Lucrările Seminarului Geografic Dimitrie Cantemir
Vol. 41, October 2016, pp. 47-52
http://dx.doi.org/10.15551/lsgdc.v41i0.05

Water Resources of Kyrgyzstan as a Factor of Sustainable Development

Gulaiym Donbaeva[1]

[1] Talas State University, Kyrgyz Republic

To cite this article: Donbaeva, G. (2016). Water Resources of Kyrgyzstan as a Factor of Sustainable Development. *Lucrările Seminarului Geografic Dimitrie Cantemir*, Vol. 41, pp. 47-52. DOI: 10.15551/lsgdc.v41i0.05

To link to this article: http://dx.doi.org/10.15551/lsgdc.v41i0.05

ISSN: 1222-989X www.seminarcantemir.uaic.ro

WATER RESOURCES OF KYRGYZSTAN AS A FACTOR OF SUSTAINABLE DEVELOPMENT

Gulaiym Donbaeva[1]

Abstract: The article deals with water resources as a factor of sustainable development of Kyrgyzstan and the problems which are associated with their using. The analysis of the materials shows that the main problems of water resources management at the regional level are: no unified for Central Asia legislative framework, there is a mechanism of practical implementation in international agreements, imperfect planning system and complexity of the convention on international rivers and lakes.

Keywords: water resources, transboundary rivers, management and use of water resources, sustainable development

1. Introduction

The appearance of the water problem in the world now is a direct result of the intensive use of the resources of river flow, enhancing the role of the water factor in the socio-economic development of society [1].

Water, for a long time considered as inexhaustible, is now moved into the category of exhaustible and its shortage is becoming one of the reasons for delaying the growth of the economy of many countries and their stability. According to V. Jasinski and others "decreasing the water resources of river systems and the deterioration of water conditions is one of the driving forces of change in relation to water" [3]. For the statistical analysis and generalization of literary sources the data of research and personal observations of the author were used.

2. Results and discussion

Different types of water held in a pool of water source lead to competition for water at the local and national level, and in the case of a cross-border river between two countries, it gradually acquires not only economic aspects, but it also becomes a regional political issue.

In Central Asia the major transboundary water are the rivers: Syr Darya, Isfara, Panj, Zarafshan, Surkhandarya, Amu Darya, Ili, Irtysh, Tobol, Ishim, the Urals, the Naryn, Chu, Kafarnigan, Talas and Kara Darya.

[1] Talas State University, Kyrgyz Republic, Gulayim_1969@mail.ru

At present, Kyrgyzstan is seriously concerned about these issues, because they have not been solved yet in an equitable manner. Kyrgyzstan is a mountainous country, so it is necessary to develop economic relations with its natural environment, Uzbekistan and Kazakhstan as well (Figure 1).

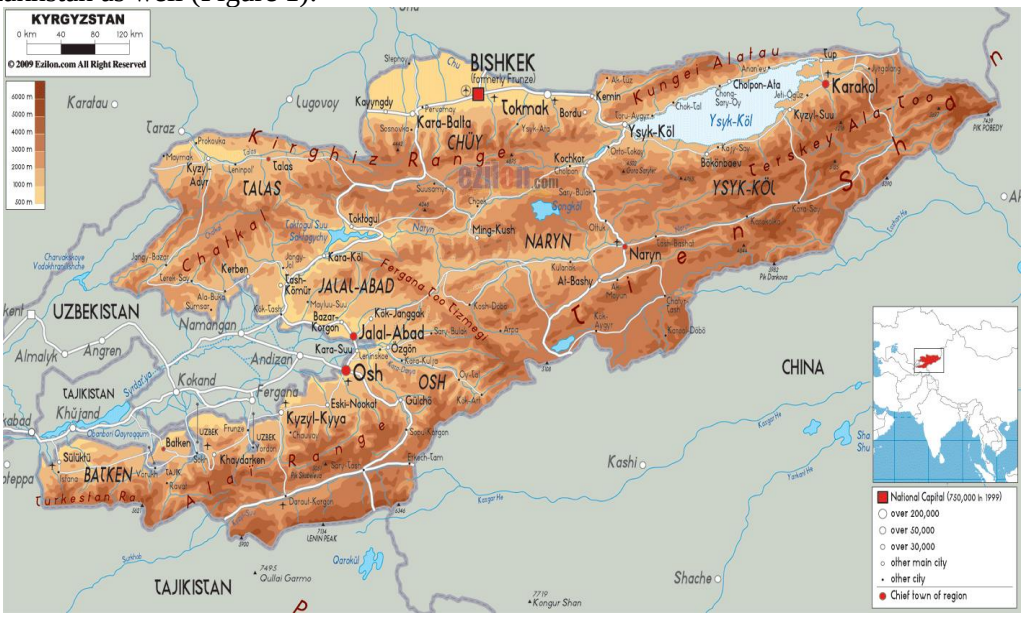

Figure 1: The geographical position of Kyrgyzstan

Despite the fact that these countries are now in a much better socio-economic situation, they still depend on the quality of the development of the mountain areas, where there are sources of rivers that belong to Kyrgyzstan.

The use of mountain water in the lowlands is very dependent on the control in the upper reaches, which in turn are related to agriculture and mining. The water resources of Central Asia are the most important; they are closely linked plains and mountainous areas of the region, to work internally. Sustainable access to water in the transboundary river basins shapes the character of international relations and security in the region. For the countries of Central Asia, the problem of water management in transboundary river basins has common features, but at the same time, it has climatic, economic, socio-economic and political differences (Figure 2 and 3).

