

Economic and geographical potential of Central Asia and the place in it of water resources

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Abstract. The article presents the results of a study of the natural resource potential of the Central Asian region, the economic and geographical essence of water resources management, highlights the issues of the population of the region related to the availability of water resources.

Keywords: Central Asian region, water resources, population growth, GDP, surface waters, transboundary water resources.

The concept of the economic and geographical essence of water resources management appeared from the moment the Central Asian states proclaimed their national sovereignty, when they switched to a market model of development. An analysis of the research carried out on the fundamentals of water policy in the context of the transition to market relations on the example of some countries of the world [1] shows the growing shortage of water resources, which requires the need for fundamental reforms in their management. The experts are unanimous in the opinion that the creation of an institutional framework for water resources should be understood as a fundamental problem of social policy, and not as a purely engineering exercise. Accordingly, the system of distribution of water resources should reflect the variety of goals facing society, as well as their physical and mechanical properties, the system of equipping hydraulic structures. Regions in which water is used primarily for irrigation and with relatively hot climates (such as the western United States or southern Australia) have generally chosen relatively decentralized systems based on flow or allocation rights for a certain amount of water. The level of economic development of the countries of the region is different. In the region, the share of the agricultural sector in the national GDP is almost entirely accounted for by irrigated agriculture and by 2025 it will not increase (tab. 1).

Table 1

Past and forecasted indicators of the share of the agricultural sector in GDP, %

Year	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
1990	34	45	25	31	33

1995	19	45	21	16	32
2000	15	38	23	26	26
2010	15	50	30	15	24
2025	15	50	30	15	20

The poverty level reflects the specific political and socio-economic conditions of each country in the region, but a high percentage of its share among the rural population remains common to all.

The region is characterized by population growth [tab. 2]. There are various estimates of the region's population in the near future and their incorrect application, for example, underestimation of labor migration processes [2], can significantly affect the choice of strategic approaches to the parameters of sustainable development.

Table 2

Population of Central Asian countries, million people

Year	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan	Total
1990	16.7	4.3	5.4	3.7	20.3	50.4
1995	16.0	4.6	5.9	4.6	22.9	54.0
2000	14.9	4.9	6.1	5.4	24.3	55.6
2016	17.9	6.0	8.7	5.5	31.85	69.3
2025	25.9	8.4	9.0	13.1	40.3	96.7

Forecasts for 2025 for all five Central Asian republics show a gross population growth in the region compared to 2016 in the amount of 18.9 million people. Based on these data, it follows that by 2025 the total population of the region will increase with the average annual population growth rate, in the amount of 1.9%.

The low level of development of the Central Asian countries also causes a small volume of national GDP in them (tab. 3). Probably, this figure is even lower, since the income of private agricultural producers is often ignored in statistical reports, especially in its natural part, which goes to self-sufficiency.

Table 3

Past and projected national GDP (billion US dollars) and per capita income (US dollars)

Year	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan
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1990	5.1 <i>2000</i>	14.0 <i>3200</i>	1.9 <i>320</i>	11.4 <i>3000</i>	14.6 <i>720</i>
1995	3.5 <i>1400</i>	1.5 <i>320</i>	0.6 <i>100</i>	5.9 <i>1100</i>	14.4 <i>630</i>
2000	3.0 <i>1150</i>	1.4 <i>270</i>	0.8 <i>130</i>	22.9 <i>4300</i>	17.4 <i>710</i>
2010	5.1 <i>1600</i>	1.5 <i>300</i>	1.8 <i>240</i>	127 <i>4800</i>	33.5 <i>1110</i>
2025	7.7 <i>1600</i>	2.6 <i>400</i>	2.92 <i>356</i>	207 <i>15800</i>	68.0 <i>1700</i>

GDP per capita data are shown in italics. Source: Royal Haskoning, GEF IFAS, 2012

Now let us consider the issue of water supply for the population, including both internal and external (transboundary) water resources.

In general, the region can be characterized as satisfactorily provided with water resources amounting to 4241 m³ per person, which is 2.5 times higher than the critical level of water availability, taken in the amount of 1700 m³ per person [3]. At the same time, the availability of water resources varies by country. Thus, in Uzbekistan, the available water resources per person are significantly less. Here, the indicator of the availability of water resources per capita is only 2074 m³ per person (tab. 4).

Table 4

Surface water resources in Central Asian countries (T. T. Sarsymbekov et al., 2004)

Country	Inland water resources		External (transboundary) water resources		Coefficient of transboundary dependence of water resources	Total	
	km ³	m ³ /person	km ³	m ³ /person	%	km ³	m ³ /person
Kazakhstan	56.5	3.8	44.0	2.9	42	100.5	6745
Kyrgyzstan	46.5	9.5	-25.9	-5.3	0	20.6	4201
Tajikistan	61.8	10.1	-22.3	-3.7	0	39.5	6475
Turkmenistan	1.4	259.0	23.4	4.3	94	24.8	5593
Uzbekistan	16.3	671	34.1	1.4	77	50.4	2074
Region	182.5	3.3	53.3	765	18	235.8	4241

Efficient water use in the Central Asian region is hampered by the conflict of interests of the states of the region, based on the fact that more than 90% of all water resources of this territory are concentrated in the territory of Kyrgyzstan and Tajikistan (upstream countries), interested (for many reasons) in the development of hydropower, and downstream countries (Kazakhstan, Uzbekistan, Turkmenistan) mostly use water for the development of irrigation, the resources of which, and the agricultural production based on them, in the region have practically exhausted themselves today and cannot further serve the goals of sustainable economic development of countries and the region as a whole. It is obvious that the current level of agricultural development in the Central Asian countries does not so much determine their economic development as it provides for the minimum living needs of the population, that is, creates conditions for their survival. Agriculture itself functions at the level of simple reproduction.

The way out is seen in the diversification of economic sectors of the Central Asian countries, giving water an economic value, switching to modern agricultural technologies, and rational water use. All this will save up to a quarter of the runoff of the region's transboundary rivers a year and prevent damage from problems in water resources management, which, according to UNDP estimates, amounted to 1.8 billion US dollars in 2010 alone.

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Заявка на участие

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