Hydropolitics in South Asia: Unravelling Afghanistan's Hydro-Political Challenges and Regional Cooperation

Pintu Kumar Mahla[1] & Shivendra Shandilya[2]

ABSTRACT

Afghanistan possesses significant hydro resources that have the potential to revolutionize its economy. Rivers and water basins in the area, as well as other water resources, have a significant impact on regional linkages, development potential, and geopolitical dynamics. However, the country encounters substantial obstacles in effectively utilizing these resources. These obstacles include a variety of factors such as military conflicts and boundary disagreements, inadequate water infrastructure, and a dearth of institutional resources for effective water governance. Hydropolitics, denoting the contestation for control and jurisdiction over water reserves, assumes a paramount significance in delineating the socio-political and economic terrain of the geographical domain. Despite these obstacles, there are chances for regional collaboration to handle South Asia's complicated hydro-political issues. Working together with Afghanistan's neighbours may promote communication, collaborative management projects, and the fair sharing of water resources. Platforms for discussion and collaboration are offered by regional frameworks like the Kabul River Basin Initiative and the Indus Waters Treaty. The paper offers a comprehensive overview of Afghanistan's hydro resources, the challenges involved in their utilization, and an analysis of the political dynamics surrounding water resources in the area. Additionally, it explores the case of hydro politics in the Indus Basin and its implications for the relations between India, Afghanistan, and Pakistan. Ultimately, the paper concludes by emphasizing the necessity of regional cooperation to address the challenges associated with hydro resources and to foster stability in the South Asian region.

Keywords: *Hydro-politics, Afghanistan, India, Pakistan, The Indus Basin*

1 Author is an Assistant Professor at the School of Liberal Arts and Sciences, Mody University of Science and Technology, Rajasthan. He is also a Doctoral Research Scholar at the Department of National Security Studies, Central University of Jammu, Jammu and Kashmir. Email:- pin2choudhary.official@gmail.com

2 Author is a Doctoral Research Scholar at the Department of Public Policy and Public Administration, Central University of Jammu, Jammu and Kashmir. Email:- shandilya.shivendra@gmail.com

Indian Studies Review 4(2) [2023] 58-80
Journal of Centre for Study of Politics and Governance, Delhi

INTRODUCTION

Hydropolitics is the intricate interplay between water resources and political dynamics, encompassing the management, allocation, and utilization of water bodies, often within a geopolitical framework. This interdisciplinary field scrutinizes the multifaceted relationships between states or regions over shared water resources, accentuating the role of power, diplomacy, and governance in shaping water-related policies and practices. The principal actors involved in hydropolitics are diverse, encompassing nation-states, regional bodies, international organizations, non-governmental entities, and local communities. Nation-states hold a central position, as they navigate the complexities of water governance negotiating agreements and resolving disputes over transboundary water sources. Moreover, regional bodies and international organizations such as, Permanent Indus Commission (PIC) between India and Pakistan and the United Nations facilitate dialogue, cooperation, and conflict resolution among states sharing water resources.

The interplay between hydro resources and politics in South Asia has long been a topic of scholarly interest. The politics of allocating and managing hydro resources, particularly between countries, is "the systematic analysis of interstate conflict and cooperation regarding transboundary water resources" (Elhance, 1999). The role of hydro-politics in South Asia has been a crucial determinant in shaping the region's dynamics and inter-state relationships. The hydro-political landscape of the region has been marked by both instances of water-related conflicts and cooperation, with Pakistan and India emerging as significant actors in the realm of hydro-diplomacy (Aslam, 2022; Javed, Muhammad, Israr Rasool, and Dr. Ghulam Mustafa, 2021; Lu, H., Du, D., Gui, Q., and Duan, D., 2020). According to Lu et al. (2020), their research indicates that South Asia has emerged as a region of significant interest in terms of water-related conflicts and collaborations, characterised by intricate hydro-political interconnections. Naz delves deeper into the realms and extent of hydropolitics in the South Asian region. With the presence of major transboundary river basins such as the Indus, Ganges, and Brahmaputra, the availability and distribution of water resources have significant socio-economic and geopolitical ramifications (Naz, 2013). The ramifications of hydro-politics have transcended ecological apprehensions, with potential effects on territorial harmony and amalgamation in the South Asian region (Aslam, 2022). The interplay between hydro-politics and regional politics has exerted a noteworthy influence, with implications for matters such as migration and the illicit crossing of borders (Thamban & Humayun, 2022). Comprehending the

hydro-political dynamics is of paramount importance in tackling the obstacles and fostering collaboration within the region.

The history of hydropolitics in South Asia is intertwined with the colonial legacy and subsequent partitioning of the region. The Indus Waters Treaty (IWT) between India and Pakistan in 1960 is a prime example of attempts to resolve water disputes through diplomatic negotiations. However, hydro-political conflicts have the potential to destabilize the region and hinder prospects for regional cooperation. Hydro tensions between India and Pakistan, as well as Pakistan and Afghanistan, have strained bilateral relations, leading to diplomatic standoffs and occasional skirmishes. The historical grievances and contemporary challenges continue to impact water resource management in the region. The sharing of transboundary river systems poses significant challenges for South Asian countries. Disputes often arise over issues such as water quantity, quality, infrastructure development, and the ecological impact of upstream interventions. The construction of dams and diversions by upper riparian states can lead to downstream water scarcity affecting agriculture, livelihoods, and the environment. These disputes reflect the complex dynamics of power, sovereignty, and asymmetrical resource distribution in the region. Consequently, effective governance and institutional frameworks are essential for addressing hydropolitical challenges in South Asia. However, existing mechanisms for water resource management and dispute resolution remain inadequate. The lack of coordination between states hinders cooperation and exacerbates conflicts. Strengthening institutional capacities and fostering transparency are crucial steps toward sustainable water governance.

In South Asia, the hydropolitics of India, Pakistan, and Afghanistan is a complex web of historical disputes, geopolitical rivalries, and shared water resources. Geostrategic considerations often underpin hydropolitical dynamics, as water resources possess intrinsic geopolitical significance due to their vital role in sustaining life, agriculture, industry, and ecosystems. Competing territorial claims, historical grievances, and asymmetries in power contribute to the geopolitical manoeuvring surrounding water resources. Afghanistan's hydro-political landscape has been significantly impacted by geopolitical shifts and external interventions, notably the withdrawal of international troops, the resurgence of Taliban, and the evolving regional dynamics. The geopolitical complexities surrounding Afghanistan, compounded by the strategic interests of neighbouring countries and regional powers, have influenced the country's hydro-political calculus, shaping its approach towards water diplomacy, infrastructure development, and transboundary cooperation. For instance, the Harirud River Basin, which spans across Afghanistan, Iran, and Turkmenistan, is subject to a geopolitical overlay that influences the dynamic hydro-

political interactions in the region (Nagheeby & Warner, 2018). Moreover, the strategic control of water bodies can confer political leverage, influence, and even dominance over neighbouring states, thereby shaping regional power dynamics.

