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Research Article

WATER SECURITY AND REGIONAL STABILITY IN CENTRAL ASIA: THE CASE OF UZBEKISTAN AND AFGHANISTAN

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ABSTRACT

The Amu Darya River, a critical water resource for Central Asia, frequently becomes a focal point of tensions between Uzbekistan and Afghanistan. Recent discussions regarding the Amu Darya have been reignited following the construction of a canal by the Taliban administration in 2023. This research delves into the water-related issues between Uzbekistan and Afghanistan, with a particular emphasis on the significance of the Amu Darya River to the countries in the region. Adopting a historical perspective, this study systematically examines official reports, bilateral and multilateral agreements, and existing literature through comparative analysis. The findings suggest that cooperation and consensus at the bilateral level are paramount, overshadowing the contributions of regional and international organizations in resolving this issue.

Keywords: Amu Darya River, Uzbekistan, Afghanistan, Water scarcity, Transboundary waters, Constructivism, Cooperation.

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INTRODUCTION

Water, essential for life on Earth, remains a focal point in the political and economic interactions among nations, both currently and foreseeably in the future. Although water disputes have not escalated into large-scale global wars over the past decade, they have often spurred regional conflicts and smaller wars, with water frequently being exploited as a strategic tool to further political objectives. Communities and nations grappling with shortages, climate variability, and the pressure of sustaining growing populations may soon face critical limits in their water reserves.

In Central Asia, the transboundary water issues between Uzbekistan and Afghanistan are particularly acute, carrying profound implications for both countries. The management and allocation of water resources in this region have historically been sources of tension; however, they also present opportunities for collaboration and mutual benefits. A thorough understanding of the historical, political, and environmental factors is crucial for devising sustainable solutions that meet the needs of both nations.

This paper explores the transboundary water relations between Uzbekistan and Afghanistan with an emphasis on the Amu Darya River. Originating from the confluence of the Panj and Vakhsh rivers in Tajikistan's Pamir Mountains, the Amu Darya extends over 2,400 km, passing through Uzbekistan, Afghanistan, and Turkmenistan, and ultimately draining into the Aral Sea (Ahn and Juraev, 2023: 9). The river, fed by numerous sources including rivers, glaciers, and snowpacks—significantly from about 1,000 glaciers including the Fedchenko Glacier, the largest mountain valley glacier globally – plays a pivotal role in the region's hydrology. Historically, the Amu Darya discharged most of its waters into the Aral Sea, but extensive diversion for irrigation, especially during the Soviet era, has drastically reduced its flow (Uzbekov et al., 2021).

This analysis employs a constructivist approach to examine the evolving meanings attributed to water resources within the temporal and spatial dimensions of social, political, and environmental interactions. This perspective allows for an in-depth exploration of the identities and policies that shape water management in the region. By reviewing existing literature, official reports, and bilateral and multilateral agreements, the paper adopts a comparative and analytical approach to understand the dynamics at play.

The study aims to identify the historical, political, and environmental factors contributing to water scarcity and competition between Uzbekistan and Afghanistan. It seeks to uncover potential avenues for cooperation and mutual benefit in the management and distribution of water resources in Central Asia. Ultimately, this research strives to offer insights that could help formulate a comprehensive water resource management strategy, promoting dialogue and sustainable solutions for the transboundary water challenges in the region.

In conclusion, the effective management of transboundary water resources is crucial for the sustainable development and stability of countries in Central Asia. This study examines the factors influencing transboundary water management and their potential impacts, highlighting the ongoing challenges and the need for cooperative solutions between Uzbekistan and Afghanistan. Through a detailed empirical analysis, this research contributes to the broader discourse on conflict and cooperation in transboundary water management, underscoring the

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importance of nuanced, context-driven approaches to addressing these critical issues.

Today, it is possible to evaluate any development or issue concerning international relations within the scope of any of the international relations theories and approaches and to make future predictions and explanations. However, no single approach can be expected to fully shed light on a particular event. From this perspective, a constructivist approach was adopted in this study.

In the literature on transboundary water issues, several theoretical frameworks offer insights into the dynamics of cooperation and conflict among riparian states. Neorealism, a prominent theory in international relations, posits that the distribution of power among states within a transboundary water basin significantly influences their behaviour and interactions. According to neorealism, more powerful states may attempt to dominate or control water resources, while weaker states might resist or seek alliances to balance power (Allouche, 2020: 287). The theory acknowledges the anarchic nature of the international system, which encourages states to prioritize their own interests, thus complicating cooperation over transboundary water resources (Thomas, 2016: 23). Nevertheless, neorealism also recognizes that cooperation can occur when it aligns with the self-interests of states, such as securing water supplies, preventing conflicts, or obtaining economic benefits (Hayat, 2020: 30).

Neoliberalism provides another perspective by emphasizing the role of market-based mechanisms and private sector involvement in water management. This approach advocates for the use of economic instruments, such as pricing and cost-recovery, to enhance water efficiency, allocation, and management (Furlong, 2010: 47). While neoliberalism supports the introduction of market mechanisms and privatization to address water governance challenges, the effectiveness of these policies has been contentious, with critiques highlighting potential contradictions and misalignments with the interests of all stakeholders (Hayat, 2020: 32; Sheng and Webber, 2021: 2).

Critically, mainstream theories like neorealism and neoliberalism often provide rigid and narrow explanations for how water distribution issues affect state relations, either conflictive or cooperative. Neither theory fully addresses the changes in the nature of transboundary water relations over time.

Constructivism offers a distinct approach by emphasizing the role of social constructs, norms, and identities in shaping the behaviour of states and other actors (Wendt, 1999: 20-134). Constructivists argue that water issues are not solely determined by physical scarcity or objective factors but are also shaped by the perceptions, beliefs, and interests of the actors involved (Dadabaev et al., 2023: 932). This perspective underscores the importance of understanding the social and political contexts in which water management decisions are made, including the historical relationships between states, the role of cultural and identity-driven categories in shaping water practices, and the influence of discourse and narratives on the perception of water as a common good or a source of conflict (Yan et al., 2022: 4).

