

Researchers assess water security of Central Asian countries

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Central Asia belongs to arid and semi-arid region. Water resource is the most critical natural factor affecting the region.

Researchers from the Xinjiang Institute of Ecology and Geography of the Chinese Academy of Sciences quantitatively assessed the four main [water](#) security sub-objectives and the comprehensive level of water security in five Central Asian countries, including Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.

By using the projection pursuit model based on particle swarm optimization (PSO-PEE), they established the assessment indicators system and classification standard data set for water security in Central Asian countries.

Their results indicated that for ecological security, Kazakhstan, Tajikistan and Kyrgyzstan have improved their status, but Turkmenistan is getting worse; for the quantity security of water resources, Tajikistan and Kyrgyzstan are relatively safe, whereas Uzbekistan is at risk.

For socio-[economic conditions](#), Kazakhstan scored the highest, while Tajikistan and Uzbekistan scored the lowest. Water consumption per 10,000 dollars of GDP across all five Central Asian countries is relatively high, but shows a significant decreasing trend, indicating that the water utilization efficiency in Central Asia is gradually improving.

For the water supply and demand security, the status of Kazakhstan, Kyrgyzstan and Tajikistan are better than that of Turkmenistan and Uzbekistan.

Kazakhstan has achieved a relatively safe level (level II) and the degree of water security is high. Kyrgyzstan, Tajikistan and Turkmenistan are only in the basically safe level (level III). Uzbekistan is under significant pressure with regard to water [security](#) (level IV).

More information: Xuanxuan Wang et al. Development and utilization of water resources and assessment of water security in Central Asia, *Agricultural Water Management* (2020). [DOI: 10.1016/j.agwat.2020.106297](https://doi.org/10.1016/j.agwat.2020.106297)

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