



Water as a Political Tool and The Need for Cooperation: The IWT and Its Effects on Political Relations Between Pakistan and India

Sidra Ghaffar^{1*} and Waseem Ahmad²

^{1*}Lecture in Superior College, Lahore. Email: khalihsidra400@gmail.com

²M. Phil, Department of Politics & International Relations, Lahore Leads University Lahore. Email: waseemjoyia326@gmail.com

Citation: Ghaffar, S., & Ahmed, W. (2024). Water as a Political Tool and The Need for Cooperation: The IWT and Its Effects on Political Relations Between Pakistan and India. *Journal of Law and Social Sciences*, 2(2), 76-87.

Received: November 01, 2024

Revised: December 26, 2024

Accepted: December 28, 2024

Published: December 31, 2024



Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).



Abstract

Water is an essential resource vital for the survival of all living beings, and its distribution and management have long been a contentious issue, particularly between India and Pakistan. The Indus Waters Treaty (IWT), signed in 1960, divided the Indus River system between the two countries and has mostly prevented major water conflicts. This study uses a qualitative research method, relying on literature analysis, including books and research articles, to explore the dynamics of the IWT and its implications. However, the present study's findings explore that the treaty has significant challenges and controversies. The unequal distribution of water resources has deeply impacted political relations between India and Pakistan, with Pakistan accusing India of using water as a geopolitical tool to control its agriculture and economy. India's construction of dams and other water diversion projects on the Indus River has been a persistent point of contention, exacerbating mistrust and hostility between the two nations. Additionally, the IWT has hindered the development of a more comprehensive, cooperative approach to water management, limiting the potential for joint, sustainable solutions. Fostering dialogue, addressing environmental concerns, and revising the treaty to incorporate modern challenges like climate change and population growth will ensure the sustainable and equitable management of shared water resources.

Keywords: Indus Water Treaty, Contentious, Two Nations, Indus River System, Weapon, Economy, Agriculture, Barrier, Development, Sustainable Solutions, Resolution

Introduction

The Indus Waters Treaty (IWT), signed between Pakistan and India in 1960, is often referred to as one of the most successful water-sharing agreements in the world. The treaty has been instrumental in providing a framework for the equitable sharing of water resources between the two countries. However, the water distribution under the IWT has also had significant political implications, impacting the relations between the two countries.

The IWT was signed after the Indus Water Dispute between India and Pakistan. The dispute arose over water sharing from the Indus River and its tributaries, which flow through both countries. The IWT was a breakthrough in resolving this dispute and is a shining example of successful water diplomacy.

Under the IWT, the Indus River System was divided into the Eastern and Western Rivers. The Eastern rivers—Ravi, Beas, and Sutlej—were allocated to India, while the Western rivers—Indus, Jhelum, and Chenab—were allocated to Pakistan. India was granted the right to use a limited amount of water from the Western rivers for irrigation and power generation, while Pakistan used the bulk of the water.



The water distribution under the IWT has had far-reaching effects on the political relationship between India and Pakistan. The allocation of the Eastern rivers to India has been a source of discontent for Pakistan, as it has led to a perception of water scarcity and a lack of control over its water resources. This has been a significant point of contention in bilateral relations between the two countries.

Moreover, India's construction of hydroelectric projects on the Western rivers has also been a source of tension between the two countries. Pakistan has raised concerns over the potential impact of these projects on its water supply, accusing India of violating the provisions of the IWT. This has led to a series of disputes and negotiations between the two countries, with Pakistan seeking the intervention of the World Bank, the mediator of the IWT.

The effects of water distribution under the IWT have also been felt domestically in both countries. In Pakistan, the perception of water scarcity and the reliance on the Indus River for agriculture has led to a sense of insecurity and fear of water shortages in the future. This has also influenced Pakistan's stance on the IWT and its relationship with India.

On the other hand, India's control over the Eastern rivers has given it a strategic advantage over Pakistan, as it can regulate the water flow into Pakistan. This has been seen as a tool for India to exert pressure on its neighbor, especially during political tension.

In recent years, the effects of water distribution under the IWT have only intensified due to changing climate patterns and increased demand for water resources. The melting of glaciers in the Himalayas and changing rainfall patterns have led to concerns over the long-term sustainability of the Indus River System. This has added another layer of complexity to the already delicate political relationship between India and Pakistan.

Research Questions

1. What are the political effects of water distribution on Pak-India relations under IWT?
2. Does the IWT favor one country over the other?