A constructivist approach in the context of Central Asia, particularly between Uzbekistan and Afghanistan, would examine the role of regional identity, concepts of "neighbourhood," and notions of brotherhood or fraternity in shaping water management practices and perceptions (Dadabaev et al., 2023: 934). This

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approach would also consider the impact of historical relationships, the influence of water bureaucracies and epistemic communities, and the role of discourse in shaping water policies. Overall, constructivism provides a nuanced and contextualized understanding of transboundary water issues, highlighting the importance of social and political factors in shaping water management decisions and practices.

By employing Alexander Wendt's constructivist framework, this research aims to explore how shared beliefs and identities influence cooperation or conflict resolution in transboundary water management between Uzbekistan and Afghanistan. Wendt's theory suggests that the meanings attributed to water resources are dynamic and evolve over time and space through intersubjective processes (Reus-Smit, 2002: 490). The research, therefore, seeks to provide a more detailed understanding of the complexities involved in water-related matters within this geopolitical context, focusing on the constructed nature of these representations.

The most researches begin with a comprehensive overview of transboundary water issues in Central Asia, emphasizing the critical concerns and implications for countries in the region. The complexities of managing shared water resources are highlighted, setting the stage for more detailed studies. A seminal work, "Water Resources in Central Asia: International Context" by S.S. Zhiltsov I.S. Zonn, A.G. Kostianoy and A.V. Semenov (2018) This study covers a wide range of aspects, including historical perspectives, legal structures, institutional cooperation, conflicts, UNECE conventions, and the interconnections of water, energy, food, and the environment in Central Asia.

A more recent work published by Zheenbek Kulenbekov and Baktyiar Asanov "Water Resource Management in Central Asia and Afghanistan: Current and Future Environmental and Water Issues" (2021). This multidisciplinary collection provides insights into the current situation from a Kyrgyz perspective, addressing hydrology, glaciology, water chemistry, meteorology, and other relevant fields.

McKinney's study (2003) addresses the complexities of managing shared water resources among Central Asian countries, emphasizing the need for high-level government cooperation. It underscores the significance of high-level government cooperation to resolve issues such as the reluctance of certain countries like Uzbekistan and Turkmenistan to alter existing water usage patterns that are vital for their agricultural sectors. The paper discusses historical agreements and the varying commitments made by countries such as Kyrgyzstan, Uzbekistan, and Kazakhstan in terms of water release and energy supply. It discusses historical agreements, varying commitments, and the broader international legal frameworks guiding water utilization.

Wang et al.'s (2021) examination of the evolution of water resource management in Central Asia highlights the complex interplay of politics, emphasizing the establishment of regional institutions like the International Fund for Saving the Aral Sea and the Inter-State Commission for Sustainable Development in response to socio-economic and environmental challenges. It discusses the different approaches taken by the Central Asian countries, such as Kyrgyzstan and Tajikistan, in managing their water resources amid economic constraints and emphasizes the prevalence of cooperative events over conflictive ones in water politics from 1951 to 2018.

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The study by Liang Guo et al. (2016) explores the intricate transboundary water and energy conflicts in Central Asia, discussing historical and current disputes and proposing strategies for achieving water and energy security through effective regional cooperation. In the context of the Silk Road Economic Belt strategy, the paper discusses the challenges and opportunities for achieving water and energy security through effective regional cooperation, offering insights and strategies to address the imbalance between supply and demand of these pivotal resources.

Janusz-Pawletta and Gubaidullina's (2015) work emphasizes the complexities of managing shared water resources in Central Asia, focusing on the need for an integrated approach and the challenges arising from the dissolution of the centralized Soviet-era water management system. The paper highlights the challenges faced by upstream countries like Kyrgyzstan and Tajikistan, which need to release water in the winter to generate energy due to insufficient fossil fuel reserves, and downstream countries like Kazakhstan, Turkmenistan, and Uzbekistan, which require water storage for summer agricultural irrigation. These conflicting needs, along with population growth and increased industrial and ecosystem demands, necessitate a new water allocation regulation. Despite international efforts like the Dushanbe Water Declaration, controversies persist, and the authors argue for mutually beneficial interstate cooperation as the key to sustainable development, political stability, and security in the region.

Several Scholars emphasizes the critical importance of safe and reliable water supplies for Afghanistan, as the paper "Challenges of transboundary water governance in Afghanistan" by Saiyed Momin Nori (2020) discusses the difficulties Afghanistan faces in managing its four major transboundary river basins shared with neighbouring countries like Iran, Pakistan, and Central Asian countries. Years of continuous conflict have weakened the country's governance capabilities and economy, undermined its human capacity in policy making and strategic planning, and led to insufficient hydro-meteorological data and technical expertise in water management, leaving it excluded from cooperative water management frameworks.

Also, Dursun Yildiz's (2015) study highlights Afghanistan's economic, political, and institutional challenges in developing its water resources potential. It discusses the implications of population growth, political unrest, and limited participation in regional water agreements. The paper underscores the population growth projection, estimating an 80% increase by 2050, intensifying the demand on already stressed water resources. The transboundary nature of almost all river basins in Afghanistan, combined with its political unrest and limited participation in regional water agreements, raises concerns about potential international disputes in future water-sharing discussions.

Gofurov et al. (2023) examines the geopolitical implications of water scarcity, emphasizing how essential and shared water resources among Central Asian countries, particularly Uzbekistan, are linked to security challenges in the region. These include the effects of climate change, global warming, the drying of the Aral Sea, decreasing river water levels, agricultural reliance, and regional economic competition. The study explores historical conflicts over water resources from the Soviet era, examines the potential for regional water conflicts due to resource dependence and uneven resource distribution, such as those involving infrastructure projects like dam construction, and proposes negotiation

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based on supply and demand as a potential solution for maintaining peace and cooperation.