State responses to hydropolitics vary depending on myriad factors, including geographical locations, hydrological conditions, socio-economic priorities, and political imperatives. States may adopt cooperative approaches, engaging in bilateral or multilateral agreements to foster fair distribution and enduring oversight of water reservoirs. Conversely, contentious disputes may arise leading to diplomatic tensions, negotiations, or even confrontations over water allocation, infrastructure development, or environmental impacts. For instance, India, as a middle-riparian state, holds significant control over the water resources originating within its borders. The construction of hydroelectric projects, particularly the Kishanganga and Ratle hydroelectric project have been sources of contention between India and Pakistan.

Moreover, Afghanistan, positioned as an upstream state for some Pakistan, is also a key player in the hydro-political landscape of South Asia. The proposed construction of dams, such as the Kajaki and Kamal Khan, has sparked concerns in Pakistan due to potential impacts on the flow of water entering its territory. Moreover, the Kabul River, shared between Afghanistan and Pakistan, presents another potential source of tension. The state is endowed with abundant water resources, including transboundary rivers, like the Indus and its tributaries, originating from the towering Hindu Kush mountains. These rivers not only sustain Afghanistan but also serve as lifelines for downstream countries, making Afghanistan an essential player in the water-sharing dynamics of South Asia.

SIGNIFICANCE OF STUDYING AFGHANISTAN'S HYDROPOLITICAL POTENTIAL

The examination of Afghanistan's capacity in hydropolitics holds great importance for multiple reasons. To begin with, it is worth noting that Afghanistan is a geographical area that encompasses multiple transboundary water basins. Comprehending the hydro-political dynamics within these river basins is of paramount importance in effectively managing water resources and fostering collaborative relationships among the countries that share the same watercourse.

The hydro-political significance of Afghanistan is further compounded by its potential to serve as a crucial source of vital resources, including lithium deposits (Mohr, S. H., Mudd, G. M., and Giurco, D.2012). The investigation

and responsible administration of these resources may have significant economic and geopolitical ramifications for the area. Moreover, the geopolitical intricacies of Afghanistan, such as its contiguous border with Pakistan and the existence of the Pashtun populace in both nations, augment the intricacy of hydropolitics in the area (Johnson & Mason, 2007). An examination of Afghanistan's hydro-political circumstances can facilitate comprehension of the wider regional dynamics and the likelihood of conflicts or collaborations.

An analysis of the hydro-political dimensions of Afghanistan can offer valuable insights for tackling regional predicaments and fostering stability. Conclusively, an imperative aspect of comprehending the intricate interplay of water resources, resources management, and geopolitical interactions in the region is to examine Afghanistan's potential in hydropolitics. This phenomenon has the potential to facilitate the advancement of collaboration, resolution of disputes, and cultivation of stability within the region.

AFGHANISTAN'S GEOGRAPHY AND WATER RESOURCES

The geography of Afghanistan, which spans from the Caspian shores to China and India, has played a stellar role in shaping its history, culture, and geopolitical position. Comprehending the social geography of Afghanistan during the 20th century is a crucial aspect of obtaining a comprehensive understanding of the nation (Noelle-Karimi, 2013). The difficulties associated with providing fundamental healthcare services in Afghanistan are exacerbated by its topography, weather patterns, and constraints in infrastructure (Palmer, N., Strong, L., Wali, A., and Sondorp, E. 2006). Rubin notes that historically, the term "Afghanistan" was employed to denote the geographical region that encompasses the contemporary Afghanistan-Pakistan border area (Rubin, 2020).

Afghanistan's geopolitical position positions it as a crucial connector between Central and South Asia, providing it with the potential to influence the hydro politics of the region significantly. Afghanistan's strategic location allows it to control and regulate the flow of water downstream, influencing water availability and quality for its neighbours. Geopolitics, the scholarly investigation concerning the impact of geographical variables on political dynamics and international interactions, exerts a profound influence on the formulation and execution of strategies pertaining to global resource allocation and management. Among these resources, water stands out as a critical element that intersects with geopolitical considerations. As an essential component for human survival and socioeconomic development, water resources have increasingly become a source of geopolitical tensions and cooperation. Water resources have historically been at the centre of geopolitical rivalries due

to their strategic value. Rivers, lakes, and aquifers are often shared across national borders, leading to disputes over control, access, and allocation. Access to reliable water sources influences agricultural productivity, industrial development, and energy production, all of which have significant geopolitical implications. Moreover, water resources impact the stability of regions and can become catalysts for conflict or cooperation.

Afghanistan possesses considerable water resources, comprising rivers, lakes, and underground aquifers. The primary river basins and their characteristics (**See Figure 1 and Table 1**) within Afghanistan encompass the Amu Darya, Kabul (Indus), Harirud-Murghab, and Helmand, which serve as crucial irrigation sources for agricultural activities and hydropower generation. Notably, "the Amu Darya stands as the lengthiest river in Central Asia. It originates at an elevation of 4,900 meters on the Wakhan glacier in Afghanistan and spans a distance of 2,540 kilometers, with 1,250 kilometers flowing through Afghanistan or along its borders. Following the confluence of its headwaters (the Wakhan River) with the Pamir River originating from Zor-Kul Lake, the river is known as the Panj; subsequently, after merging with the Vakhsh River, a right tributary, it adopts the name Amu Darya. Beyond the settlement of Khamaab, the river proceeds towards the Central Asian nations—Uzbekistan and Turkmenistan—and ultimately drains into an inland sea, the Aral Sea" (Ahmad & Wasiq, 2004).