Figure 2: Chon-Kapka Reservoir, located at the Talas River cross-border with Kazakhstan (foto G.Donbaeva)

Figure 3. Cascade Reservoirs located at the Naryn River cross-border with Uzbekistan (foto G.Donbaeva)

Water is a natural resource and a source of internal stability and prosperity of the country, which could be multiplied only in the context of the protection of the natural ecosystems and glaciers of Kyrgyzstan. [4]. It is important to take into account that water ecosystems reduce their natural ability to cleanse themselves because of fabricated and manufactured influences. This situation leads to a shortage of fresh water and, as a result, it creates a risk for the sustainable growth of the region.

In addition, sustainable development is inhibited in those places where water resources are endangered by increasing pollution. This problem is compounded by the widespread use of chemicals in agriculture, in urban environments - household chemicals and population growth. As a result of the contamination of the water resource, the problems of water security have caused considerable damage to the use of drinking water and river ecosystems.

Global steel problems of life of people with clean water for drinking, as well as to meet their domestic needs, the use of water in agriculture, energy, pollution of water basins and ecosystems - waste.

Increasing water needs to address the socio-economic and environmental challenges in the face of declining potential pools of rivers and groundwater requires an effective management of water resources. The study and rational use of the water resources of Kyrgyzstan received much attention, including design and implementation programs on the use and management of transboundary river basins.

Over the past 30 years, the total water resources of Kyrgyzstan increased by more than 6% (according to the Institute of Water Problems and Hydropower - National Academy of Science of Kyrgyz Republic**).** Water is a vital and most important component of nature, it is a key resource in the sustainable development of Kyrgyzstan and throughout Central Asia. Water is life, in connection with the matters of distribution and management of water resources of transboundary rivers, which have become especially highly relevant today, because it depends on the further development of the Central Asian states, the welfare of the population, its existence and security (Figure 4).

The principles of management of water resources are increasingly used in environmental management. This control system is based on the records and the interaction of water and related land and other natural resources within the hydrographic boundaries, taking into account the interests of the population, natural sites and industries. It seeks to involve the general public in the decision-making process for planning, financing and development of sustainable meeting of the needs of society and nature.

Figure 4: Water distribution channels in the rivers (foto G.Donbaeva)

River basin management should aim at a balanced development of surface and underground waters. In this context, the role of planning the use and protection of water resources is important at all the levels of government: local, national and interstate. It is a means to achieve tasks such as the efficient use of water resources, water distribution, and environmental sustainability of river basins. Limited and vulnerable water resources prompted a new approach to its assessment, development and management, based on the integration of water management plans and programs.

Thus, one of the tools of transition to sustainable development is integrated water resources management (IWRM), defined by the Global Water Partnership as "a process that promotes the coordinated development and management of water, land and other related resources to maximize social and economic well-being on an equitable basis without harming the sustainability of vital ecosystems".

The IWRM is currently the best technology in environmental management and it became one of the priorities announced by the UN General Assembly in the framework of the International Year of Freshwater (2003) and the International Decade for Action "Water for Life" (2005-2015), who "Consolidate understanding in the international community about the need to move from discussion, expression of intentions and commitments to fulfill the proclamation of practical measures in the water sector" [2].

3. Conclusion

3.1. The analysis of the materials shows that the main problems of water resources management at the regional level are:

- no unified for Central Asia legislative framework;
- there is a mechanism of practical implementation in international agreements;

- imperfect planning system;
- complexity of the convention on international rivers and lakes (Helsinki -92).

3.2. Assessment of transboundary aspects:

- for the countries of Central Asia, the characteristic components of pollution in transboundary rivers are: the total mineralization, sulfates, total hardness, phenols, pesticides, petroleum products, in some cases, nitrogen group, copper, zinc.

3.3. The analysis of the materials shows that, on the proposed ingredients, a quality of water in transboundary waters, according to the national monitoring services, is within the MPC (maximum allowable concentration).

3.4. The lack of a unified system in monitoring water quality does not permit a reliable assessment of the current situation of pollution of transboundary watercourses.

3.5. To achieve certain results in this direction it is necessary to solve the following issues:

- an evaluation of the country's water resources (surface and underground) in the framework of the river basin with the analysis of the modern state and hydro ecological issues, by taking into account the technical possibilities of improving their use;
- required qualitative and quantitative forecast of water resources, taking into account the envisaged water management activities;
- to identify the facilities water management construction in the future and to assess the possible changes in the state of river runoff;
- to ensure an adequate long-term and sustainable financing in water resource technology;
- it is necessary to respond appropriately to the use of transboundary rivers, regulate competition among water users and environmental issues;
- to identify measures for the protection of water resources from depletion of high-quality, treatment and disposal of wastewater;
- to consider that the economic instruments of integrated management of water resources are important for water management, especially when there is an imbalance of supply and demand and an inefficient use;
- to develop evidence-based recommendations on water accounting given the fact that they are the main factor in the development of sectors of the Kyrgyz economy and its sustainable development.

References

1. Donbaeva G.Ch., Shamshiev O.Sh. 2007.Water resources of the Western and South-Western Tien Shan: The problems of geoecology. / Vestnik (Magazine) RUFN Ser. Research, No 3. - Moscow.
2. Donbaeva G.Ch. 2015. Prerequisites of integrated water resources management./Mathimatical International Scientific Conference. "Management of Water resources in Central Asia. Local and international experience". - Osh, Kyrgyzstan.
3. Jasinski V. A, Prokhorov N. B, Mironenko A. P, Sarsembekov T.T.2013. Water management in the CIS countries. - Almaty, Kazakhstan, 2013. - 504 p.
4. The program for the transition of the Kyrgyz Republic to Sustainable Development for 2013-2017 (short version). - Bishkek, Kyrgyzstan, 2014. - 182 p.