Young-Jin Ahn and Zuhriddin Juraev's (2023) study focuses on the geopolitical and socio-economic implications of water resource distribution in Central Asia, with a specific emphasis on Uzbekistan and its neighbouring countries. The paper discusses the challenges faced by these nations, including high population density, agricultural demands, dependency on key rivers with transboundary aspects, and the potential for water use to provoke conflict.

Bo Libert and Annukka Lipponen's (2012) work explores the complex issues surrounding shared water resources in Central Asia. The study highlights conflicts between different uses of water, such as hydropower versus agriculture, and addresses the impact of land degradation and pollution. It notes the inadequacies of existing agreements, particularly the omission of Afghanistan in managing the Amu Darya River.

Bernd Kuzmits' (2006) examination delves into the challenges of water management in the Central Asian republics post-independence. The study highlights issues such as national self-interest, insufficient legislation, weak institutional frameworks, and the lack of participatory and sustainable water management practices. Kuzmits argues for a more integrated, institutionally, and politically cohesive approach, calling for the enhancement of existing transnational institutions such as IFAS and ICWC with better monitoring and enforcement powers.

In conclusion, the literature underscores the urgency of addressing transboundary water issues between Uzbekistan and Afghanistan and provides valuable information on potential avenues for resolution and cooperation. However, it also reveals the multifaceted challenges and complexities involved in managing shared water resources in the region and underscore the need for comprehensive and collaborative approaches. The common aspect of the above-mentioned sources is that they generally address the transboundary water problem in the region. Therefore, the importance given to each controversial water resource, each side of the debate, and the magnitude of the issue is reduced. Thus, in this research, opinions about water sharing and its possible consequences between Uzbekistan and Afghanistan, which are not specifically included in the research on water problems in Central Asia and if mentioned but paid little attention, are discussed. At the same time, this research aims to contribute to the existing knowledge by shedding light on the geopolitical nature of water management in Central Asia, emphasizing the importance of regional cooperation, sustainable development and equitable resource distribution.

BACKGROUND OF TRANSBOUNDARY WATER ISSUES BETWEEN UZBEKISTAN AND AFGHANISTAN

The complex issue of transboundary water management in Central Asia is particularly pronounced between downstream nations such as Uzbekistan and Turkmenistan, and upstream regions, highlighting the vital role that the Amu Darya and Syr Darya rivers play in sustaining agriculture—a critical economic sector in these countries. For instance, Uzbekistan's agriculture, heavily reliant on irrigation for 95% of its crop production, contributed to 23.1% of its GDP in 2021, with cotton being a significant export crop crucial for the economies of Uzbekistan, Turkmenistan, and Tajikistan (Statistics Agency under the President

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of the Republic of Uzbekistan, 2021). This underscores the strategic importance of water resources in the national security frameworks of these countries.

The region currently faces a severe water crisis, exacerbated by a projected population growth to over 100 million by 2050, with the average annual water supply per person falling below 1,000 cubic meters (Gofurov et al., 2023: 7). The degradation of the Aral Sea, which has shrunk to half its original size from being the world's fourth-largest lake, exemplifies the profound mismanagement of water resources during the Soviet era, resulting in a toxic wasteland that adversely affects both agriculture and the health of local populations (Guo et al., 2016: 2; McKinney, 2003: 6).

During the Soviet period, water management policies prioritized agricultural expansion, especially for cotton production, over environmental sustainability. This focus led to the construction of extensive dams and canals in Central Asia, favoring downstream cotton growers and causing conflicts over water allocation with upstream nations like Kyrgyzstan and Tajikistan, which were keen to develop their hydropower resources (Roberts, 2022).

Post-Soviet dissolution, the newly independent Central Asian states sought to remedy these issues through regional cooperation, culminating in the creation of the International Fund for Saving the Aral Sea (IFAS). However, Afghanistan, a major upstream contributor to the Amu Darya, has been largely excluded from these discussions, despite facing significant water management challenges due to its strategic position (Zonn et al., 2018: 245; Nori, 2020: 28).

In Afghanistan, where 90% of water resources are consumed by agriculture, which employs 80% of the workforce, water scarcity has led to severe food insecurity and economic instability. The ongoing conflict has further hindered effective water management, leaving the country susceptible to drought and compounding the transboundary water management challenges (UNEP, 2009: 9; OSCE, 2023: 8).

Tensions over water rights with neighboring countries, including Iran, underscore the broader regional implications of Afghanistan's water management issues, highlighting the need for a comprehensive and collaborative approach to transboundary water management in Central Asia (Pikulicka-Wilczewska, 2019).

Under different leaders, from Islam Karimov to Shavkat Mirziyayev, Uzbekistan's water policy has transitioned from confrontational to more collaborative approaches, focusing on dialogue and cooperation with neighboring states. This shift is essential for addressing the challenges of water scarcity and ensuring equitable water distribution across the Central Asian republics (Lillis, 2012; Silvan, 2020).

Effective transboundary water management in Central Asia demands a multifaceted approach that incorporates political, economic, and environmental considerations. Addressing these complex challenges is crucial for securing the region's water resources, supporting sustainable agricultural practices, and fostering regional stability and cooperation.

In the broader context, the Amu Darya River, flowing from Afghanistan through Uzbekistan to Turkmenistan, remains central to the water security and agricultural needs of the region. Despite not signing the Almaty Agreement or partic-

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ipating in the 1992 UN Convention on Transboundary Watercourses, Afghanistan assures Uzbekistan of continued water provision, highlighting ongoing diplomatic efforts to manage water resources effectively. This river, crucial for the irrigated lands across Turkmenistan, Uzbekistan, and Afghanistan, emphasizes the need for enhanced dialogue and cooperation among all nations sharing the Amu Darya basin (Sokolov, 2022).