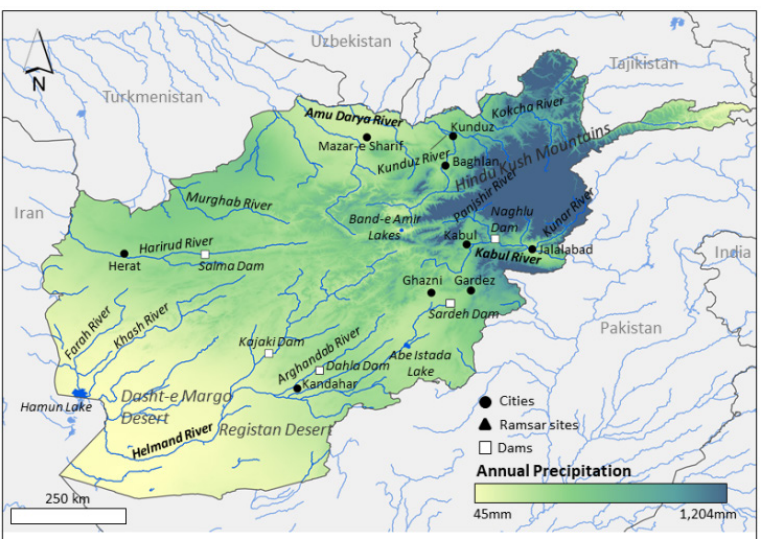

Fig. 1: Water Resources and Infrastructures in Afghanistan

Source: (USAID & Sustainable Water Partnership (SWP), 2021)

Furthermore, the Kabul River originates entirely within the confines of Afghanistan. Its basin area within the country covers 79,360 square kilometers, and the river exhibits an average annual flow of 24 billion cubic meters (BCM) (Ahmad & Wasiq, 2004). Similarly, the Helmand River also originates entirely within Afghanistan's borders. Its basin encompasses a total area of 386,000 square kilometers, with approximately 321,000 square kilometers lying within Afghanistan, accounting for around 78 percent of the total area. Iran occupies roughly 20 percent of the basin, while Pakistan covers the remaining 2 percent (Ahmad & Wasiq, 2004). Although this river basin constitutes the larger region within Afghanistan, "the average annual flow of the Helmand River amounts to only approximately 14 bcm" (Ahmad & Wasiq, 2004). Afghanistan houses several significant lakes, such as Lake Zareh and Band-e Amir, which serve as vital sources of potable water and provide essential habitats for wildlife.

Table 1: River Basins of Afghanistan

River Basin	***Catchment Area (Km^2)***	***Storage Capacity (Billion m3)***
Amu Darya basin	302, 000	24
Helmund river basin	218, 600	6.5
Western rivers basin	85, 300	2.5
Kabul (Indus) basin	72, 000	22
Total		**55**

Source: (Qureshi, 2002)

The river networks of the nation serve a crucial function in providing water resources and facilitating power production. A comprehensive grasp of Afghanistan's history, culture, and societal dynamics necessitates a thorough understanding of its geography. Consequently, the geography and water resources of Afghanistan play a pivotal role in its environment, development, and geopolitical standing.

HYDROPOWER POTENTIAL AND IRRIGATION SYSTEMS IN AFGHANISTAN

Hydropower, as a renewable energy source, holds significant potential to address the energy needs of nations while promoting sustainable development. Afghanistan, endowed with abundant water resources, stands to benefit from

harnessing hydropower as a means to secure a reliable and clean energy supply. Hydropower generation offers a promising pathway for Afghanistan's sustainable development, providing reliable electricity, stimulating economic growth, and reducing greenhouse gas emissions. While challenges exist, international cooperation, community engagement, and environmental considerations can pave the way for responsible and inclusive hydropower development in Afghanistan. By harnessing its abundant water resources and capitalizing on the potential of hydropower, Afghanistan can enhance its energy security, drive socioeconomic progress, and contribute to a greener and more sustainable future.

Afghanistan exhibits a considerable capacity for the production of hydropower (**See Table 2**) and the implementation of irrigation infrastructure. Currently, Afghanistan has 461 MW installed capacity in terms of hydropower generation (International Hydropower Association, 2021). The Karez irrigation systems in Afghanistan presently facilitate the cultivation of more than 170,000 hectares of agricultural land. These systems have the capacity for additional expansion and the provision of a consistent water supply, thereby promoting sustainability (Azami A., Sagin, J., Sadat, S. H., and Hejran, H., 2020).

Table 2: Hydroelectric Dams in Afghanistan

Name of Dam	River	Major Basin
Chak E Wardak	Logar	Indus
Grishk	Helmand	Helmand-Sistan
Dahla	Arghandab	Helmand-Sistan
Kajaki	Upper Helmand	Helmand-Sistan
Surubi	Kabul	Indus
Darunta	Kabul	Indus
Naghlu	Kabul	Indus
Salma	Hari Rod (Tedzhen)	Hari Rod (Tedzhen)

Source: FAO Aquastat, 2012

Over the course of the last 25 years, there has been a growing utilisation of micro-hydropower units in canal systems located in Afghanistan (Thomas V., Osmani, A., and Wegerich, K., 2011). The maintenance of agricultural production in Afghanistan necessitates the implementation of enhanced irrigation techniques and administration (Walters and Jha, 2016). However,

the nation encounters obstacles in its tertiary education framework as a result of protracted conflict and political instability, which could potentially affect the advancement and execution of irrigation and hydropower initiatives (Noori A. Q., Said, H., Nor, F. M., and Ghani, F. A., 2020).

HYDROPOLITICAL CHALLENGES IN AFGHANISTAN: HISTORICAL CONFLICTS AND THEIR IMPACT ON WATER GOVERNANCE

Afghanistan possesses significant untapped hydropower potential, which can contribute to the energy security of both Afghanistan itself and its neighbouring countries. However, the hydropolitical predicaments in Afghanistan have been significantly shaped by past hostilities and their ramifications on water management. Over the course of the last four decades, the nation has encountered difficulties pertaining to the management of hydro resources, leading to a dearth of comprehensive approaches to integrated water resources management (Nori, 2020; Shams and Muhammad, 2021). The challenges associated with harnessing water resources in Afghanistan are a matter of considerable concern. The nation of Afghanistan possesses a significant quantity of water resources; however, "the implementation of integrated water resources management (IWRM) practises has been insufficient due to the protracted war and conflict within the region, thereby impeding the efficacy of water resource management" (Shams & Muhammad, 2021). The nation confronts diverse predicaments, among them the immoderate withdrawal of water for farming, which in conjunction with persistent aridity, has resulted in significant reductions in water reserves (Habib, 2014). The anticipated rise in population, industrialization, urbanisation, and climate change is projected to result in a surge in the need for irrigation and multifaceted water usage in the forthcoming decades (Huseynov & Salik, 2018).

Moreover, Afghanistan encounters the challenge of transboundary water governance, which entails the requirement to navigate principles of equitable and reasonable utilisation in shared watercourses (Kamil, 2021). Effective management of flood risks is crucial, as evidenced in the Kabul River Basin, where transboundary collaboration is imperative (Taraky Y. M., Liu, Y., McBean, E., Daggupati, P., and Gharabaghi, B., 2021). Some scholars have demonstrated that the implementation of multi-stakeholder partnerships holds the potential in addressing the intricate obstacles associated with water resource management in Afghanistan (Pathak S. R., Shrestha Pradhan, N., Guragai, S., Baksi, B., Azizi, F., and Shrestha, A. B., 2022). In order to

ensure the future development and livelihoods of the Afghan people, it is imperative to prioritise sustainable water resource management and address the challenges currently facing this endeavour. In general, Afghanistan necessitates a comprehensive strategy for hydro development in order to fulfil the requirements of hydroelectric energy production, urban water supply, and irrigation for agriculture (Afghanistan Water Constraint Overview Analysis, 2000).

