 Materials and methods

The concept of the study is based on the objective need to develop methodological approaches to assessing water use in various territories and reducing natural water levels, using rational water use, melting glaciers and their impact on natural ecosystems based on the calculation of environmental and economic efficiency. As part of the process of developing this article, an analysis of sectorial articles was carried out, and the process of implementing water reform was considered. Also, an analysis was made of the contribution of RRT to the process of protecting and preventing climate change and environmental warming and protecting the population from water.

3 Results

Tajikistan has developed and is consistently implementing the "Concept for the rational use and protection of water resources" (2001), "The concept of the transition of the Republic of Tajikistan to sustainable development", (2007), "National Development Strategy of the Republic of Tajikistan for the period up to 2030 (2016), "Program for the reform of the water sector of the Republic of Tajikistan for the period 2016-2025". (2015), dozens of investment projects are being implemented to manage water resources in various river basins of the country, etc. Thus, within the framework of the "Program for the reform of the water sector of the Republic of Tajikistan for the period 2016-2025". In order to restore infrastructure in

the field of water supply and sanitation, 12 projects are currently being implemented in the country with a total cost of 232 million US dollars, and in the field of melioration and irrigation, taking into account bank protection works - 5 projects totaling about 149 million US dollars USA [2], etc.

As part of the reform of the water sector in the Republic of Tajikistan, a fairly developed institutional mechanism for managing water resources is being formed. Thus, the National Water Council is a consultative and advisory body under the Government of the Republic of Tajikistan with a wide range of powers to coordinate, agree and evaluate the parameters of the use and protection of water resources.

River basin organizations, being structural subdivisions of the Ministry of Energy and Water Resources of the Republic of Tajikistan, are responsible for the organization of IWRM, planning and monitoring the use and protection of water bodies, as well as the implementation of basin plans for the management of water resources in basin zones. Thus, in the structure of the Ministry of Energy and Water Resources of the Republic of Tajikistan, there are 5 basin organizations in the form of the Departments of Water Resources of Basin Zones (Syr Darya, Zeravshan, Pyanj, Vakhsh and Kafirnigan).

Equally important is the creation of river basin councils, designed to promote the effective management of water resources and coordinate the activities of all participants in the water sector within the basin zones as consultative and advisory bodies by developing recommendations for determining water quality indicators, formation of water management measures, determination of limits for water intake and wastewater discharge, ensuring the safety of water management systems, targets for reducing the negative effects of floods, etc., as well as financing water management measures from various sources, etc.

The formation of a full-fledged national water legislation continues in the Republic of Tajikistan. Thus, in the country, taking into account the goals of water reform and foreign experience, the Water Code of the Republic of Tajikistan (as amended on April 2, 2020), the Law of the Republic of Tajikistan “On drinking water supply and sanitation” (dated July 19, 2019) and Law of the Republic of Tajikistan “On Water Users Association” (dated January 2, 2020), etc. It is planned to develop and adopt the Law of the Republic of Tajikistan “On Melioration and Irrigation”, the Environmental Code of the Republic of Tajikistan, etc.

Thus, in the Republic of Tajikistan and other countries of the region, an active process of formation and development of parameters of the national water policy that meets the tasks and priorities of their sustainable environmental and economic development continues. At the same time, the countries of the region are also gradually coming to the realization and understanding of the need for a more rational, optimal and efficient use and protection of water resources and the development of a reliable mechanism for the joint use and management of water (and energy) resources in the region. The priorities and benefits of development, primarily hydropower, taking into account the construction of reservoirs in the mountainous part for water accumulation and irrigated agriculture in the valley part, are now recognized by almost all countries of the region. Moreover, the policy of building medium and large hydroelectric power plants in the mountainous part is always beneficial to all countries in the region from the environmental, economic and other points of view, taking into account the growth of threats and challenges common to the region.

Considering all these problems both at the regional level and on the scale of the entire planet, the Founder of Peace and National Unity - Leader of the Nation, President of the Republic of Tajikistan Emomali Rahmon warned the world community from the high rostrum of the UN and other international organizations about the impending danger of reducing the supply of clean drinking water against the background of population growth and rising temperatures on the planet. For a long time, both in Central Asia and in other regions (countries) of the world, environmental problems were not considered as key ones. Unfortunately, climate change, ecosystem degradation, melting glaciers and the spread of

harmful gases into the atmosphere have been far from the attention of governments, international organizations, politicians, specialists, etc.

It should be noted that in the context of the implementation of the concept of sustainable water use, the issues of poverty reduction and ensuring social justice are of great importance. Thus, access of households to water supply is extremely important for the health of the family and their decent life. At the same time, access to water for food production in all forms of farming is critical to livelihoods, income growth and economic efficiency. Investing in improved water resources management should be combined with the task of alleviating poverty and stabilizing the pace of environmental and economic development. If the actions taken now and in the future in the water sector are focused on the problems of poor people, then improving water supply and sanitation can lead to significant positive changes for billions of people, such as improved health, reduced health care costs and increased productivity, etc. [3]:

- “International Year for the Protection of Glaciers” - a special resolution of the 77th session of the UN General Assembly of December 14, 2022. The need to proclaim this global initiative back in 2009 was twice announced by the President of the Republic of Tajikistan in Geneva - at the 3rd Global Environment Forum (August 31 - September 4) and in Copenhagen - at the 15th Conference of Supporters of the UN Framework Convention on climate change (December 7-8).