The rise of the Taliban and the resultant geopolitical shifts necessitate prioritizing regional negotiations to address the challenges and opportunities in water management, a critical factor for the wellbeing of both Afghan and Uzbek populations. International cooperation, supported by organizations like the UN Economic Commission for Europe and the UN Economic and Social Commission for Asia and the Pacific, is imperative for facilitating sustainable solutions to these transboundary water issues (Abilgazina et al., 2020: 8). This environment demands not only dialogue but also a consensus-building approach that considers the diverse needs and security concerns of all regional stakeholders.

OVERVIEW OF THE CURRENT STATE OF WATER RESOURCES IN CENTRAL ASIA

Covering an extensive area exceeding 4 million km², Central Asia is primarily composed of deserts, semi-deserts, and dry steppes, which account for 70% of its terrain. As a result, large areas face challenges due to inadequate moisture and soil degradation. The region's water resources include surface water from rivers and lakes, groundwater, and glaciers, with the Tian Shan, Pamir Mountains, and Altai Mountains serving as the principal sources of these waters (Peña-Ramos et al., 2021: 4).

A recent report by the UNDP provides a comprehensive assessment of transboundary aquifers across Asia, identifying 129 shared aquifers covering approximately 9 million km², which is about 20% of the region's total area. Uzbekistan has the highest number of shared aquifers at 31, followed by China and the Russian Federation with 21 each, Tajikistan with 15, and Kazakhstan and Kyrgyzstan with 14 each (UNDP, 2024: 103).

Water scarcity is a critical issue in Central Asia, with Uzbekistan experiencing the highest water stress levels in the region. Nations such as Tajikistan, Uzbekistan, Kazakhstan, Kyrgyzstan, and Turkmenistan face a mounting water crisis due to changing climate patterns, rapid population growth, aging infrastructure, and geopolitical tensions (Ahn and Juraev, 2023: 3; Dadabaev et al., 2023: 930; Peña-Ramos et al., 2021). This scarcity significantly threatens economic development, stability, and the social welfare of both Central Asia and the South Caucasus region.

The dependence on transboundary rivers such as the Amu Darya and Syr Darya for irrigation, especially for water-intensive crops like cotton, further intensifies the water scarcity challenge in countries including Uzbekistan, Kazakhstan, Turkmenistan, and Afghanistan. According to the World Resources Institute, Uzbekistan and Afghanistan are among the most water-stressed countries globally, with droughts occurring every five years. This situation highlights the critical need for effective water management and conservation strategies (WRI, 2024).

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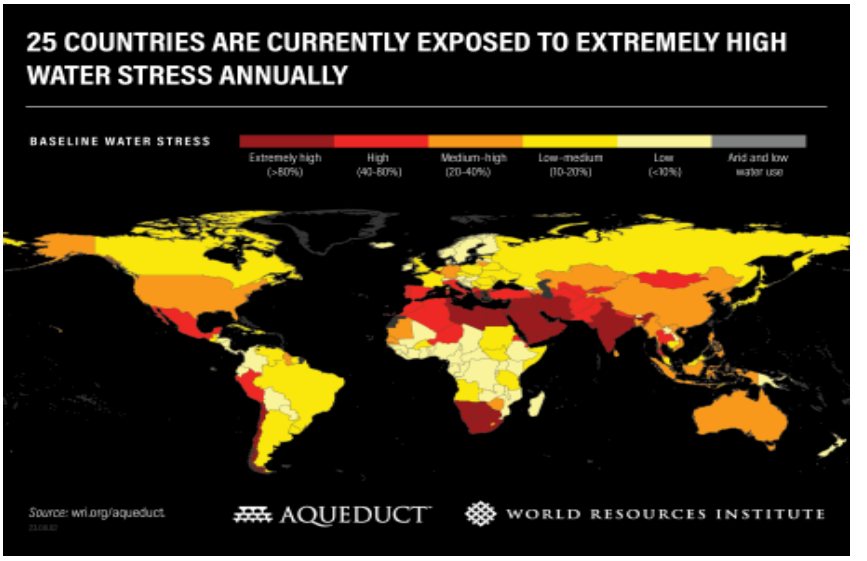
Figure 1. *Countries Currently Experiencing Extreme High-Water Stress Annually*



Source: WRI (2023)

Uzbekistan and Azerbaijan heavily rely on neighboring countries for their water resources, sourcing approximately 80% and 70% respectively from these regions (Jafarova, 2023). This underscores the critical importance of effective transboundary water management strategies. President of Kazakhstan, Kassym-Jomart Tokayev has highlighted forecasts indicating a potential 15% reduction in water volumes from the primary rivers, the Syr Darya and Amu Darya, by 2050 (Kursiv.media, 2023).

Additionally, projections by the government of Uzbekistan predict significant decreases in water volumes from the Syr Darya and Amu Darya. These forecasts anticipate a reduction of 10–15% in the Syr Darya and an even more substantial 15–20% decline in the water levels of the Amu Darya (Eurasianet.org, 2023).

Despite grappling with water scarcity, Uzbekistan, Azerbaijan, and Kazakhstan rank among the top water consumers globally, with Uzbekistan fourth, Azerbaijan tenth, and Kazakhstan eleventh. This paradox is largely due to lower water tariffs, which may not adequately reflect the scarcity and value of the resource (Jafarova, 2023).

Reflecting growing recognition of climate change's significant impact on the region, President Tokayev has proposed hosting a Regional Climate Change Summit in Kazakhstan in 2026. This proposal was announced during the Astana International Forum, signaling a proactive approach to addressing environmental challenges in Central Asia (Astanatimes.com, 2023).