Furthermore, the adjacent areas such as Khyber Pakhtunkhwa located in Pakistan have encountered a lack of progress, destitution, and inadequate education as a result of the ongoing conflict in Afghanistan (Mahmood Q. K., Jafree, S. R., and Qureshi, W. A., 2020). The hostilities in Afghanistan have engendered a highly arduous milieu for carrying out investigations and executing remedies (Blair G., Imai, K., and Lyall, J., 2014). In addition, the presence of geopolitical considerations, such as the acknowledgement of Afghanistan's autonomy by its neighbouring nations, including Iran, has contributed to the intricate water-related issues that exist between the two countries (Saeedi, 2022). The ramifications of the conflicts in Afghanistan extend to the realm of global politics, as evidenced by the discourse surrounding Afghanistan's participation in the United Nations (Mairajuddin, 2023) and the insights gained from the privatisation of military operations (Patel, 2022). The examination of the historical connections between Turkey and Afghanistan, which are founded on their mutual Islamic culture, has been scrutinised within the framework of the ongoing conflicts (Machitidze, 2023). The recent events in Afghanistan, including the withdrawal of US military forces and the subsequent takeover of power by the Taliban, have underscored the imperative for international jurisdiction and investigation of crimes perpetrated in the region (Radmanović, 2023). During the course of the conflict, medical networks have been instrumental in delivering surgical care to wounded personnel in Afghanistan (Pilgrim and Brennan, 2022).

REGIONAL COOPERATION IN SOUTH ASIA: EXISTING FRAMEWORKS AND INSTITUTIONS FOR WATER COOPERATION

Water scarcity, population growth, climate change, and increasing demand for water resources have intensified the need for regional cooperation in managing shared water bodies. South Asia faces significant water-related challenges. To address these challenges, various frameworks and institutions have been established for water cooperation, with a specific focus on hydro

cooperation. South Asia boasts several frameworks aimed at promoting regional hydro cooperation. The IWT is one of the most prominent examples. It provides a framework for water allocation, dispute resolution, and information exchange on Indus River Basin. Another notable framework is the Mahakali Treaty between India and Nepal, signed in 1996, which regulates the utilization of the Mahakali River. Similarly, the Ganges River Basin Commission (GRBC) was established to facilitate cooperation among Bangladesh, Bhutan, China, India, and Nepal in managing the Ganges river system. These frameworks demonstrate the commitment of South Asian countries to address water-related issues through cooperation.

The frameworks and institutions currently in place for water cooperation in South Asia have been influenced by a range of factors, such as regional dynamics, geopolitical relations, and the imperative for sustainable development. The South Asian Association for Regional Cooperation (SAARC) has been instrumental in promoting collaboration among its member nations in various domains, including water distribution and administration (Pratap, 2017; Uddin M. N., Parvez, S. M., Ali, H. M. S., Samsuddin, M., and Karim, A. R., 2022). The SAARC functions as an intergovernmental organisation and geopolitical union, with the primary objective of fostering peace and prosperity through cooperation and conflict resolution (Uddin et al., 2022; Siddiqui, 2017). Furthermore, it has been acknowledged that regional energy collaboration is crucial in ensuring the provision of sufficient and reasonably priced energy, while also having the potential to foster sustainable development in the South Asian region (Allison, 2021). There have been endeavours to establish power trading mechanisms and collaboration in the region, based on prosperous regional energy trading agreements in other global regions (Chauhan, 2021). In South Asia, regional cooperation frameworks, such as SAARC, have played a crucial role in tackling water and energy challenges, promoting economic growth, and fostering peace (Rahman, 2019; Singh, 2019).

Despite the existence of frameworks and institutions, several challenges hinder effective regional hydro cooperation in South Asia. Political tensions, inadequate data sharing, lack of trust, and differing national priorities pose significant obstacles. While challenges exist, there are also opportunities for strengthening regional hydro cooperation in South Asia. First, there is a need for enhanced dialogue and trust-building measures among countries to foster a cooperative atmosphere. Second, improving data sharing and information exchange is crucial for informed decision-making. Third, investing in research and technological innovations can provide valuable insights into sustainable

water management practices. Fourth, exploring the potential for joint infrastructure projects, such as multipurpose dams, can lead to shared benefits and cooperation. Consequently, regional hydro cooperation is crucial for addressing water-related challenges in South Asia. The existing frameworks and institutions, such as legal agreements, regional organizations, and research institutes, provide a foundation for collaboration. However, challenges related to politics, data sharing, and climate change must be overcome to achieve sustainable and equitable

AFGHANISTAN'S ROLE IN REGIONAL HYDROPOLITICS AND IMPLICATIONS FOR NEIGHBOURING COUNTRIES AND REGIONAL DYNAMICS

Afghanistan's hydro-political landscape has undergone notable transformations influenced by internal dynamics, external interventions, and evolving regional dynamics. One significant continuity in Afghanistan's hydro-political policies is its reliance on transboundary water resources, primarily originating from the Amu Darya and Helmand rivers. Afghanistan's historical dependence on these rivers has engendered a consistent emphasis on water diplomacy, bilateral agreements, and regional cooperation to address shared water challenges and mitigate potential conflicts.

Afghanistan has witnessed notable changes in its hydro-political policies, particularly in the post-2001 era following the ousting of the Taliban regime and the subsequent establishment of a democratic government. The hydropolitics in Afghanistan is hindered by the transboundary water management issue, despite the country's potential in this area (Ahmadzai and Mckinna., 2018). Transboundary water governance remains constrained, leading to a restricted scope for significant investments in critical infrastructure. The sole transboundary water management treaty that Afghanistan has in place is the Helmand River Treaty with Iran, which has been in effect for half a century. Regrettably, due to instability and conflicts after resurgence of Taliban in 2021, “the implementation of this treaty has been impeded, and disagreements persist regarding the allocation of water resources” (USAID and Sustainable Water Partnership (SWP), 2021). The Transboundary character of Afghanistan's river systems mandates diplomatic engagements with adjacent nations to ensure proficient administration and fair allocation of shared water reservoirs.