Research Objective

- To search for recommendations in the wake of water distribution effects on Pak-India political relations concerning IWT.

Research Methodology

The research methodology adopts a qualitative approach, focusing on literature analysis, including books, research articles, and policy documents. Data were collected from various secondary sources, such as historical accounts, government reports, and scholarly studies, to understand the dynamics of the Indus Waters Treaty (IWT). To ensure



reliability and transparency, the data were analyzed using thematic coding and content analysis, with specific case examples such as the 1965 and 1971 water disputes between Pakistan and India highlighted to illustrate the impact of water distribution on bilateral relations. These studies have revealed the complex and intertwined nature of water distribution and its effects on the bilateral relationship between the two countries. It has been found that water scarcity and disputes over water sharing have often escalated tensions and hindered the progress of diplomatic relations between Pakistan and India. This has highlighted the need for a more comprehensive and cooperative approach towards water management to improve and maintain a peaceful relationship between the two nations.

Political Effects of Water Distribution on Pak-India Relations under IWT

The Indus Water Treaty (IWT), signed in 1960, has been a crucial mechanism for regulating water distribution between Pakistan and India. However, political tensions over water resources have escalated in recent years, mainly due to India's infrastructure projects on the Indus River system. Pakistan has expressed concerns that India's construction of dams like Baglihar and Kishanganga threatens its water security, particularly in the agriculturally critical Sindh region (Shahid, 2021). India defends these projects as vital for its energy needs and agricultural development, but Pakistan views them as a deliberate attempt to manipulate water flows and destabilize its economy. The growing water scarcity exacerbated by climate change and the longstanding Kashmir conflict has turned the water issue into a geopolitical flashpoint. The potential for these tensions to lead to a "water war" is a growing concern, especially with both nations being nuclear powers. Despite the initial success of the IWT in promoting cooperation, its ability to manage evolving challenges like climate change, population pressures, and infrastructure development is increasingly questioned (Mirza, 2016; Hafeez & Kausar, 2022).

The Indus Water Treaty: Issues and Challenges

The Indus Water Treaty was designed to allocate the waters of the six rivers in the Indus Basin. Pakistan controlled the western rivers (Indus, Jhelum, and Chenab) and India the eastern ones (Ravi, Beas, and Sutlej). This arrangement was meant to prevent conflict by ensuring equitable access to water resources, with mechanisms for dispute resolution through the Permanent Indus Commission and international mediation by the World Bank (Sattar & Azeem Shah, 2023). However, recent disputes over India's hydropower projects and concerns about their potential to alter water availability have undermined the treaty's effectiveness. Pakistan fears that India's control over upstream water resources could severely impact its agricultural sector and overall water security. While the treaty allows for the construction of non-storage hydropower projects, the rising demand for water and the environmental changes have strained the treaty's provisions, leading to calls for its revision (Hahn & Peitgen, 2003). Despite periodic conflict resolution efforts, the growing



pressures on water resources and the political context surrounding infrastructure developments highlight the treaty's limitations in addressing contemporary challenges.

Kashmir and the Water Dispute Between India and Pakistan

Kashmir has long been a focal point of the India-Pakistan conflict, with the region's water resources playing a central role. The Indus River, which flows through Kashmir, is crucial for both countries, and its control has been a significant source of tension. Under the Indus Waters Treaty (IWT), the western rivers (Indus, Jhelum, and Chenab) were allocated to Pakistan, and the eastern rivers (Ravi, Beas, and Sutlej) to India. However, the IWT's provisions, especially regarding Article XI, have become contentious as both countries claim sovereign rights over the region's water resources, originating in the disputed Kashmir territory (Schofield, 2012). India's construction of hydroelectric projects in Kashmir, such as the Kishanganga and Ratle dams, has exacerbated these tensions, with Pakistan accusing India of violating the IWT and endangering its water supply. Despite limited diplomatic engagement and some cooperation in sharing hydrological data, these projects continue to disrupt the local agricultural economy, particularly in Pakistan's Sindh region, where water shortages have deepened. The water dispute is inseparable from the broader Kashmir issue and highlights the need for urgent, collaborative resolution to prevent further escalation and ensure the region's long-term stability (Bose, 1999).

