

Conclusions



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Abstract Water management remains one of key issues in Central Asia. The second volume on Water Resources in Central Asia addresses this issue and studies in-depth the legal regulations in water management that have been the basis for the regional countries after breakup of the single system of management that existed in the Soviet Union. The current approaches of the Central Asian countries to potential mechanisms of water management in the future are investigated. Regardless of introduction of the new paradigm of integrated water management, it is impossible so far to speak about its efficiency, and this is due to tough positions of the regional countries in the water-energy sphere and non-readiness to take into account the interests of their neighbors.

Keywords Central Asia, Conflicts, Management, Water resources

1 Introduction

The issue of water management has come to the fore due to nearly complete development of water resources in many world countries. This is true, at least, of the easily accessible water resources, and in the foreseeable future, no alternative ways for obtaining water resources are visible, more precisely, the economically validated ways. At the same time, the requirements in water are growing with every passing year. According to experts from the regional countries, the modern tendencies of climate changes and their effect on water resources, the growing water needs in view of the growing population and economic development, the economic and financial difficulties impeding implementation of projects, the regional threats, and other challenges aggravate still more the situation with water management in the Central Asian countries [1].

The persisting water deficit increases the probability of water conflicts enhancing at the same time their likelihood. Water similar to hydrocarbons is the basis of national security of each state because power generation by thermal, nuclear, and hydraulic plants depends on water. According to Zonn et al. [2], the conflicts in water resources management occur mostly not due to uneven distribution and absolute deficit of water, but due to endeavors of individual states possessing these resources to establish the absolute national sovereignty over them. Not only oil and natural gas but also water becomes the serious factor of interstate relations, the mechanism of influence. In the future the significance of this factor will only grow.

After disintegration of the USSR, the Central Asian countries faced for the first time the need to manage their sovereign power networks and national water economy. The matter is that the economy of this region was built-in and developed on the basis of the unified energy system of the Soviet Union and the “water quotas” policy of Moscow. After becoming independent the Central Asian countries broke up into two groups: hydrocarbon abundant (Kazakhstan, Uzbekistan and Turkmenistan) and

water-abundant (Kyrgyzstan and Tajikistan) states. The management system, in particular in the first years of their development, was based on approaches used in the times of the Soviet Union.

The economic growth in the Central Asian states will require more water and energy. With the demographic growth and inflow of the agricultural population into cities and also in view of continuing climate changes, the water demand will be spurred, i.e., any development of the region will entail aggravation of the water-energy problem.

Active use of water in industry, agriculture, as well as in the housing and utilities sector will gradually deplete the world resources and make the countries dependent on water resources. This, first of all, refers to the developed and developing countries. According to UN estimates, by 2025, the world community will need 22% more water than in the recent years [3]. In water-based industries, the production growth may be held up.

In this context the interest to water resources management is growing. In the recent decades, considerable experience was amassed in this area. However, the absence of explicit legal norms and the conflict of interests prevent to implement in full the models of water resources management.

2 Central Asia

In 1998 Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan signed the framework agreement on joint use of water and energy resources of the Syr Darya River basin. It envisaged regulation of exchange of energy resources in the autumn-winter and spring-summer seasons and compensational measures. However, this agreement is not working, primarily, due to unpreparedness of some regional countries to adjust their national legislations to the water-energy realities that have been established in Central Asia in the recent decades.

For water-abundant countries, the issue of water sharing with neighbor states acquires the political dimensions, and this is demonstrated by the present-day relationships among the Central Asian countries. Some countries possessing sufficient water resources treat water as a commodity requiring pay for its use from their neighbors.

The uneven distribution of water resources in the Central Asian countries brings to the fore the need of more in-depth interaction in the water sector and introduction of the adequate system of water management. In the face of the sharply growing demographic, social, and economic pressure on natural resources, the issue of joint use and protection of water resources has become more complicated. The countries of the region make attempts to find the mutually acceptable ways of water management, but so far they have been not very successful as there are no effective mechanisms that are capable to regulate the relationships among the states in water management.

The Central Asian countries have tried more than once to develop the legal norms regulating the water management. As it is stressed in Zhiltsov et al. [4], such steps were taken at the national and regional levels, but the prepared documents are mostly declarative and do not address all difficulties of relationships among the regional countries and do not give appropriate considerations to water use issues.

The lack of effective mechanism of water sharing, water use management and settlement of conflicts, the poor exchange of information on water quality, and its use are the main obstacles for regional cooperation in water use. Moreover, the littoral states are trying to divide the benefits from the access to water rather than the water proper which aggravates the joint use of transboundary water.

The countries consider the possibilities to improve transboundary water management by applying the norms of international law. But so far each country of this region continues developing its own strategy of water use which boosts up the rivalry in Central Asia.

The policy of the Central Asian countries is based on the centralized approach of governmental bodies to water management which reflects not only the established system of state administration but also the importance of water resources for economic development of these countries.