The involvement of Afghanistan in the realm of hydropolitics within the region bears noteworthy ramifications for the overall regional landscape of South Asia. As an upstream country, Afghanistan holds the power to

control water resources that flow into downstream nations like Pakistan. Pakistan holds reservations regarding the establishment of hydroelectric power facilities within the Kabul River basin. The primary reason for this concern stems from the absence of a formal agreement between Pakistan and Afghanistan, compounded by India's involvement and endorsement of Afghanistan's developmental initiatives, which encompass the construction or restoration of dams (Ramachandran, 2018). Pakistan promptly voices its apprehensions whenever India extends support for Afghanistan's development endeavours, perceiving it as a source of rivalry rather than collaboration. To illustrate, Pakistan expressed concern over the agreement reached between the governments of Delhi and Kabul pertaining to the establishment of the Shahtoot Dam along the Kabul River. Islamabad contends that the construction of this dam, alongside other analogous developmental initiatives along the Kabul River or its affluents, will encroach upon the water allocation directed towards Pakistan. It is pertinent to observe, however, that Pakistan has undertaken hydrological projects on the Chitral River without duly informing Afghanistan. Consequently, this has had repercussions on the equitable utilization of water resources in the downstream Kunar province situated in eastern Afghanistan.

It has been revealed that Indian experts have concluded the feasibility studies and detailed engineering assessments for twelve projects to be erected along the Kabul River. Once the tendering process is finalized, the authorities in Kabul, in collaboration with international assistance, will commence the construction of multipurpose water projects on the tributaries of the Kabul River. India intends to support Afghanistan in this endeavour, which is anticipated to have adverse repercussions on Pakistan. The aforementioned document further indicates that the World Bank has committed to funding these twelve dams, with a projected cost of $7.079 billion (Mustafa, 2016). Pakistan is concerned that the completion of these twelve projects would result in the storage of “approximately 4.7 million acre-feet of water”, thereby diminishing the water flow towards Pakistan (Ibid.).

Afghanistan and Pakistan lack specific water treaties because Afghanistan believes that the signing of a treaty with Pakistan may endanger their hydro development on the Kabul River (Chaudhury, 2018). But they have engaged in discussions and negotiations regarding the management of transboundary water resources in the past. The principles of international law, particularly the ‘UN Convention on the Law of Non-Navigational Uses of International Watercourses’, govern the management of such resources between these two nations. Both countries have also taken part in regional water initiatives, such

as 'the Central Asia Regional Economic Cooperation (CAREC)' Program and the Afghanistan-Pakistan Joint Ministerial Commission on Water and Energy, aimed at fostering cooperation and dialogue on transboundary water concerns (Pakistan Institute of International Affairs, 2004). Despite these endeavours, effectively managing transboundary water resources between Afghanistan and Pakistan remains a complex challenge, marked by ongoing issues of water scarcity, deterioration of water quality, and the downstream impact of upstream activities on local communities. The control over hydro resources, as an upstream country, grants Afghanistan leverage in negotiations and can be utilized to ensure its own water security. The utilization of its water resources for irrigation, hydropower generation, and other purposes can have a direct impact on downstream countries and its water availability and livelihoods. Managing this power responsibly becomes crucial to avoid tensions and conflicts over water-sharing arrangements. To tackle these challenges, continuous dialogue and cooperation between the two countries are imperative to ensure the sustainable and fair management of transboundary water resources.

Afghanistan is heavily dependent on its water reservoirs to sustain its agricultural industry, thereby upholding the nation's food security imperatives. Agriculture constitutes a pivotal component of Afghanistan's economic framework, engaging a substantial segment of its populace and furnishing indispensable sustenance to its inhabitants. However, the country faces various challenges related to water scarcity and inadequate irrigation infrastructure, which significantly hinder its agricultural development.

Water scarcity is a pressing issue in Afghanistan, particularly due to factors such as climate variations, increased water demand, and inefficient water management practices. The country experiences irregular precipitation patterns, with some regions facing prolonged droughts, while others endure intense floods. These fluctuations in water availability pose significant challenges to agricultural activities, making it difficult for farmers to plan and manage their crops effectively. Afghanistan's irrigation infrastructure is inadequate and outdated, further exacerbating the water scarcity issue. The lack of proper irrigation systems leads to inefficient water use, with a significant amount of water getting lost through seepage, evaporation, and inefficient distribution networks. Insufficient access to reliable irrigation hampers agricultural productivity, limits crop yields, and perpetuates food insecurity in the country.

The impact of Afghanistan's food security challenges extends beyond its borders and could potentially affect the stability of the entire region,

including India. Afghanistan shares close geographical proximity and cultural ties with neighbouring countries, and any disruption in food production and availability within Afghanistan can have spillover effects on regional stability. Afghanistan's dependence on imports to meet its food demands further underscores the potential implications for regional food security.

India, as a neighbouring country, is particularly sensitive to developments in Afghanistan's agricultural sector and food security. India has provided assistance to Afghanistan in several significant endeavours, exemplified by initiatives such as the Shahtoot Dam construction and the provision of potable water infrastructure for Kabul, with additional benefits extending to the augmentation of irrigation facilities (Ministry of External Affairs, 2017). Moreover, the prominent Indian company AIPL rendered assistance to Afghanistan in the facilitation of a Hydroelectric Power Project situated within the Hilmand Province (Ibid.).

Besides India and Pakistan, Afghanistan's hydropolitics also holds a significant ramification for Iran, Turkmenistan, and Uzbekistan. As Afghanistan navigates its internal strife and seeks to harness its water resources for development, its actions in water management inevitably impact the downstream nations. Any hydropolitical activity in Afghanistan not only holds the potential to bolster its agricultural productivity and energy generation but also alters the flow of water downstream, affecting the water availability for them. These countries heavily rely on the water from the Amu Darya and its tributaries for agriculture, industry, and domestic use. Afghanistan's hydro-politics intersect with its diplomatic relations with neighboring countries. Water sharing agreements, such as the 1973 Helmand River Treaty between Afghanistan and Iran, demonstrate attempts to manage transboundary water resources peacefully (International Water Law, n.d.). However, due to the resurgence of Taliban into power, the volatile security situation in Afghanistan and the absence of a comprehensive framework for regional water management pose challenges to effective cooperation. For instance, The Taliban stood accused of deliberately restricting the flow of water by shutting the gates of the Kajaki and Dahla Dams, ostensibly as a means to exert pressure on Iran (Nagheeby and Warner, 2022).

Moreover, the erection of two significant dams by the Helmand and Arghandab Valley Authority (HAVA) aimed at regulating water discharges provoked considerable discontent among downstream Iran. These constructions encompassed the Dahla Dam, "boasting a storage capacity of 478.6 million cubic meters, and the Kajaki Dam, possessing a storage capacity

of 1.7 billion cubic meters, both of which were ceremonially inaugurated in 1952 and 1953, respectively" (Ibid.). While the initiative aimed to furnish Afghanistan with hydroelectric energy and augment agricultural output, Iran expressed opposition to the HAVA undertaking, apprehensive of its adverse repercussions, notably the depletion of downstream river flow.