Increasing Water Stress and the Impact of Climate Change

Water scarcity is becoming an acute issue for India and Pakistan, driven by rapid population growth, industrialization, and the effects of climate change. The Indus River, a vital water source for both nations, is increasingly under strain as water demand outpaces supply. Pakistan, which relies on the western rivers for approximately 65% of its water, has raised concerns over India's dam constructions, such as the Baglihar and Kishanganga projects, fearing they reduce water flow and threaten its agricultural sector (Hejazi et al., 2015). Additionally, the accelerated melting of Himalayan glaciers, the primary source of the Indus River's water, has further reduced river flows, exacerbating water stress. The 1960 IWT, designed to allocate water between the two countries, faces challenges adapting to changing climatic conditions and increasing water demand. To address these challenges, both nations must engage in joint water management strategies that account for climate change, population pressures, and technological advancements in water conservation and management. Sustainable practices, such as efficient irrigation and rainwater harvesting, are critical for reducing the strain on water resources and ensuring the future well-being of both countries (Haines & Patz, 2004; Short & Neckles, 1999).

India's Threat to the Indus Waters Treaty: Growing Tensions and Concerns for Pakistan



The integrity of the Indus Waters Treaty (IWT), which has served as a cornerstone for regional peace since 1960, is increasingly threatened due to India's actions, particularly its construction of hydroelectric projects on rivers allocated to Pakistan. India's development of dams such as the Kishanganga and Baglihar projects on the western rivers (Indus, Chenab, and Jhelum) has led to significant reductions in water flow to Pakistan, raising serious concerns about water security, especially for Pakistan's agricultural economy (Haines & Patz, 2004). These projects, which India justifies under the treaty as "run-of-the-river" schemes, have been contested by Pakistan, which views them as violations of the IWT. Furthermore, India's political rhetoric, such as Prime Minister Modi's 2019 suggestion of cutting off water supplies to Pakistan, has escalated tensions, turning water into a geopolitical weapon. This use of water as a political lever, coupled with India's threats to revoke the treaty following incidents like the 2016 Uri attack, has undermined trust and raised fears of further destabilization in the region. For Pakistan, which depends heavily on the Indus River system, these actions represent an existential threat to its water security and economic stability, exacerbating the risk of conflict between the two nuclear-armed neighbors.

The Role of the International Community and the Need for Dialogue

Despite growing tensions over India's water projects, the IWT remains a legally binding agreement, and both countries are bound by international law to uphold its provisions. The World Bank, as the custodian of the treaty, plays a key role in mediating disputes and ensuring that both nations comply with the agreed terms. However, the rising challenges—such as India's unilateral construction of dams and Pakistan's accusations of water weaponization—highlight the need for urgent diplomatic engagement. International stakeholders, including the United Nations, the United States, and China, have urged India and Pakistan to pursue peaceful dialogue to resolve the issue. Pakistan's concerns over India's use of water as a strategic tool and India's emphasis on its developmental needs must be balanced through cooperative efforts that respect the treaty's provisions while addressing emerging challenges like climate change, population growth, and the political complexity of Kashmir (Abas et al., 2019). As both countries face growing water stress and environmental challenges, a renewed commitment to dialogue and adherence to the IWT is essential to prevent the region from further conflict and ensure long-term water security for both nations.

Pak-Indo Relations on Water Conflict

The water dispute between India and Pakistan has intensified in recent years, mainly due to India's construction of hydroelectric projects on shared rivers such as the Salal, Baglihar, Kishanganga, and Wullar Barrage. Pakistan has raised concerns that these projects threaten its water security and exacerbate flood risks, mainly when India releases water without prior notification. These actions have strengthened Pakistan's defenses along the Jhelum and Chenab rivers, framing the water issue as a strategic and political challenge.



Former Pakistani President Asif Ali Zardari emphasized that water shortages, partly attributed to Indian actions, have dire consequences for Pakistan's stability, fostering economic instability and social unrest. The situation underscores the need for a diplomatic resolution to prevent the water dispute from escalating into a broader regional conflict. In this context, the Indus Waters Treaty (IWT), though pivotal, remains under strain, and finding a mutually agreeable solution within its framework is essential for maintaining peace and stability in the region.

