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The Careful Use Of Central Asia Transboundary Water Resources

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Abstract – The article deals with transboundary water resources and basins of Central Asia. At the same time, information was provided on the problems encountered in the use of transboundary water resources in the region and the measures taken to address them.

Keywords – Water Resource, Canal, Basin, Glacier, Stream, Drinking Water, Water Problem, Transboundary Water, Region, Water Shortage, Central Asia Region, Agriculture, Forestry, Economy, Sustainable Development, Biological And Landscape Diversity.

Water is the meaning of our lives, a part of our lives. Life appeared on our planet only after water appeared. For this reason, special attention was paid to the conservation of water and its rational use. Water is also an important factor in ensuring food security, sustainable socio-economic development. Human health, environmental security, well-being of the population depend on water supply. As a result of the globalization of climate change and the continuation of the globalization process, the risk of water shortages is becoming more serious. In Central Asia, located at the crossroads of the Eurasian continent, water shortages are becoming more pronounced. Therefore, taking measures to eliminate the threat is a priority in the management of water resources in our region.

In the history of the region, water resources have always been the mainstay of socio-economic development. But in Central Asia, too, water has been a major problem. From ancient times, the peoples of Central Asia have done a lot to solve this problem, to meet the needs of the population for drinking water. In particular, canals have been dug and cisterns have been built. Even today, solving the water problem is still a topical issue. Because water is a key factor in the socio-economic development of Central Asia.

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More than 80 percent of the water resources in the Central Asian region come from Kyrgyzstan and Tajikistan, which have permafrost and snow-capped mountains. Uzbekistan, Kazakhstan and Turkmenistan are located in the region, most of which are irrigated. These countries suffer from water shortages and their socio-economic consequences due to their location in the lower reaches of the Syrdarya and Amudarya. In particular, the relatively low quality of drinking water consumed by the population in the middle and lower reaches of the rivers is a clear evidence of this.

According to the data, the annual volume of water resources in Central Asia is 116 km3, of which 90% is formed by the two major rivers Amudarya and Syrdarya. About 10% of Central Asia's water resources come from rivers (Irtysh and its tributaries) that flow into the Arctic Ocean. Eighty percent of water resources are used in agriculture, 7-8 percent in industry, and the rest in household, service and other purposes.

Syrdarya, which is important for the economies of Central Asia, is the longest river in the region, with a length of 2212 km (3019 km along the Naryn River) and an area of 219 thousand sq. Km. The Syrdarya begins in the Tien Shan Mountains and flows from Kyrgyzstan through Tajikistan to Uzbekistan and Kazakhstan. The water resources of the Syrdarya River, with an average annual flow of 37 km3, are distributed as follows: 74% to Kyrgyzstan, 14% to Uzbekistan, 9% to Kazakhstan and 3% to Tajikistan.

The Amudarya is the largest river in the region, with a length of 2,540 km and an area of 309,000 km2. The average annual water flow in the basin is more than 78 cubic km per year, of which more than 80% is in Tajikistan, 6% in Uzbekistan, 2.4% in Kyrgyzstan and 3.5% in Turkmenistan.

After the independence of the Central Asian states in 1991, the demand for water increased and the satisfaction of this demand decreased. The irrigation system has slowed down, resulting in more than half of the water resources not reaching the fields, and agricultural production declining. In the first years of independence, the rational use of water resources was not sufficiently regulated due to the lack of regional cooperation mechanisms between the states of Central Asia. At the same time, in terms of water resources, Central Asia's unified energy system was previously shaped as a system based on the use of hydropower in Kyrgyzstan and Tajikistan, and the system provided for the exchange of energy resources between all countries. As a result, in the first half of 1990, a 20 percent decline in electricity consumption was observed in all countries.

In order to solve this problem, in 1992, the Amudarya and Syrdarya Basin Water Resources Departments were established to distribute the Amudarya and Syrdarya water resources between Tajikistan, Turkmenistan, Uzbekistan, Kyrgyzstan and Kazakhstan, taking into account all possibilities. At the beginning of the year, the departments will redistribute the available water resources, taking into account the water demand of the countries located in these basins. The Interstate Commission for Water Coordination of Central Asia and Kazakhstan is also involved in the use of the Amudarya.

It should be noted that Uzbekistan is a leading country in Central Asia in terms of water consumption. The share of consumed water resources in the existing water resources is 49.7% in the Amudarya water basin and 48% in the Syrdarya water basin. It is known that 11.47 km3 of inland water resources are formed in the territory of the republic, of which 4.82 km3 - in the Amudarya basin, 6.65 km3 - in the Syrdarya basin. The remaining 80 percent will be replenished by transboundary water resources. In Tajikistan and Kyrgyzstan, which are rich in freshwater resources, this figure is lower than in other countries. The main reason for this is the limited land resources for irrigated agriculture in these countries

Despite measures taken in Central Asia for the rational use of transboundary water resources, some problems remain unresolved. That is:

- Due to climate change and melting glaciers, it is becoming increasingly difficult to meet their water needs from year to year;

- Water depletion, waste and pollution of existing water bodies in the region are increasing;

- Differences in demand for water between nature and society are growing under the influence of natural and anthropogenic impacts on water resources.

The problem of transboundary water use in Central Asia must be addressed in accordance with international water standards, taking into account the interests of more than 70 million people living in the region:

- Rational and economical use of water resources to meet future water needs;
- development of measures to expand cooperation with countries with common transboundary water resources;
- introduction of international requirements for transboundary water quality control in the region;
- acceleration of research in the use of innovative technologies in the use of transboundary water resources;
- all countries in the region should be interested in the joint use of transboundary water resources;
- application of new, promising methods of irrigation and increase of efficiency of irrigation system;
- correct distribution of groundwater and surface water (in time and space);
- introduction of wastewater treatment technology;
- to find opportunities for the use of water resources in glacial and mountain basins;
- active influence on precipitation processes (according to the uzbek hydrometeorological center, precipitation is possible in a relatively small area of up to 100 km2).

- Water supply, water use management, procedures and mechanisms of water payment, adaptation of contractual relations to market conditions;

- Achieving the use of modern advanced technologies in the creation of irrigation facilities to improve water supply in the region, etc.

In conclusion, the use of transboundary water resources is one of the regional problems in terms of its scale and importance. Therefore, this issue should be addressed rationally and in accordance with international water standards. This is important for the security and peace of the region, for the needs of the people living in it, and for the economic development of the countries in the region.

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