Any alteration in the flow of rivers due to upstream developments in Afghanistan can have profound consequences. Diminished water accessibility has the potential to escalate pre-existing disputes and incite confrontations concerning water entitlements, notably within arid locales where water represents a scarce and invaluable resource. Moreover, fluctuations in water flow can disrupt irrigation schedules, affecting crop yields and livelihoods in downstream communities.

Further, Uzbekistan and Turkmenistan currently grapple with acute water scarcity issues, a matter exacerbated by Kabul's proposed "Qosh Tepa canal project", which threatens to compound water-related challenges across Central Asia. Both Uzbekistan and Turkmenistan heavily rely on agriculture for their economic sustenance, thus rendering the canal venture detrimental due to its anticipated ramifications, including heightened salinization and a pronounced decrease in water flow from the Amu Darya River. Uzbekistan, in particular, confronts a pressing water deficit for agricultural purposes, "a concern exacerbated by projections indicating a potential escalation to 7 bcm by 2030 and a doubling by 2050, as articulated by regional experts" (Fazl-e-Haider, 2024). Similarly, Ashgabat seeks enduring remedies for its water predicaments, with both Turkmenistan and Uzbekistan ranked among the seventeen nations grappling with "extremely high" levels of baseline water stress. Situated adjacent to Afghanistan, both nations anticipate heightened water-related adversities consequent to the impending construction of an irrigation canal within Afghanistan's precincts.

During the September 2023 Council of Heads of the Founder States of the International Fund for Saving the Aral Sea, "Uzbekistan's President Shavkat Mirziyoyev voiced apprehensions regarding this canal project, underscoring its potential to significantly alter the water dynamics and equilibrium within Central Asia" (Ibid.). Conversely, the Taliban has championed the canal initiative as a vital lifeline for Afghanistan, "particularly in mitigating the impacts of drought. Spanning a length of 285 kilometers and with a depth of 100 meters, the canal is envisioned to transform approximately 550,000 hectares of arid terrain in Afghanistan's northern provinces of Kaldar, Balkh, Jowzjan, and Faryab into cultivable farmland" (Ibid). Notably, projections by

certain experts suggest that both nations could potentially witness a reduction of up to 15 percent in the irrigation water sourced from the river upon the canal's completion (Ibid.). Consequently, a significant portion of the Amu Darya's waters is anticipated to be diverted inland towards Afghanistan. This diversion is poised to precipitate a marked decrease in the volume of accessible water across various regions of Uzbekistan and Turkmenistan, exacerbating existing water scarcity concerns within the two nations.

To address these challenges, it is crucial for Afghanistan to prioritize investments in water infrastructure, including the development of efficient irrigation systems, water storage facilities, and watershed management programs. Implementing sustainable water management practices, such as water conservation techniques and improved irrigation technologies, can help maximize the productivity of available water resources. Moreover, fostering regional cooperation and dialogue among Afghanistan and its neighbouring countries, including India, is essential to address shared water challenges and promote sustainable water management practices.

Consequently, the scarcity and mismanagement of water resources, especially transboundary water resources, can escalate tensions and trigger conflicts among nations. Afghanistan's water resources, if not managed wisely, have the potential to become a source of contention with its neighbours. Water-related disputes can further exacerbate existing geopolitical challenges in the region, impacting peace, stability, and development. Afghanistan must navigate these complexities and actively engage in water diplomacy to mitigate the risks of conflicts and ensure sustainable water security.

POTENTIAL FOR AFGHANISTAN TO BECOME A KEY PLAYER IN WATER DIPLOMACY

Afghanistan's role in the hydropolitics of South Asia goes beyond upstream-downstream dynamics. The country has been actively engaging in water cooperation and diplomacy to foster regional stability and development. Given the importance of its water resources and the imperative for cross-border collaboration, Afghanistan possesses the capacity to emerge as a pivotal participant in the realm of water diplomacy. The Kabul River Basin, which is a transboundary river basin that has been plagued by conflicts, has been the subject of environmental diplomacy workshops between Afghanistan and Pakistan (Panikkar B., Zia, A., Sgorbati, S., Cohen, M., Abid, M., Fayyaz, M., Hashimi, N., Ali, S., Ahmad, M., Aman, Z., Halasah, S., Rice, D., Del Rossi, G., Ryan, B., Hameed, K., Hussain, M., and Salimee, N., 2019). Afghanistan

possesses a significant water potential that is uniformly distributed. Notwithstanding the potential benefits of water resource development for the Afghan economy, various obstacles have impeded progress in this area (Habib, 2014). These include prolonged civil conflict, issues of corruption, inadequate infrastructure, and severe water scarcity (Hale and Ali, 2023). Afghanistan's strategic location and potential for peace negotiations have garnered significant attention, with Indonesia expressing interest in serving as a peace mediator (Pratama and Ferdiyan, 2021). The proper management of hydro resources is of utmost importance for the Afghan government in the post-war period (Lashkaripour and Hussaini, 2007). The accomplishment of sustainable water management mandates the engagement of diverse stakeholders, including civil society, academia, research institutions, media entities, and private enterprises, in the discourse concerning national and regional water resource management (Nori, 2020). By means of persistent endeavours and deliberate partnerships, Afghanistan has the potential to augment its involvement in water diplomacy within the vicinity.

CONCLUSION

Afghanistan possesses considerable hydro resources that hold the potential to transform its economy. The rivers, water basins, and other water sources in the region exert a substantial influence on regional connections, developmental possibilities, and geopolitical dynamics. Geopolitics and water resources are inherently interconnected, as the availability, access, and distribution of water shape political dynamics at local, regional, and global levels. However, the effective utilization of hydro resources faces formidable challenges. These challenges encompass various factors, including armed conflicts and territorial disputes, inadequate water infrastructure, and insufficient institutional capacity for proficient water governance. Hydro-politics, denoting the competition for control over water resources, assume a critical role in shaping the hydro-political landscape of the region.

Despite these obstacles, there exist opportunities for regional collaboration aimed at addressing the complex hydro-political issues in South Asia. Engaging with Afghanistan's neighbouring countries can facilitate communication, collaborative management initiatives, and equitable sharing of hydo resources. Regional frameworks such as the Kabul River Basin Initiative and the Indus Waters Treaty provide platforms for discussion and cooperative efforts.

Consequently, water scarcity, hydro-political interactions, and climate change contribute to the complex geopolitical landscape, demanding

cooperative and sustainable management practices. By understanding and addressing these challenges through diplomacy, international agreements, and effective water governance, nations can navigate the geopolitical complexities of water resources, foster cooperation, and mitigate the risks of conflicts. The sustainable management of water resources is crucial for fostering stability, enhancing socioeconomic development, and promoting peace in an increasingly water-stressed world.