Risks of IWT Withdrawal

The Indus Waters Treaty (IWT) is a legally binding agreement, and its unilateral withdrawal is not permitted under its provisions (Article XII(4)), which require mutual consent from both India and Pakistan. While India has continued its dam construction on the western rivers, Pakistan remains in a relatively weak position to safeguard its water reserves, thus prompting discussions around the potential risks of withdrawing from the treaty. A withdrawal could severely disrupt water distribution, especially for agriculture and hydropower, which are vital to both countries. Additionally, it would dismantle the Permanent Indus Commission, an essential mechanism for dispute resolution, exacerbating tensions. While such a move could spur new water-sharing arrangements or involve additional stakeholders such as China or Afghanistan, the risks of destabilizing the region are high, given the reliance of both nations on the Indus River basin for agricultural and industrial needs. Environmental concerns also add weight to the debate, as unregulated use of resources could lead to ecological degradation. For this reason, both nations must prioritize diplomatic engagement and seek sustainable, cooperative solutions to manage the shared water resources (Kokab & Nawaz, 2013).

The Kalabagh Dam: A Controversial Solution

The Kalabagh Dam, proposed in the 1950s, remains highly controversial due to its political, environmental, and technical challenges. Located on the Indus River in Punjab, Pakistan, the dam promises to address water scarcity, enhance agricultural productivity, generate significant hydroelectric power, and improve flood control. However, it has faced strong opposition, particularly from Sindh province, due to concerns over displacement, land loss, and environmental impacts. Despite these objections, the Kalabagh Dam could contribute to regional cooperation by providing water resources during droughts, even for northern Indian states, thereby promoting equitable water distribution. The dam could also support energy generation, alleviating Pakistan's power shortages. Comprehensive environmental assessments, transparent decision-making, and inclusive stakeholder engagement are crucial for advancing the project. Moreover, fostering cooperation between India and Pakistan regarding the dam's development could help address regional water scarcity, creating a platform for broader cooperation on water resource management (Sharma & Thakur, 2017).



Key Provisions of the Indus Waters Treaty and Their Impact on Pakistan-India Relations

The **Indus Waters Treaty (IWT)**, signed in 1960 under the mediation of the World Bank, was designed to allocate the waters of the Indus River system between India and Pakistan, marking a significant achievement in conflict resolution. The treaty grants Pakistan control over the western rivers (the Indus, Jhelum, and Chenab), while India is allocated control over the eastern rivers (the Ravi, Beas, and Sutlej). To facilitate cooperation, the treaty established the **Permanent Indus Commission**, tasked with resolving disputes and ensuring the equitable management of water resources. Over the decades, the treaty has generally prevented major water-related conflicts, even during heightened political tensions between the two countries. However, the treaty has faced challenges in the modern era, particularly concerning **India's construction of dams** on the western rivers, such as the **Kishanganga dam** on the Jhelum River, which has raised legal and technical disputes (Kokab & Nawaz, 2013). These developments have strained bilateral relations, as Pakistan perceives these projects as detrimental to its water security.

Climate Change and Environmental Challenges

While the IWT has historically provided a framework for water management, it has not been updated to address contemporary challenges, especially those posed by **climate change**. The Indus River system heavily depends on glacier melt and snowmelt from the Himalayas and the Karakoram range. Rising global temperatures are impacting these glaciers, leading to changes in river flow patterns and exacerbating water scarcity for both countries. Additionally, **increased flooding and droughts**, influenced by shifting climate patterns, have made water management more unpredictable and complicated. The treaty does not have provisions to address these evolving environmental factors, leaving India and Pakistan vulnerable to the unpredictable impacts of climate change. As such, the treaty's original framework must be revisited to incorporate modern scientific data and adaptive strategies to mitigate both nations' environmental challenges (Sharma & Thakur, 2017).

Political Implications of Water Distribution on Bilateral Relations

The water distribution under the **Indus Waters Treaty** has long been a source of political contention between India and Pakistan. While the treaty aims to ensure equitable water-sharing, it has often become a political tool both countries use during conflict. Pakistan, reliant on water from the western rivers for its **agriculture and food security**, has consistently raised concerns over the reduced water flow due to India's construction of dams on its allocated rivers. In particular, projects like the **Kishanganga** and **Baglihar dams** have been viewed by Pakistan as treaty violations, leading to diplomatic protests and legal challenges. These tensions are further exacerbated by India's strategic positioning as the upper riparian State, which gives it control over water flow upstream. Pakistan has



accused India of using water as a means of exerting political pressure, particularly in the context of the longstanding territorial dispute over **Kashmir**. Conversely, India has argued that its water management projects are within the bounds of the treaty and are necessary for its energy and agricultural needs (Kokab & Nawaz, 2013).