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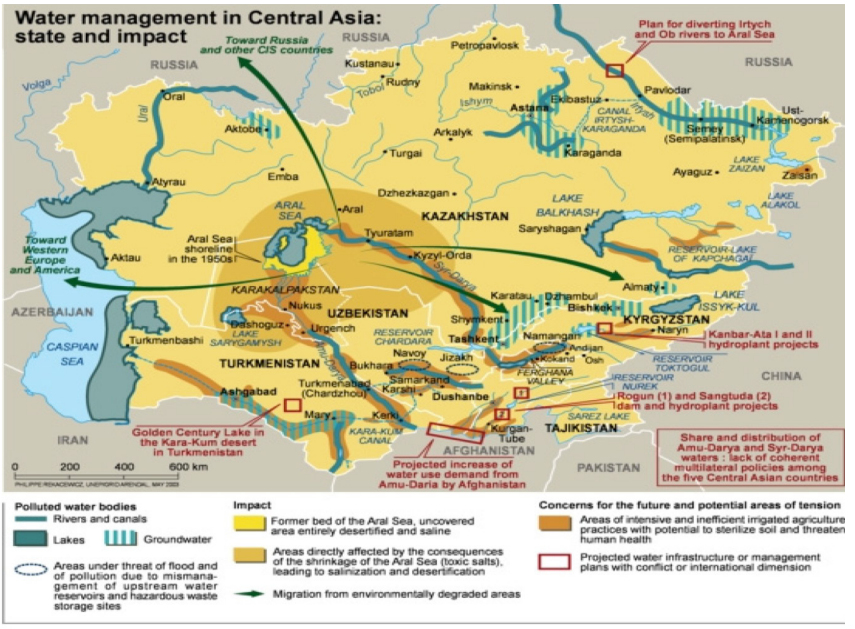
Figure 2. *Water management in Central Asia: States and Impacts*



Source: Peña-Ramos et al., 2021:5

Drawing on insights from numerous researchers, policymakers, and international entities, the Central Asian region is recognized as a focal point for international conflicts due to flawed water policies and scarcity. Research led by Peña-Ramos and colleagues highlights that from 1991 to 2019, over 20 disputes concerning water allocation arose among five Central Asian states – Kazakhstan, Kyrgyzstan, Uzbekistan, Turkmenistan, and Tajikistan (Peña-Ramos et al., 2021:3). Map 2 provides a visual representation of water resource distribution, state boundaries, and the regional and global implications of water management in Central Asia.

The primary drivers of water scarcity in the region include climate change, inefficient water management practices, escalating water consumption, and geopolitical tensions. Climate change contributes to disruptive weather phenomena such as droughts and heatwaves, significantly affecting water resources (Zhiltsov et al., 2018). Additionally, outdated irrigation systems and considerable water loss in agriculture exacerbate water depletion (Ahn and Juraev, 2023: 3; Janusz-Pawletta, 2015; Zhiltsov et al., 2018). The increasing demand for water due to population growth and economic activities, combined with inadequate infrastructure for water storage and distribution, further intensifies water scarcity in Central Asia. Moreover, geopolitical tensions among regional nations have the potential to disrupt water allocation and management, exacerbating the water crisis.

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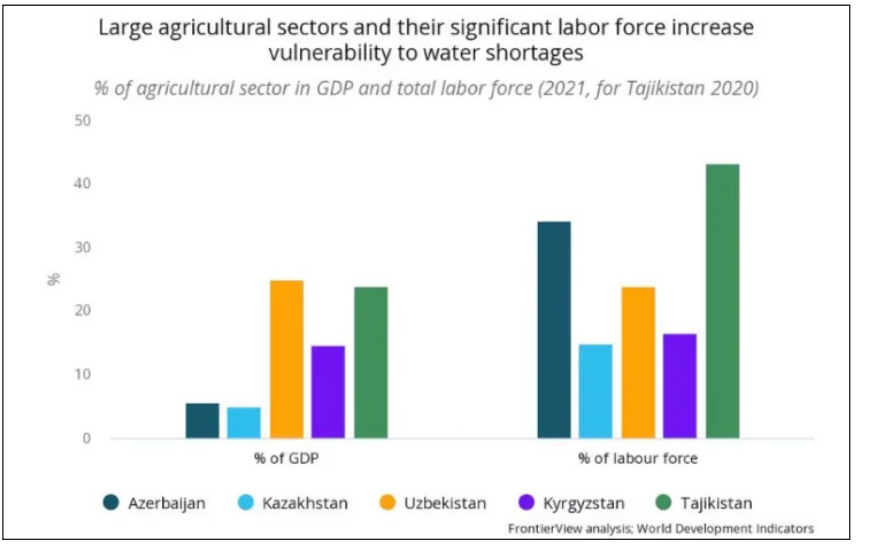
Current Water Scarcity Situation in Uzbekistan

According to the World Resources Institute (WRI, 2023), Uzbekistan is ranked 34th among 164 countries facing water shortages. The country's hydropower resources cover only 4.92% of its total territory, with annual water resources estimated at 50–60 km³. Of this, only 12.2 km³ originate within the republic, while the remainder flows from external sources—specifically, the Tien Shan and Pamir mountains and the Altai, which are fed by summer snowmelt and glaciers. A significant portion of these resources is allocated to irrigating cotton fields. With the republic's population projected to approach 40 million by 2030, available water resources are anticipated to decrease by 7-8 km³. Consequently, the current water resource deficit of 13-14% is forecasted to surge to 44-46% by 2030, posing significant challenges to agricultural and industrial development (Caneecca.org, 2023).

Furthermore, World Bank analytical data projects that water demand in Uzbekistan will rise from 59 cubic km to 62-63 cubic km by 2050, while available water resources are expected to decline from 57 cubic km to 52-53 cubic km. This escalation in water scarcity, from a current deficit of 2 cubic km to 11-12 cubic km, represents a fivefold increase, posing substantial challenges to the country's agricultural and industrial growth (Kun.uz, 2022).