The most important points of this resolution are the following:

- 2025 is declared the International Year for the Protection of Glaciers;
- starting from 2025 and thereafter, the date of March 21 will be annually celebrated as the World Day for the Preservation of Glaciers;
- a trust fund for the protection of glaciers is being created in the UN structure;
- in 2025, a high-level international conference on the protection of glaciers will be held in Dushanbe.

It should be noted that in recent decades, against the background of the aggravation of the water problem, the problem of glacier melting as the main source of water resources formation in many countries and regions of the world has been widely discussed. Thus, according to expert estimates, the glaciers of Central Asia, which are the main source of water for the rivers of the region, lose on average 0.6-0.8% of their area of glaciation and 0.1% of their volume per year. The current situation requires the adoption of urgent and comprehensive measures for their conservation, adaptation to climate change and the formation of a mechanism for sustainable management of water resources in the region. An integrated and coordinated approach to solving the problems of melting glaciers and climate change in the region requires the implementation of coordinated measures by all countries of the region based on the mechanism of constructive regional environmental and economic cooperation, taking into account the interests of the participating countries. At the same time, the problems of improving the institutional and legal base of interstate water and energy integration and a significant increase in investment in regional water and other infrastructure are of great importance.

4 Discussion

It should be noted that the melting of glaciers over the past decades has become a very serious problem for Tajikistan and, of course, has an extremely negative impact on the pace and prospects for the socio-economic development of the country and the region as a whole. As the President of the Republic of Tajikistan noted, “In connection with climate change, an unprecedented increase in the average temperature on planet Earth and its negative consequences for human life, flora and fauna and glaciers of the country, our scientists must

establish study, research and monitoring in these areas, together with scientists of the region and the world to develop and implement methods of adaptation to climate change” [3, p. 10].

It is also important to take into account that in the context of climate change and more frequent cases of extreme natural phenomena, many countries of the world, international organizations, scientists, etc. recognize the need to develop a global long-term comprehensive plan for managing the water crisis, taking into account the following strategic positions:

- reduced demand for water;
- increase in water supply;
- improving water quality;
- flood control;
- monitoring of water resources;
- improvement of water pumping methods, etc.

It is important to take into account that the global water initiatives of the President of the Republic of Tajikistan were proposed during the period of accumulation and serious aggravation of environmental problems, a significant deterioration in the environmental and economic situation in the regions and in the world as a whole. At the same time, the main goal of their proclamation is the need to attract the attention of all mankind, leading politicians, scientists, specialists, international organizations and ordinary people to address water issues and, on the other hand, it is important to ensure that the distribution of water is as fair as possible.

It is clear that through the implementation of these unique initiatives, water and all related and dependent resources will be used more efficiently and rationally for the benefit of people and the integrity of ecosystems. Sufficient safe water will be available to meet the basic needs of every person. Healthy lifestyles will be supported through reliable and affordable water supply and sanitation, which in turn will be supported by equitably and efficiently managed infrastructure. Water resource management and the necessary infrastructure and services will be securely and sustainably financed with a long-term perspective. Water should be valued in all its forms, and wastewater in particular should be seen as a resource that provides energy, nutrients and fresh water for reuse. Human settlements will be developed in accordance with the principle of harmony with the natural water cycle and ecosystems. Serious work is underway to reduce vulnerability to water-related disasters and, accordingly, increase the resilience of ecosystems. An integrated approach to the management and use of water resources will become the norm not only for specific people, but for all sectors of the economy. Water will be distributed based on the principle of equal participation within a fair and transparent institutional structure with equal participation of the potential of women and men, both professionals and citizens, as well as competent organizations [4, 5, 6, 7].

5 Conclusion

The analysis shows that, despite the presence of a number of difficulties in some countries in implementing reforms in the water sector, in a number of other countries great progress has been made in the implementation of integrated water resources management through, for example, decentralization of management and the creation of river basin organizations. Despite the obvious orientation of the measures taken in the direction of increasing the economic efficiency of agricultural production (water use), it is also important to focus on issues of social justice and environmental sustainability of the use of water resources, taking into account the recognition of the social, administrative and environmental responsibility of water users and management bodies.

Thus, the formation of a new national water policy in combination with global water and climate initiatives should contribute to the implementation of the Sustainable Development Goals related to water, create the necessary conditions for ensuring stable socio-economic and environmental progress of countries, regions and the world as a whole, improving the well-being of the population, overcoming water scarcity and preserving water and other ecosystems.

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