

CLIMATE CHANGE AND WATER DIPLOMACY IN THE SYR DARYA BASIN: CHALLENGES FOR KAZAKHSTAN AND UZBEKISTAN

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The Syr Darya basin, the largest transboundary water system in Central Asia, has in recent decades become one of the regions most visibly affected by climate change. The retreat of glaciers in the Tian Shan mountains, the shrinking snowpack, and increasingly erratic precipitation patterns are fundamentally altering the seasonal distribution of river flow. These natural shifts are placing additional strain on the water diplomacy mechanisms between Kazakhstan and Uzbekistan, testing the adaptive capacity of existing institutional frameworks.

The relevance of this study lies in the fact that the water-allocation system built on the 1992 Almaty Agreement and the 1998 Bishkek Agreement (Naryn–Syr Darya cascade) was designed under the relatively stable hydrological conditions of the Soviet era and does not fully correspond to today's climate variability. The conflict between the energy and irrigation regimes of the Toktogul reservoir — with water released for winter electricity generation — is intensifying water shortages during the growing season in southern Kazakhstan and in Uzbekistan's Syr Darya and Fergana regions.

The purpose of this research is to analyze the institutional and legal capacity of Kazakh–Uzbek water diplomacy under conditions of climate change, and to assess the potential of existing mechanisms — such as the ICWC (Interstate Commission for Water Coordination) and the Syr Darya Basin Water Organization (BVO) — to transition toward climate-adaptive governance. The study applies hydro-hegemony theory and the TWINS (Transboundary Waters Interaction NexuS) model as its analytical framework, allowing for a simultaneous assessment of the power asymmetry between upstream and downstream states and their potential for cooperation.

The analysis shows that existing bilateral and regional mechanisms remain focused primarily on quantitative water allocation and do not adequately incorporate climate risk management, early-warning systems, or adaptive allocation formulas. Furthermore, the consensus-based decision-making within the ICWC reinforces

institutional inertia, complicating rapid climate adaptation measures. At the same time, recent years have shown positive momentum in cooperation under a Water-Energy-Food (WEF) nexus approach, including joint hydrometeorological monitoring and investment projects.

In conclusion, building sustainable water diplomacy in the Syr Darya basin requires enriching the existing treaty framework with climate-adaptation principles, strengthening the institutional capacity of the ICWC, and introducing confidence-building measures between the two states, such as real-time hydrological data exchange. This would strengthen not only water security but also regional stability and the strategic partnership between Kazakhstan and Uzbekistan.

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