The water management on the national level is determined by the state of the social, economic, and ecological areas. The legislation reflects the problem of water deficit that is growing with every passing year. For this very reason, the growing concern is witnessed with respect to the legal aspects of water management.

3 Russia and Central Asia

Obviously the experience of the Soviet Union in water management may be applied, but only partially. It should be adapted to the realities of modern development of Central Asia. Well-known Soviet expert in water management S.L. Vendrov, considering the reconstruction of rivers in the USSR, noted that “in the future the use of the northern rivers’ flow remote from the places of consumption will be required, but we think that the urgent need to do this will appear . . . mostly in the 21st century” [5]. This was said in 1970; however, this idea of the Soviet scientist is quite relevant at present.

For this reason Russia follows closely the problem of water distribution and management in Central Asia. In the future the Central Asian countries together with Russia may start addressing the water and energy issues of this region on the integration basis. Development of hydropower engineering has led to considerable reduction of the use of coal, oil, and wood as well as to significant cutting of hazardous emissions into the atmosphere.

According to Zonn et al. [6], in any case Russia will have to address the water issues in Central Asia as it is one of the world’s top countries by the river flow. Quite unlikely that the balance between the population growth and distribution, on the one part, and natural water reserves, on the other, will be attained only through water

saving in the Central Asian countries that suffer permanently from water deficit. Accordingly, the natural regimes of the existing river network should be transformed.

One of the perspective ways of addressing the water issues here is deemed to be international maneuvering of the river flow which will require long and serious scientific and engineering investigations of either previously abandoned projects or consideration of the new projects, but not their implementation in the nearest future.

4 New Technologies

The principally new technologies and territorial redistribution of river flow are the two ways that will be in the focus of studies in the future. With regard to the geography of the region, they may complement each other. But it should be mentioned here that the principally new technologies appear quite rarely; therefore, the more in-depth and intensive study of both ways should be conducted to resolve the water availability problem. But before choosing any scheme of river flow redistribution, the measures to improve the water use efficiency in the existing water conveyance and irrigation systems must be taken.

At present there is only one not large country in the arid zone – Israel – that combines successfully these two ways creating a special natural and technogenic structure as a basis for development of highly productive agrotechnologies. In Israel water is a strategy, security, and independence. In this country the Central Asian slogan “A drop of water – a grain of gold” is realized not in words but in deeds [7].

The river flow transfer projects reflect, to a certain extent, the endeavors to find a new model of international cooperation and worldwide management in the conditions of the emerging multipolar world. This new approach is perhaps a key to resolving the water problems in Central Asia.

But so far some one-sided approach is observed in this region to water flow regulation and management. Flow regulation also supposes implementation of actions for efficient water use in land areas along the whole length of rivers. In the downstream countries, the overuse of water is enormous: only in Uzbekistan it amounts to 7–8 km³. The construction of large HPP and reservoirs in the region may alleviate the water deficit in the downstream areas, but only if irrigation water is used with due care.

5 Negotiations on the Use of Water Resources

However, in the Central Asian countries, the one-sided approach to the water use and management prevails. According to Alamanov et al. [8], Kyrgyzstan should include in its water policy; some measures the key issues of which should be the following international legal initiatives. First of all, it is necessary to continue initiating the

development and adoption of the multisided regional document on water relations. The regular negotiations on the rational distribution of water resources on the mutually beneficial basis are required. The negotiations should be aimed at development and adoption by the Central Asian countries of the basic document equal to the Convention on the Use of Water Resources in the Central Asian Countries that is called to implement the potentials of the following principles of cooperation in the water area already acknowledged by the Aral Sea states: “The member states recognize as general objectives the regulation of the system and better discipline of water use in the basin, development of the relevant interstate legal and regulatory documents identifying the common for the region principles of repayment of losses and damages” (Article 1 of the Agreement on “Joint Actions Towards Solving the Aral Sea and Priaralie Problems, Environmental Improvement and Provision of the Socioeconomic Development of the Aral Region” (Kyzyl-Orda, 26 March 1993) [9]. It stressed the idea to renounce the 1992 Alma-Ata Agreement that simply confirmed the scheme existed in the Soviet time and to continue negotiations on revision of the conditions or about development of a new agreement [10].

Similar ideas are suggested by other Kyrgyz experts. Thus, Kyrgyzstan developed the Draft Concept of the National Policy in the Use of Transboundary Water. It assumes the need to ensure the state interests of Kyrgyzstan in the conditions of market relations with the all-round cooperation with the Central Asian countries. This Concept suggests introduction of economic mechanisms in water use, thus, recognizing water as a special commodity. In addition, this Concept proposes to assume that in the water policy, all regional states should obtain the mutually beneficial conditions, which conduct the joint monitoring of transboundary rivers to establish more effective control of formation and use of water resources and to prevent and alleviate the damage incurred by hazardous hydrological events and their consequences at the interstate level and should establish the governmental systems for surveillance of security of hydraulic facilities. Kyrgyzstan proceeds from the fact that only after recognizing and adoption of the basic provisions of this Concept by the governments of all regional states, it will be possible to go over to the concept of Integrated Water Resources Management (IWRM) [11].