REFERENCES

Ahmadzai, S., and McKinna, A. (2018). *Afghanistan electrical energy and transboundary water systems analyses : challenges and opportunities*. https://doi.org/10.29171/azu_acku_pamphlet_hd1698_a3_a463_2018

Afghanistan water constraint overview analysis. (2000). https://doi.org/10.2458/azu_acku_pamphlet_hd1698_a3_a349_1992

Ahmad, M., and Wasiq, M. (2004). *Water Resource Development in Northern Afghanistan and Its Implications for Amu Darya Basin*. Washington, DC: The International Bank for Reconstruction and Development / The World Bank. p. 10.

Allison, J. E. (2021, April 15). Energy Cooperation in South Asia: Utilising Natural Resources for Peace and Sustainable Development. *Global Environmental Politics*, *21*(2), 165–166. https://doi.org/10.1162/glep_r_00601

Aslam, B. (2022, May 12). Hydro-diplomacy and the prospects of environmental peacebuilding between Pakistan and India. *Journal of Humanities, Social and Management Sciences (JHSMS)*, *3*(1), 204–216. https://doi.org/10.47264/idea.jhsms/3.1.14

Azami, A., Sagin, J., Sadat, S. H., and Hejran, H. (2020, December 1). Sustainable Irrigation: Karez System in Afghanistan. *Central Asian Journal of Water Research*, *6*(2), 1–18. https://doi.org/10.29258/cajwr/2020-r1.v6-2/1-18.eng

Blair, G., Imai, K., and Lyall, J. (2014, February 12). Comparing and Combining List and Endorsement Experiments: Evidence from Afghanistan. *American Journal of Political Science*, *58*(4), 1043–1063. https://doi.org/10.1111/ajps.12086

Chauhan, P. (2021, May 19). Power Trade in South Asia: Developing A Framework Based on Case Studies of Power Trading Arrangements in Europe and Asia. *South Asian Survey*, *28*(2), 263–293. https://doi.org/10.1177/09715231211015824

Chaudhury, D. R. (2018, August 16). India-backed Afghan dam to put Pakistan under pressure. *The Economics Times*.

Elhance, A. P. (1999). *Hydropolitics in the 3rd World: Conflict and Cooperation in International River Basins*. Washington, DC: US Institute of Peace Press. p. 3.

Fazl-e-Haider, S. 2024. Afghanistan's Canal Project Looks to Deepen Uzbekistan and Turkmenistan's Water Woes. *The Jamestown Foundation*, 21(36). Retrieved from https://jamestown.org/program/afghanistans-canal-project-looks-to-deepen-uzbekistan-and-turkmenistans-water-woes/.

FAO Aquastat. 2012. *Country Profile - Afghanistan*. Retrieved from https://www.fao.org/aquastat/en/countries-and-basins/country-profiles/country/AFG

Hale, T. N., and Ali, S. H. (2023, March 2). Afghanistan's mineral fortune: prospects for fuelling a green transition? *Geological Society, London, Special Publications*, *526*(1), 69–93. https://doi.org/10.1144/sp526-2022-46

Habib, Habibullah. (2014). *Water-related problems in Afghanistan.* https://doi.org/10.29171/azu_acku_pamphlet_hd1698_a3_h335_2014

International Hydropower Association. 2021. *Region Profile: South and Central Asia*. Retrieved from https://www.hydropower.org/region-profiles/south-and-central-asia.

International Water Law. n.d. The Afghan-Iranian Helmand-River Water Treaty. Retrieved from https://www.internationalwaterlaw.org/documents/regionaldocs/1973_Helmand_River_Water_Treaty-Afghanistan-Iran.pdf.

Johnson, T. H., and Mason, M. C. (2007, December). Understanding the Taliban and Insurgency in Afghanistan. *Orbis*, *51*(1), 71–89. https://doi.org/10.1016/j.orbis.2006.10.006

Kamil, I. (2021, July 8). Afghanistan, the Amu Darya Basin and Regional Treaties. *Chinese Journal of Environmental Law*, *5*(1), 37–62. https://doi.org/10.1163/24686042-12340063

Lashkaripour, G. R., and Hussaini, S. A. (2007, September 18). Water resource management in Kabul river basin, eastern Afghanistan. *The Environmentalist*, *28*(3), 253–260. https://doi.org/10.1007/s10669-007-9136-2

Lu, H., Du, D., Gui, Q., and Duan, D. (2020). Spatiotemporal evolution of transboundary water conflict, cooperation, and global hydro-political relations. *42*(6), 1162–1174. https://doi.org/10.18402/resci.2020.06.13

Machitidze, G. (2023). Turkey and the Taliban: Algorithms of Interaction. *World Economy and International Relations*, *67*(3), 67–78. https://doi.org/10.20542/0131-2227-2023-67-3-67-78

Mahmood, Q. K., Jafree, S. R., and Qureshi, W. A. (2020). The Psychometric Validation of FCV19S in Urdu and Socio-Demographic Association with Fear in the People of the Khyber Pakhtunkhwa (KPK) Province in Pakistan. *International Journal of Mental Health and Addiction*, *20*(1), 426–436. https://doi.org/10.1007/s11469-020-00371-4

Mairajuddin, A., and Hakimudin, M. (2023). The Dilemma of Representation: UN Rules and Regulations in Addressing Conflict over Afghanistan's Seat in UN General

Assembly. *American Journal of Law and Political Science*, *2*(2), 12–22 . https://doi.org/10.58425/ajlps.v2i2.159

Ministry of External Affairs. (2017). India-Afghanistan Relations. Government of India. Retrieved from https://www.mea.gov.in/Portal/ForeignRelation/1Afghanistan_October_2017.pdf.

Mohr, S. H., Mudd, G. M., and Giurco, D. (2012, March 19). Lithium Resources and Production: Critical Assessment and Global Projections. *Minerals*, *2*(1), 65–84. https://doi.org/10.3390/min2010065

Javed, Muhammad, Israr Rasool, and Dr. Ghulam Mustafa. (2021). Water Politics between Pakistan and India: An Analysis. *Research Journal of Social Sciences and Economics Review (RJSSER)*, *2*(1), 195–199. https://doi.org/10.36902/rjsser-vol2-iss1-2021

Mustafa, Khalid. (2016, June 5). India out to damage Pakistan's water interests on Kabul river. *The News*. Retrieved from https://www.thenews.com.pk/print/125490-India-out-to-damage-Pakistans-water-interests-on-Kabul-river

Nagheeby, M., and Warner, J. (2018, November 1). The geopolitical overlay of the hydropolitics of the Harirud River Basin. *International Environmental Agreements: Politics, Law and Economics*, *18*(6), 839–860. https://doi.org/10.1007/s10784-018-9418-9

Nagheeby, M., and Warner, J. (2022). The 150-Year Itch: Afghanistan-Iran Hydropolitics Over the Helmand/ Hirmand River. *Water Alternatives*. 15(3): 551-573Retrieved from https://www.water-alternatives.org/index.php/alldoc/articles/vol15/v15issue3/672-a15-3-1/file.