Figure 3: *Agriculture Sectors and Labor Force in Central Asian States*



Source: Jafarova, 2023

Agriculture is a cornerstone of the economy in Central Asian countries, where it not only constitutes a significant portion of their Gross Domestic Product (GDP) but also employs a considerable segment of the workforce, ranging from 10% to 45%. In Kazakhstan, agriculture contributes 5.2% to the GDP, while in Turkmenistan, this figure is 7.5%. The reliance on agriculture is even more pro-

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nounced in Kyrgyzstan and Tajikistan, where it accounts for 20.8% and 23.3% of their respective GDPs (Hamidov et al., 2016: 6). Similarly, in Uzbekistan, agriculture is pivotal, representing approximately 25% of its GDP and employing about 26% of the labor force (Ita.gov, 2023).

To address the escalating issue of fresh water scarcity in Uzbekistan, it is crucial to implement water conservation technologies, modernize irrigation systems, and upgrade existing drainage infrastructure. These water conservation efforts in Uzbekistan are estimated to require a budget of $10 billion, with $4 billion allocated for infrastructure upgrades and $6 billion earmarked for subsidies to support economic stakeholders, including farmers and rural communities. Moreover, the introduction of water usage fees ranging from $0.02 to $0.035 per cubic meter is deemed essential to promote conservation efforts, affecting even the smallest and least developed agricultural plots (Central.asia-news.com, 2023).

International and U.S. entities have collaborated closely with Uzbekistan to address its water-related challenges. Notably, the U.S. Trade and Development Agency has granted $500,000 to Uzsuvtaminot, Uzbekistan's national water company, to support a pilot project evaluating "digital twin" technology for remote monitoring, leakage detection, and demand prediction. Additionally, the Asian Development Bank has approved a $150 million loan coupled with a $3 million grant to enhance food and water security within the nation. Concurrently, the U.S. Agency for International Development (USAID) has funded the restoration of the Yomonjar irrigation system, significantly improving water access for approximately 34,000 residents in the Karakol and Alat districts (Usembassy.gov, 2020).

Current State of Water Scarcity in Afghanistan

Afghanistan's water scarcity is acute, exacerbated by factors including drought, economic instability, historical conflict, and the impacts of climate change. Ranked 40th among 164 countries for water shortages by the World Resources Institute (WRI, 2023), Afghanistan faces profound challenges. Approximately 80% of Afghan households lack sufficient water for daily needs, and a staggering 8 out of every 10 Afghans consume unsafe water. Moreover, 93% of Afghan children (15.6 million) reside in areas with high or extremely high-water vulnerability. The sanitation situation is dire, with nearly 4.2 million people practicing open defecation, half of the population lacking access to basic sanitation facilities, and over 60% without basic hygiene facilities. Additionally, about 94% of schools nationwide lack basic handwashing facilities, and approximately 35% of healthcare facilities do not have basic access to drinking water (UNICEF, 2022).

The economic downturn has further crippled Afghanistan's fragile economy, leading to a reduction in essential services such as water and sanitation, depriving millions of accesses to these basic necessities (OSCE, 2023: 25).

Agriculture remains a critical sector in Afghanistan, employing a large portion of the workforce, constituting approximately 60% of all legal exports, and contributing significantly to the country's GDP. Specifically, it accounts for 25% of the GDP, engages 40% of the labor force, and consumes over 90% of the water resources. Despite its importance, the agricultural sector struggles to meet the

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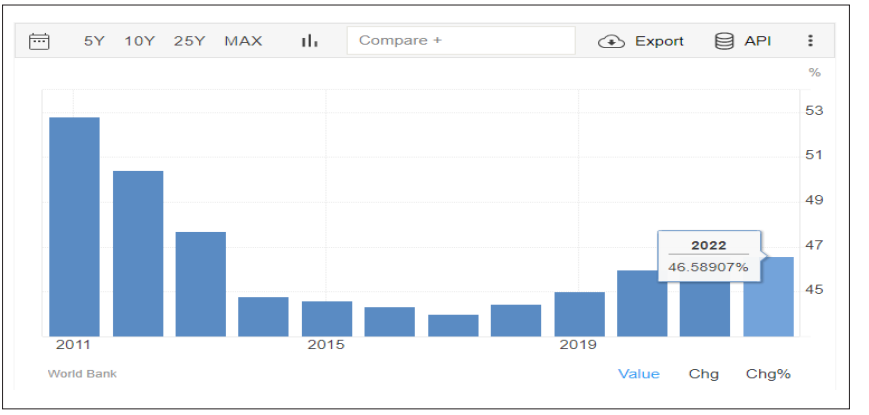
food demands of the Afghan population, facing considerable challenges due to climate variability and political decisions by neighboring countries. Notably, the production of cereals and other annual crops, which contribute an estimated 23% to the agricultural GDP, plays a crucial role in sustaining the agricultural industry (Aydin-Kandemir and Yildiz, 2022: 9).

Figure 4: *Agricultural Employment in Afghanistan (%)*



Source: Trading Economics

Currently, 20 million Afghans are experiencing severe food insecurity, with over 6 million on the brink of famine-like conditions (Ipcinfo.org, 2022). Despite two decades of rehabilitation efforts and international engagement, Afghanistan continues to struggle with significant water shortages, exacerbated by ongoing conflict, mismanagement, inadequate institutional and human capacity, and the impacts of climate change (Un-ihe.org, 2023). The country's water storage capacity is notably low, standing at only 140 m^3 per capita per year, the lowest globally. In 2010, water production per capita in Kabul city was a mere 16 liters per person per day, one of the lowest rates for any city worldwide (Alliance4water.org, 2023).