Tajikistan focuses on the issues of water management, too. Mukhabbatov and authors [12] note that the complexity of water management is the main obstacle for settlement of numerous regional, internal, and local conflicts. It seems insoluble for the engaged parties. Among five Central Asian states (Tajikistan, Kyrgyzstan, Turkmenistan, Uzbekistan, and Kazakhstan), there are two groups: water-abundant countries (Tajikistan and Kyrgyzstan) located in the upstream of the Amu Darya and Syr Darya rivers and the downstream water deficit countries (Turkmenistan, Uzbekistan, and Kazakhstan). While speaking about difficulties with water management, Tajikistan pursues its own policy aimed at construction of large hydropower plants.

The downstream countries do not possess adequate water resources. In addition, the surface water resources are distributed unevenly and subject to considerable variations in time. According to Parkhomchik [13], the water deficit is observed here because nearly the half of the river flow is formed in the territories of neighbor countries. But still within the framework of the green economy strategy, Kazakhstan

concentrates its efforts on commissioning of not large hydropower facilities being environmentally friendly and not costly [13].

The strategy of construction of small power plants being implemented in Kazakhstan does not solve the regional problems of water management. More likely these measures are aimed at enhancing the water security inside the country and are called to make the issue of water deficit less acute.

6 Integrated Water Resources Management

The Central Asian countries do their best to follow the world trends in water management, although these problems were recognized at the international level only in the early twenty-first century. The World Summit on Sustainable Development held in Johannesburg in 2002 acknowledged that the concept and principles of the Integrated Water Resources Management were crucial for sustainable development.

The Integrated Water Resources Management (IWRM) is called to balance water resources for all respective sectors, political courses, and institutions to attain the national water, food, and energy security. Such management requires simultaneous assessment of various water use alternatives and provides the structure including the interested strategies for addressing future problems and uncertainties. IWRM engages many stakeholders to develop rules of water management which with respect to transboundary waterways supposes international cooperation [14, 15].

A failure in the past to recognize the economic value of water has led to wasteful and environmentally hazardous use of water resources. Management of water as an economic commodity is a very important method to attain the effective and just use of water and also to promote economic development and protection of water resources. The integrated management assumes that all kinds of water use should be considered in their totality and interrelation. Therefore, IWRM represents a systemic process of sustainable development, sharing and monitoring of water resources in the context of social, economic, and environmental goals.

In the recent time, the Central Asian countries have been introducing a new paradigm of integrated management into water planning and management. The existing administrative-territorial management system in the market economy conditions demonstrates its ineffectiveness.

In the present-day conditions, the basin system of management which is a part of IWRM is most potent. It allows for application of the better systems for management of water, accounting and collection of water pay, and control of its rational use. This is most important as the water use efficiency should be calculated as the quantity of water used per unit of produce.

The reforms in the water sector on the IWRM principle are supported by governments, governmental bodies, parliaments, and public associations. The main requirements of IWRM are outlined in water codes. However, the distribution of

responsibility and reporting of the obtained results and indicators are far from the expected.

With the growth of water demand, the rivalry in transboundary river basins becomes more acute. Coping with this problem urges to change over from the former water use concepts to the Integrated Water Resources Management that will ensure the multipurpose and balanced achievement of the goals of economic development and environmental security of river ecosystems. Therefore, when speaking about hydropower engineering development, it should be considered in the context of the common goals of transboundary river use. In all likelihood this will be a reliable way to avoid monopoly in international relations concerning any kind of water use.

7 Conclusions

The issue of water resources management stirs great interest, and many publications study different aspects of and approaches to management. Among such publications are the following: Integrated Water Resources Management in Central Asia: the Challenges of Managing Large Transboundary Rivers. Global Water Partnership. 2014; Hudgson S. Strategic Water Resources in Central Asia: in Search of a New International Legal Order. EUCAM Policy Brief. 2014. №14; Implementing Integrated Water Resources Management in Central Asia. Ed. Wouters P., Dukhovny V. and Allan A. Springer. 2007. These and other books made their contribution into study of the problem related to water resources management in Central Asia.

Management of flow of river basins is deemed to have good prospects in addressing the water problems. This will require long scientific and engineering studies of either abandoned projects or consideration of the new ones. But as this will require significant financial inputs, their implementation in the nearest future is quite problematic.

As renowned US geographers P. James and J. Martin wrote, “we should move forward not repeating the mistakes of the past, but always with the bold drive to develop new hypotheses and, at the same time, not to be fearful to assess critically the existing hypotheses and may be even to abandon them” [16].

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