Naz, F. (2013, September 4). Water: a cause of power politics in South Asia. *Water and Society*. https://doi.org/10.2495/ws130091

Noelle-Karimi, C. (2013). Maps and Spaces. *International Journal of Middle East Studies*, *45*(1), 142–145. https://doi.org/10.1017/s0020743812001341

Noori, A. Q., Said, H., Nor, F. M., and Ghani, F. A. (2020). The Relationship between University Lecturers' Behaviour and Students' Motivation. *Universal Journal of Educational Research*, *8*(11C), 15–22. https://doi.org/10.13189/ujer.2020.082303

Nori, S. M. (2020). Challenges of transboundary water governance in Afghanistan. *Central Asian Journal of Water Research*, *6*(1), 18–38. https://doi.org/10.29258/cajwr/2020-r1.v6-1/18-38.eng

Palmer, N., Strong, L., Wali, A., and Sondorp, E. (2006). Contracting out health services in fragile states. *BMJ*, *332*(7543), 718–721. https://doi.org/10.1136/bmj.332.7543.718

Panikkar, B., Zia, A., Sgorbati, S., Cohen, M., Abid, M., Fayyaz, M., Hashimi, N., Ali, S., Ahmad, M., Aman, Z., Halasah, S., Rice, D., Del Rossi, G., Ryan, B., Hameed, K., Hussain, M., and Salimee, N. (2019, October 24). Transboundary Water Governance

in the Kabul River Basin: Implementing Environmental and Public Diplomacy Between Pakistan and Afghanistan. *Complexity, Governance & Networks*, *5*(1), 101. https://doi.org/10.20377/cgn-80

Patel, Y. R., and Jha, S. K. (2022, December 31). Private Military And Security Companies (Pmscs) In Armed Conflicts: Lesson From Afghanistan. *Towards Excellence*, 855–861. https://doi.org/10.37867/te140472

Pathak, S. R., Shrestha Pradhan, N., Guragai, S., Baksi, B., Azizi, F., and Shrestha, A. B. (2022, November 22). Complexities and Opportunities of Multi-Stakeholder Partnerships: A Case Study of Water Resource Management in Afghanistan. *Sustainability*, *14*(23), 15496. https://doi.org/10.3390/su142315496

Pilgrim, C. H. C., and Brennan, L. (2022). Surgical management of injured ADF personnel deployed to Afghanistan 2001–2021. *ANZ Journal of Surgery*, *93*(4), 821–828. https://doi.org/10.1111/ans.18141

Pratama, E. G., and Ferdiyan. (2021). Religion and Public Diplomacy: The Role of Nahdlatul Ulama (NU) in Indonesia - Afghanistan Peace Agenda. *JURNAL PENELITIAN*, 1–12. https://doi.org/10.28918/jupe.v18i1.3470

Pratap, R. (2017). Building Peace over Water in South Asia: The Watercourses Convention and SAARC. *Athens Journal of Law*, *4*(1), 7–26. https://doi.org/10.30958/ajl.4-1-1

Qureshi, Asad Sarwar. (2002). Water Resources Management in Afghanistan: The Issues and Options. International Water Management Institute (IWMI). Retrieved from https://cropwatch.unl.edu/documents/Water%20Resource%20Issues%20In%20Afghanistan.pdf.

Radmanović, J. (2023). Jurisdiction of the International Criminal Court over crimes committed on the territory of Afghanistan. *Glasnik Advokatske Komore Vojvodine*, *95*(1), 234–284. https://doi.org/10.5937/gakv94-34230

Rahman, M. (2019). Book Review: Sanjay Kathuria, A Glass Half Full: The Promise of Regional Trade in South Asia. *South Asia Economic Journal*, *20*(1), 158–161. https://doi.org/10.1177/1391561419829657

Ramachandran, Sudha. (2018). India's Controversial Afghanistan Dams. The Diplomat. Retrieved from https://thediplomat.com/2018/08/indias-controversial-afghanistan-dams/

Rubin, B. R. (2020). *State and Politics*. Afghanistan. https://doi.org/10.1093/wentk/9780190496630.003.0003

Shams, A. K., and Muhammad, N. S. (2021). Toward sustainable water resources management: critical assessment on the implementation of integrated water resources management and water–energy–food nexus in Afghanistan. *Water Policy*, *24*(1), 1–18. https://doi.org/10.2166/wp.2021.072

Siddiqui, Z. (2017). Regional Integration and Economic Growth: A Convergence Analysis for Pakistan. *Journal of Global Economics*, *05*(03). https://doi.org/10.4172/2375-4389.1000255

Singh, A. K. (2019, December 15). Human Security in Nepali Perspective. *Journal of APF Command and Staff College*, *2*(1), 60–66. https://doi.org/10.3126/japfcsc.v2i1.26732

Taraky, Y. M., Liu, Y., McBean, E., Daggupati, P., and Gharabaghi, B. (2021, May 27). Flood Risk Management with Transboundary Conflict and Cooperation Dynamics in the Kabul River Basin. *Water*, *13*(11), 1513. https://doi.org/10.3390/w13111513

Thamban, A. S., and Humayun, S. (2022, December 31). Colouring With The Same Brush: Revisiting Undocumented Migration In South Asia. İmgelem, *6*(11), 435–454. https://doi.org/10.53791/imgelem.1173756

Thomas, V., Osmani, A., and Wegerich, K. (2011). Local challenges for IWRM in Afghanistan. *International Journal of Environmental Studies*, *68*(3), 313–331. https://doi.org/10.1080/00207233.2011.573963

Uddin, M. N., Parvez, S. M., Ali, H. M. S., Samsuddin, M., and Karim, A. R. (2022). Mathematical modelling on the transmission of COVID-19 and its reproduction numbers in SAARC countries. *Journal of Applied and Natural Science*, *14*(2), 469–476. https://doi.org/10.31018/jans.v14i2.3398

USAID and Sustainable Water Partnership (SWP). (2021). *Afghanistan Water Resources Profile Overview*. Retrieved from https://winrock.org/wp-content/uploads/2021/08/Afghanistan_Country_Profile-Final.pdf.

Walters, S., and Jha, A. (2016). Sustaining Chili Pepper Production in Afghanistan through Better Irrigation Practices and Management. *Agriculture*, *6*(4), 62. https://doi.org/10.3390/agriculture6040062