The Need for Treaty Revision and Future Cooperation

As the population and water demand in India and Pakistan continue to rise, the **Indus Waters Treaty** is under increasing scrutiny. The original provisions, crafted in the mid-20th century, were designed for a different geopolitical and environmental context. The changing **hydrological dynamics** due to climate change and the growing **political tensions** over water resources make it clear that the treaty's provisions may no longer be entirely adequate for addressing the complexities of the current situation. There is a growing call for both nations to **renegotiate or amend** the treaty to address the evolving needs of both countries. This might involve incorporating **climate change adaptation measures**, enhancing data-sharing mechanisms, and involving third-party mediation in dispute cases. For the treaty to remain effective and contribute to regional stability, both India and Pakistan must work together to ensure that water distribution is handled equitably, without politicization, and in a manner that reflects modern challenges (Moore, S. M., 2020).

Policy Recommendations

There are some policy recommendations to address the water-sharing dispute between India and Pakistan under the Indus Waters Treaty (IWT):

1. Strengthen Bilateral Dialogue and Confidence-Building Measures

India and Pakistan should prioritize regular bilateral discussions on water-sharing issues to resolve disputes and enhance mutual trust. Establishing a dedicated water commission with representatives from both countries could provide a platform for continuous dialogue and timely dispute resolution. Confidence-building measures like joint monitoring of river flows and transparent data sharing would foster a cooperative atmosphere, reducing the risk of escalation over water-related tensions.

2. Develop Joint Water Management Projects

India and Pakistan should explore collaborative water management projects, focusing on shared infrastructure for water storage, irrigation, and hydropower generation. Joint ventures in dam construction, flood control, and water conservation could optimize the use of water resources in the Indus Basin, benefitting both countries. This collaboration would promote regional stability and prevent unilateral actions that could harm the interests of either nation.

3. Implement Independent Third-Party Mediation



In cases where disputes over water sharing remain unresolved through bilateral negotiations, both countries should agree to engage an independent third-party mediator. This could be an international organization or neutral State with expertise in transboundary water law and conflict resolution. The mediator could facilitate dialogue, provide expert advice, and ensure equitable water-sharing solutions, reducing the risk of unilateral actions that could lead to conflict.

4. Enhance Data Sharing and Transparency

To prevent misunderstandings and foster greater cooperation, India and Pakistan should implement a system of real-time data sharing regarding water flows, dam storage levels, and rainfall patterns. An independent monitoring body could ensure that data is shared transparently and regularly. Increased transparency would help address concerns regarding the construction of new projects or changes to existing infrastructure, mitigating suspicions and promoting cooperative water management.

5. Focus on Climate Change Adaptation and Water Efficiency

Both nations should adopt joint strategies to address the impacts of climate change on water resources in the Indus Basin. Collaborative research and investments in water efficiency technologies—such as drip irrigation, water recycling, and drought-resistant crops—could help mitigate water scarcity and improve agricultural productivity. Joint initiatives to build climate resilience would ensure that both countries can adapt to changing environmental conditions while maintaining stable and sustainable water-sharing practices.

Conclusion

The Indus Waters Treaty (IWT), signed in 1960 and brokered by the World Bank, has significantly shaped the political dynamics between Pakistan and India. On the one hand, the treaty has fostered a degree of cooperation by providing a structured framework for managing the Indus River system, ensuring both countries have access to water resources. This arrangement has facilitated trust-building and technical exchanges, helping the nations to work together on common challenges in water management. The IWT has thus contributed to a more stable bilateral relationship by offering a shared platform for addressing water-related issues, which could have otherwise escalated tensions.

On the other hand, the treaty has also been a source of ongoing political conflict. As the upper riparian, India has faced accusations from Pakistan of violating the treaty by constructing dams and water infrastructure on rivers allocated to Pakistan under the IWT. These actions have sparked diplomatic tensions, with Pakistan accusing India of using water resources as a political tool to assert dominance. Additionally, the growing issue of water scarcity in Pakistan, exacerbated by climate change and reduced water flows, has intensified these tensions. Pakistan has raised concerns that India's management of water



resources is adversely affecting its agriculture and economy, leading to a strained political relationship. The treaty, intended to promote cooperation, has thus become a point of contention, with both nations using it to leverage political influence, particularly as water scarcity becomes a more pressing issue for Pakistan.