Collaboration between Uzbekistan and Afghanistan

Uzbekistan plays a critical role in utilizing water resources in the Amu Darya basin and is deeply concerned about the socioeconomic and environmental challenges associated with the Aral Sea. Currently, less than 10% of irrigated land is equipped with water-saving devices. Nonetheless, the government is implementing strategies to conserve water, while farmers adopt water-conservation methods such as crop rotation, cultivating drought-resistant crops, employing drip irrigation in orchards and greenhouses, and establishing plant shelterbelts. Annually, about 50,000 hectares of tree plantings are established to rehabilitate the landscape, counter desertification, and mitigate the effects of dust storms in the Aral Sea region and densely populated areas. Uzbekistan and Afghanistan are collaborating on several critical initiatives with substantial social and economic ramifications (Umarova, 2023).

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These projects include the Surkhan-Puli-Khumri power transmission line, spanning 260 km, which will effectively double electricity export capacity. Additionally, efforts are ongoing to develop the technical and commercial aspects of the Termez-Mazar-e-Sharif-Kabul-Peshawar railway, which extends 600 km. Uzbekistan is providing training to Afghan students in railway vocations at Termez and aiding in the renovation of Mazar-e-Sharif airport. During 2021-2022, Uzbekistan extended humanitarian assistance to mitigate the repercussions of the Afghan crisis, including food, medication, clothing, and gasoline (OSCE, 2023: 21).

The water situation in northern Afghanistan is precarious. In 2022, a significant initiative began in Balkh to construct the Qosh-Tepa canal, spanning 280 km, intended to extract water from the Amu Darya. The quantity of water to be redirected (estimates range from 5 to 10 km^3/year), the anticipated duration for the project's full functionality (five years suggested by media outlets), and the extent of agreements or communication with regional water authorities (ICWC, BWO Amu Darya), from which Afghanistan is excluded, or through bilateral means remain uncertain (OSCE, 2023: 21; Nori, 2020: 20).

Challenges and Conflicts Surrounding Water Management

The agricultural sector consumes approximately 90% of all surface and groundwater abstractions, surpassing other regions globally (Karthe et al., 2015: 492). In this context, conflicts related to water are prevalent due to scarcity and competing resource needs, often resulting in tensions. Therefore, it is crucial for nations to actively participate in dialogue, collaboration, and potentially compromise to establish sustainable resolutions.

Concerns were raised after the Taliban took power in Afghanistan about the impact on water management and cooperation with neighboring countries such as Uzbekistan (Kun.uz, 2023). The Taliban's control over certain districts, as well as their policies, have the potential to disrupt established water-sharing agreements and arrangements.

Water conflicts may be complex, encompassing aspects such as infrastructure development, agriculture, and even geopolitical ramifications. It is imperative for governments to devise strategies to cooperate and provide fair and equal access to water resources for all stakeholders.

The relationship between Uzbekistan and Afghanistan is complex, characterized by their close proximity, cultural ties, and shared economic interests. The two nations share a 143-kilometer boundary, establishing significant mutual reliance. The construction of a bridge in 1981 aimed to enhance trade between the two states, but it eventually facilitated the passage of Soviet soldiers into Afghanistan (Shabad, 1982). Following the Taliban's consolidation, Uzbekistan, like other neighboring countries, has been concerned about potential spillover effects of the conflict, including refugee influx, the spread of extremist ideologies, and regional destabilization. In response, Uzbekistan has implemented proactive strategies such as enhancing border security, intensifying military collaboration with neighboring countries, and participating in diplomatic initiatives to foster peace and stability in Afghanistan.

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IMPORTANCE OF REGIONAL COOPERATION: A SWOT ANALYSIS

To thoroughly assess the factors impacting the significance of regional cooperation for water security and stability in Central Asia, with a particular focus on Uzbekistan and Afghanistan, a SWOT analysis was conducted. This analysis aims to provide insight into the current circumstances, challenges, and opportunities within the region's water management landscape.

Strengths

Historical and Cultural Ties: Uzbekistan and Afghanistan share a rich history and cultural connections that provide a solid foundation for collaboration. The longstanding reliance of Uzbekistan on water flow from upstream countries, including Kyrgyzstan, Tajikistan, and Afghanistan, has cultivated robust traditional water management practices, which could support cooperative strategies. This interdependence necessitates collaboration across all Central Asian republics to address shared water challenges, particularly during peak water usage in summer (Zhiltsov et al., 2018).

Natural Resources: Both countries are endowed with significant water resources, presenting opportunities for joint management and sustainable development.

Geopolitical Interest and Improved Regional Relations: There is strong international interest from neighboring countries and global organizations in promoting stability and cooperation in the region. Under the leadership of President Shavkat Mirziyoyev, Uzbekistan has made significant strides in improving regional relationships by easing tensions and fostering collaboration, marked notably by the removal of objections to hydropower projects in neighboring countries and potential financial participation in these projects (Gofurov et al., 2023).

Existing Agreements: A framework of international agreements and regional initiatives already exists, which can facilitate enhanced cooperation on water management and security.

Diversification of Agriculture: The substantial reduction in cotton cultivation area reflects Uzbekistan's commitment to diversifying its agricultural practices, thereby reducing dependence on water-intensive crops and promoting sustainable water management (World Bank, 2020).

Weaknesses

Dependence on Upstream Countries: Uzbekistan's heavy reliance on water from upstream countries exposes it to vulnerabilities related to water availability and the water management policies of these countries. This dependence is critical for its agricultural sector, especially cotton production.

Limited Bilateral Agreements: The absence of comprehensive bilateral agreements between Uzbekistan and Afghanistan, and other riparian states of the Amu Darya basin, limits effective water management and cooperation, raising the potential for conflicts (Abdullayev, 2020; Janusz-Pawletta, 2018).

Political Instability: Internal political challenges in both Uzbekistan and Afghanistan may impede efforts for regional cooperation.

