HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

FROM SOVIET INTEGRATION TO FRAGMENTED MANAGEMENT: WATER POLITICS IN THE ARAL SEA BASIN

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Abstract: This article investigates the challenges of transboundary water governance and management in Central Asia. It focuses on the Amu Darya and Syr Darya river basins. After the collapse of the Soviet Union, a unified water-energy management system was replaced by fragmented national control which intensified tensions between upstream and downstream states. While Kyrgyzstan and Tajikistan prioritize hydropower, downstream countries rely on water for irrigation, creating structural imbalances in resource use. The study argues that water has increasingly become politicized and framed as a matter of national security, despite the region possessing sufficient overall resources. Inefficient management, outdated infrastructure, and weak regional coordination continue to undermine sustainable use. Combined with population growth and environmental pressures, these challenges highlight the need for stronger institutional cooperation and more integrated approaches to water governance in Central Asia.

Key words: Central Asia, transboundary water governance, Amu Darya, Syr Darya, Aral Sea Basin, hydropolitics

After their independence from the USSR's central government, the Central Asian states underwent a period of change in their political, economic, and international relations over 35 years. They also had to wrestle with issues brought on by their break from the center. Following 1991, the region began to use the polyphony of the transition period in place of the homophony of the Soviet Union era. Even though this change occurred thirty years ago, Central Asia has yet to establish a solid framework for water distribution and sharing. The Sirdaryo (Siri Darya) and Amudaryo (Amu Darya), two strategically important rivers in Central Asia, had little chance of causing trouble because, throughout the USSR era, they were governed by central planning and decisions made by Moscow. But with the fall of the USSR, situations were different. One of the most crucial concerns following the independence of the Central Asian nations was how to manage the irrigation systems in the lower basin that were left over from the USSR era and the hydroelectric energy dams in the upper basin. Central Asian water resources were now considered national natural resources rather than communal resources. The nations' interests were now taking center stage. In Central Asia, the politicization of water had started. The answer to the topic of how to manage Central Asia's transboundary waters has become crucial for the region's future in light of these shifting circumstances. Because the Central Asian nations have viewed water resources more from the standpoint of safeguarding or defending national interests ever since they gained their independence. As a result, water issues started to be perceived internationally as a danger to regional security. In 2008, for instance, the European Union declared that water management is the most delicate environmental issue in Central Asia and that, if

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left unchecked, it might eventually become a major security danger to the entire region[1]. There are two primary country groups that arise when one considers the present state of the crucial waters in the Aral Sea basin. Those near the head of the water, Kyrgyzstan and Tajikistan, are the first group. They utilize the water mostly for hydropower production but do not drink it; instead, they return the water they use to the riverbed. The other group consists of Turkmenistan, Kazakhstan, and Uzbekistan, which utilize and consume water mostly for agricultural irrigation, reducing the amount of water that reaches the Aral Sea. The Amudaryo River flows across the Karakum Desert and 2400 kilometers to the Aral Sea[2]. It is nourished by the snow and glaciers in the Pamir Mountains in Tajikistan, Kyrgyzstan, and Afghanistan. Along the way, the river creates a border in three nations and flows through five. These nations are Afghanistan, Kyrgyzstan, Tajikistan, Uzbekistan, and Turkmenistan. Tajikistan provides 80% of the river's water, followed by Afghanistan (8%), Uzbekistan (6%), Kyrgyzstan (3%), Turkmenistan (3%), and Iran (3%)[3]. The Sirdaryo River flows through four countries (Kyrgyzstan, Uzbekistan, Tajikistan, and again Uzbekistan and Kazakhstan) and is fed by the snow and glaciers in the Tien Shan Mountains, which are located north of the Pamir Mountains. It eventually reaches the Aral Sea after traversing around 2500 km. Kyrgyzstan provides 74% of the river's water, followed by Kazakhstan (12%), Uzbekistan (11%), and Tajikistan (3%). The following is a list of the features of Central Asian transboundary waters:

Two major rivers, one significant lake, and seven countries in Central Asia have transboundary waters. Two of these nations are subsidiary actors, while five are the primary players in the water sector. These nations' contributions to the rivers are not equal. Despite not contributing to these rivers, Turkmenistan is the only nation in the region that uses a significant amount of water. As a result, it is the nation that contributes and uses water resources the most unequally compared to others.

• Of the 39 USSR-era reservoirs in the area, 22 are on the Sirdaryo River and 17 are on the Amudaryo River. Both require restoration.

• Kyrgyzstan stored water during the 2000 drought. It released the water in a way that led to floods in the winter, exposing 120,000 hectares of Kazakhstani and Uzbek agricultural area to flooding[4].

• In 1959, there were 22 million people living in the five countries that make up the region; by 2019, that number had grown to 72 million. Of this group, 39% reside in urban areas.

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ISSN: 2058-5519|Impact factor-15.9
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About half of the irrigated lands in the Aral Basin are having issues because of salinization; 37 million of the region's population resides in Uzbekistan; and the population is predicted to reach 50 million by 2050[5].

The area has enough water, but it is not managed in a logical, well-thought-out, or effective manner. According to recent studies, Central Asian agriculture uses roughly twice as much water as industrialized nations. The production of goods with high water requirements and outdated and broken irrigation systems are the main causes of this excessive water usage. Additionally, these systems' rehabilitation efforts over the past ten years have been woefully insufficient. Because of their length, the volume of water they transport, and the fact that they pass through more than three nations, the Amu and Sirdarya rivers are particularly affected by the water issues in Central Asia. All five countries in the region have comparable issues with their major rivers, though. The principal rivers that cross boundaries in Central Asia are the Irtysh and Ishym in the east, the Chu, Talas, Sirdaryo, and Amudaryo in the south, the Ural in the west, and the Ishim and Tobol in the north[6].

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