Way Forward

The Indus Waters Treaty (IWT), signed in 1960, has long been a cornerstone of water-sharing between India and Pakistan, regulating water distribution from the Indus River and its tributaries. However, the treaty has faced increasing strain recently due to climate change, population growth, and rising water demand. These pressures have intensified concerns over equitable water distribution, fueling tensions between the two nations. To prevent further strain on political relations and ensure the treaty's continued effectiveness, several recommendations are crucial. First, effective communication and transparency are essential. Both countries must engage in regular dialogue, facilitated by modern technology, to monitor water flow and usage, ensuring that concerns are addressed before they escalate. Blending open communication channels can prevent misunderstandings and conflicts, fostering mutual trust and cooperation.

Another critical recommendation is improving water management practices to ensure efficient utilization of shared resources. India and Pakistan should invest in modern infrastructure, including advanced irrigation systems, water conservation techniques, and rainwater harvesting methods. Both countries can mitigate the scarcity risk and ensure fair water distribution by reducing wastage and improving water efficiency. Additionally, the IWT should be periodically reviewed and updated to account for changes in climate, population, and water usage patterns. Given the treaty's age, revising it would help address emerging challenges and close potential gaps. The international community, particularly organizations like the World Bank and the United Nations, is vital in supporting the treaty's implementation, mediating disputes, and ensuring compliance from both nations. By reinforcing cooperative mechanisms and providing technical and financial support, global institutions can help prevent the IWT from becoming a source of conflict and ensure it continues to promote regional stability.

References

- Abas, N., Khan, N., Saleem, M. S., & Raza, M. H. (2019). Indus Water Treaty in the doldrums is due to the water–power nexus. *European Journal for Security Research*, 4, 201-242.
- Bose, S. (1999). Kashmir: Sources of conflict, dimensions of peace. *Survival*, 41(3), 149–171.



- Durrani, A. U., Ali, M., & Ahmed, N. (2023). Effects of industrialization on Indo-Pak water politics: A comparative study of Egypt in hindsight—A Pakistan perspective. *Central European Management Journal*, 31(2), 424-436.
- Hafeez, S., & Kausar, S. W. A. (2022). Revisiting the IWT for technical gaps and climate change vulnerability: A policy perspective from Pakistan. *Journal of Humanities, Social and Management Sciences (JHSMS)*, 3(2), 88-103.
- Hahn, H. K., & Peitgen, H. O. (2003, May). IWT-Interactive Watershed Transform: A hierarchical method for efficient interactive and automated segmentation of multidimensional grayscale images. In *Medical Imaging 2003: Image Processing* (Vol. 5032, pp. 643–653). SPIE.
- Hejazi, M. I., Voisin, N., Liu, L., Bramer, L. M., Fortin, D. C., Hathaway, J. E., ... & Zhou, Y. (2015). 21st-century United States emissions mitigation could increase water stress more than the climate change it is mitigating. *Proceedings of the National Academy of Sciences*, 112(34), 10635–10640.
- Kokab, R. U., & Nawaz, A. (2013). Indus Water Treaty: Need for review. *Asian Journal of Social Science*, 2, 210-218.
- Mirza, M. N. (2016). *Indus water disputes and India-Pakistan relations* (Doctoral dissertation).
- Moore, S. M. (2020). The dilemma of autonomy: Decentralization and water politics at the subnational level. In *A River Flows Through It* (pp. 218–235). Routledge.
- Sattar, E., & Azeem Shah, S. (2023). Pakistan's transboundary water governance mechanisms and challenges. In *Water Policy in Pakistan: Issues and Options* (pp. 369-397). Cham: Springer International Publishing.
- Schofield, V. (2012). Kashmir in conflict: India, Pakistan and the unending war. *Mountain Research and Development*, 32(1), 101-103.
- Shahid, G. M. D. M. R. (2021). Water scarcity in Pakistan: Hydro-politics in Indus Basin.
- Sharma, A. K., & Thakur, N. S. (2017). Assessing the impact of small hydropower projects in Jammu and Kashmir: A study from north-western Himalayan region of India. *Renewable and Sustainable Energy Reviews*, 80, 679-693.
- Short, F. T., & Neckles, H. A. (1999). The effects of global climate change on seagrasses. *Aquatic Botany*, 63(3-4), 169-196.
- Ul-Durar, S., Shah, M., De Sisto, M., & Arshed, N. (2023). Metabolic rift theory and the complexities of water conflict between India and Pakistan: A pathway to effective environmental management. *Journal of Environmental Management*, 347, 119164.
-