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Inadequate Infrastructure: Outdated irrigation systems and inadequate infrastructure can hinder effective water management initiatives.

Socio-economic Disparities: Economic development and resource allocation disparities between the two countries may challenge equitable cooperation.

Lack of Trust: Historical conflicts and geopolitical tensions could undermine trust and hinder collaboration between Uzbekistan and Afghanistan.

Opportunities

Regional Collaboration: The evolving diplomatic landscape and regional integration efforts present significant opportunities for Uzbekistan and Afghanistan to engage in dialogue and establish cooperative frameworks for transboundary water management. This collaboration could lead to the creation of institutional frameworks addressing both immediate and long-term water management challenges, promoting sustainable development and regional stability (Jalilov et al., 2015; Nori, 2020).

International Support: Access to international funding and technical expertise could bolster joint initiatives for water security and stability, enhancing the capacity for effective water management and infrastructure development.

Economic Benefits: Enhanced regional cooperation on water management could lead to greater economic opportunities, including advancements in agriculture and water-related industries.

Environmental Sustainability: Collaborative efforts can promote sustainable water use and conservation, benefiting both countries and the broader region.

Peacebuilding: Joint projects and shared goals in water management can serve as confidence-building measures, promoting peace and stability in the region.

Threats

Climate Change: Altered weather patterns and increased drought frequency may exacerbate water scarcity, challenging regional cooperation.

Geopolitical Tensions: Competing interests among regional powers and neighboring countries could escalate conflicts and undermine cooperative efforts.

Resource Competition: Limited water resources and competing demands from various sectors may lead to tensions over water allocation.

Security Risks: Regional instability, including the presence of armed groups and transnational threats, can significantly challenge collaborative efforts and hinder progress towards water security.

Environmental Degradation: Pollution and unsustainable water use practices could worsen water quality and ecosystem health, undermining efforts towards regional cooperation and stability.

This SWOT analysis highlights the complexity of transboundary water management in Central Asia, especially between Uzbekistan and Afghanistan. Addressing these challenges requires a holistic approach that integrates diverse strategies to enhance cooperation and ensure long-term regional water security and stability.

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CONCLUSION

The transboundary water management issues between Afghanistan and Uzbekistan, particularly regarding the Amu Darya River, are of critical importance not only to the bilateral relations of these nations but also to the broader stability of the Central Asian region. Tensions have been exacerbated by the initiation of the Afghanistan Canal project in 2023, highlighting the strategic significance of these water resources on a regional and global scale.

This study employs a Constructivist framework to analyze the complexities involved in managing water resources between Uzbekistan and Afghanistan, seeking to uncover the underlying factors that influence both conflict and cooperation in this arena. The research findings reveal significant shifts in identities and inter-state relations, which are central to understanding the dynamics at play in transboundary water management.

Historically, the Central Asian states, including Uzbekistan, were integrated into the centrally managed Soviet Union, which suppressed national distinctions to promote a unified Soviet identity. In contrast, Afghanistan remained outside this structure, following a distinct historical trajectory that was significantly influenced by the Soviet military presence from 1979 to 1989. The post-Soviet era marked a period of identity transformation for these nations as they navigated the legacies of Soviet rule and sought to establish stable, independent national identities. The ascent of the Taliban in Afghanistan in 2021 has further influenced these dynamics, challenging both nations to maintain stability and rule of law through broadly recognized and stable national identities.

The analysis of empirical data from this case study highlights that the identities of the involved states, shaped by historical, political, and social factors, are deeply intertwined with their national interests and state relations. This interconnection is crucial in understanding the propensity for both cooperation and conflict over shared water resources such as the Amu Darya River. The findings suggest that the fluctuating relations among the states involved are closely linked to changes in how transboundary waters are perceived and managed, influenced by intersubjective processes related to national interest and identity.

In conclusion, enhancing regional cooperation in the management of transboundary water resources is imperative for promoting peace, stability, and sustainable development in Central Asia. By fostering dialogue and cooperation, Uzbekistan and Afghanistan can develop a framework for mutually beneficial management of the Amu Darya River, which could serve as a model for other transboundary water management efforts globally. Such collaborative endeavors are not only vital for regional stability but also bring substantial economic benefits, including improved agricultural yields and enhanced access to clean water, which contribute to overall regional prosperity. The SWOT analysis also underscores the intricate dynamics of transboundary water management in Central Asia, emphasizing the pivotal role of regional cooperation, particularly between Uzbekistan and Afghanistan. Despite inherent challenges such as dependence on upstream countries and political instability, opportunities abound, including evolving diplomatic relations, international support, and economic benefits. However, threats like climate change and geopolitical tensions loom large, demanding a comprehensive approach to foster collaboration, ensure sus-

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tainable water management, and fortify regional stability in the face of complex challenges.

To further support these outcomes, the study proposes several strategic recommendations for policymakers and the academic community:

Implement Reciprocal Training and Study Visits: these initiatives should aim to enhance technical and administrative capacities, fostering mutual understanding and sharing of best practices in water management.

Enhance Information Exchange: Establishing mechanisms for transparent and regular information sharing among all riparian states is crucial for building trust and formulating effective water management strategies.

Strengthen Mutual Understanding and Cooperation: it is essential to promote a deep understanding of each riparian state's perspectives and to identify opportunities for cooperation that provide mutual benefits.

Promote Regional Integration and Inclusivity: including Afghanistan in regional agreements and organizations such as the International Fund for Saving the Aral Sea (IFAS) is critical. This inclusion would facilitate comprehensive approaches to water management that incorporate all regional stakeholders.

These recommendations, if implemented effectively, could significantly mitigate the risks of conflict and enhance the prospects for sustainable peace and development in the region. Through committed international collaboration and robust regional dialogue, the nations of Central Asia can address the challenges of transboundary water management and secure a more stable and prosperous future for all involved.

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