

WATER SECURITY AND TRANSBOUNDARY COOPERATION IN CENTRAL ASIA

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Water security has become one of the defining strategic concerns of Central Asia, a region where five states — Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, and Tajikistan — depend on two shared river systems, the Amu Darya and the Syr Darya, for irrigation, energy, and drinking water. Since independence, the inherited Soviet-era water-energy exchange scheme has gradually eroded, exposing the fragility of regional water governance and elevating water security to a matter of national and collective survival rather than mere resource management.

The relevance of this study stems from the growing convergence of three pressures on the region's water systems: rising demographic and agricultural demand, upstream hydropower development in Kyrgyzstan and Tajikistan, and the accelerating impacts of climate change on glacier-fed river flows. These pressures have periodically reignited disputes over reservoir operation regimes — most notably around the Toktogul and Norak facilities — underscoring the limits of the current institutional architecture built around the ICWC (Interstate Commission for Water Coordination) and IFAS (International Fund for Saving the Aral Sea).

The purpose of this research is to examine how the concept of water security can be operationalized within Central Asia's transboundary cooperation framework, and to assess the extent to which existing regional mechanisms are capable of balancing upstream energy interests with downstream irrigation needs. The analysis draws on Integrated Water Resources Management (IWRM) principles and hydro-diplomacy theory, treating water security not as a purely technical issue but as an outcome shaped by power asymmetries, trust-building, and institutional design among riparian states.

The findings indicate that regional cooperation has shown notable improvement in recent years, particularly through renewed dialogue on the Rogun hydropower project, expanded water-energy barter arrangements, and increased engagement of international financial institutions in joint infrastructure planning. However, structural weaknesses persist: IFAS suffers from chronic underfunding and unclear mandate

rotation among member states, while ICWC decisions remain non-binding and highly dependent on political goodwill rather than enforceable legal obligations. Furthermore, the absence of a comprehensive, legally binding basin-wide water-allocation treaty leaves the region vulnerable to unilateral upstream decisions during periods of water scarcity.

In conclusion, achieving durable water security in Central Asia requires moving beyond ad hoc bilateral arrangements toward a strengthened, adequately financed regional institutional framework capable of enforcing agreements, coordinating climate adaptation, and integrating energy and irrigation interests through a Water-Energy-Food nexus approach. Deeper transboundary cooperation, rather than competition over a shrinking resource base, remains the most viable path toward long-term regional stability.

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