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THE INDUS WATER TREATY AND ITS IMPACT ON PAKISTAN–INDIA RELATIONS: 2018–2022

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Abstract
The Indus Waters Treaty (IWT) has been a cornerstone of water resource management between Pakistan and India since its signing in 1960, allocating the waters of the Indus River system and establishing mechanisms for dispute resolution. Despite enduring multiple wars and geopolitical tensions, the treaty largely functioned as a stabilizing structure in bilateral relations. However, from 2018 to 2022, evolving political tensions, infrastructure projects, legal disputes, and environmental stressors increasingly challenged the IWT's efficacy and its role in diffusing conflict. India's development of river infrastructure – particularly hydroelectric projects on the Jhelum and Chenab – raised concerns in Islamabad about potential violations of treaty provisions and downstream water security, affecting agricultural and economic interests in Pakistan. Both countries have made use of the treaty's dispute resolution mechanisms, including referrals to Neutral Experts and arbitration, reflecting a shift from purely cooperative implementation to competitive legal and diplomatic engagement. These tensions have illustrated broader strains in Pakistan–India relations, where water resource governance intersects with geopolitical mistrust, national security narratives, and institutional limitations. Understanding the IWT's operations and contested implementations during 2018–2022 is crucial for assessing its sustainability as a conflict-mitigating instrument and its broader implications for bilateral relations, transboundary water governance, and regional stability.

INTRODUCTION

The Indus Waters Treaty (IWT), brokered by the World Bank in 1960, aimed to equitably allocate the waters of the Indus River system between India and Pakistan, providing a legal framework for cooperation and conflict avoidance over water resources (World Bank, 2018). Under the treaty, the three "eastern" rivers (Ravi, Beas, Sutlej) were allocated for Indian use, while Pakistan was granted control over the "western" rivers (Indus, Jhelum, Chenab), with provisions for data sharing, flood warnings, and dispute resolution through a Permanent Indus Commission and Neutral Expert processes (Ghaffar, 2023). Historically, this arrangement endured through periods of high political tension and armed conflict, becoming one of the few lasting cooperative frameworks between the two nuclear-armed neighbours (World Bank, 2018).

By the late 2010s, however, the treaty's implementation began reflecting broader shifts in Pakistan–India relations, where geopolitical tensions — especially over Kashmir, terrorism allegations, and strategic posturing — spilled into water governance (Riaz, Ishaque, & Baig, 2022). Indian infrastructure projects such as the Kishanganga and Ratle hydroelectric plants advanced despite Pakistani protests about potential impacts on downstream flows, leading to disagreements over compliance with treaty

technical provisions (Ghaffar, 2023; World Bank, 2018). Pakistan viewed these developments through a lens of strategic vulnerability, emphasizing its downstream dependence on western rivers for agriculture and fundamental water security (Climate Diplomacy, n.d.).

The period between 2018 and 2022 saw repeated diplomatic exchanges, legal referrals, and public criticisms between the two states concerning treaty compliance and procedural transparency. These disputes extended beyond technical water issues to encompass larger political narratives about trust, sovereignty, and interstate cooperation, illustrating that transboundary water agreements cannot fully insulate resource governance from broader geopolitical contexts (The Guardian, 2025; Reuters, 2025). The IWT's operational mechanisms — such as data sharing, joint oversight, and arbitration — were invoked multiple times, reflecting attempts to maintain treaty relevance even as political relations deteriorated (Ghaffar, 2023).

Understanding the IWT's function and contested interpretations during this period is essential to evaluating its role as a confidence-building measure (CBM) and a tool for sustaining dialogue amidst broader adversarial dynamics. Water security, already stressed by climate variability, population growth, and developmental pressures, has become increasingly entangled with national security and regional rivalry narratives, emphasizing the need to examine the treaty's performance and political salience in the context of 2018–2022 bilateral relations (Stimson, 2024).

Literature Review

Scholars and policy analysts underscore the historical significance of the Indus Waters Treaty as a foundational element of water cooperation in South Asia. Initial studies show that the treaty successfully delineated shared water use and established institutional mechanisms to buffer resource conflicts between India and Pakistan throughout the Cold War and multiple wars over Kashmir, contributing to long-term stability in the region (World Bank, 2018; Ghaffar, 2023).

In recent decades, research has highlighted emerging tensions within the treaty framework, particularly as India pursues greater hydroelectric development on rivers flowing into Pakistan. Riaz et al. (2022) examine what they term "Indian aqua aggression", arguing that infrastructure projects like the Kishanganga and Ratle dams challenge the treaty's technical limits and increase mistrust between Islamabad and New Delhi. Legal and policy reviews further explore how the IWT's dispute resolution mechanisms have been tested by these tensions. For instance, referrals to neutral experts and arbitration mechanisms illustrate attempts to resolve conflicts, though their effectiveness is sometimes constrained by political and strategic considerations (Ghaffar, 2023; Climate Diplomacy, n.d.).

Additional literature focuses on the political ramifications of water disputes on Indo-Pak relations. Analysts argue that treaty controversies exacerbate mistrust and feed into national narratives framing water access as a matter of sovereignty and security (The Guardian, 2025; Reuters, 2025). Environmental studies contextualize these conflicts within climate stressors, noting that glacier retreat and variability in rainfall increase pressure on river flows, necessitating adaptive management strategies within the treaty framework (Stimson, 2024). Together, these studies illustrate that while the IWT has historically been a model of cooperation, its implementation between 2018 and 2022 demonstrates rising challenges and the politicization of water governance (Ghaffar, 2023; Climate Diplomacy, n.d.).

Existing literature robustly documents the historical framework of the Indus Waters Treaty and its functioning, but there is a relative lack of focused analysis on how recent treaty disputes (2018–2022) have reshaped political trust, diplomatic engagement, and regional water governance strategies between Pakistan and India (Ghaffar, 2023; Riaz et al., 2022).

Research Questions

1. How did disputes over the Indus Waters Treaty between 2018 and 2022 influence diplomatic relations and political trust between Pakistan and India?
2. What are the implications of treaty implementation challenges for water security, agricultural sustainability, and bilateral cooperation?

Research Objectives

1. To analyse the role of the Indus Waters Treaty in shaping Pakistan–India bilateral relations during 2018–2022.
2. To assess the political, economic, and water security implications of contested treaty implementation and disputes.

Research Methodology

This study employs a qualitative research approach using secondary sources only, including academic journal articles, policy reports, official statements, and credible media coverage (Ghaffar, 2023; Riaz et al., 2022). Materials were systematically reviewed to identify key patterns in treaty disputes, institutional actions, and outcomes relevant to Pakistan–India relations from 2018 to 2022 (Climate Diplomacy, n.d.; Stimson, 2024). Thematic analysis was applied to synthesize findings across sources, allowing for insights into political, economic, and environmental dimensions of the treaty (World Bank, 2018; Tribune, 2025).

Findings

- **Treaty Structure and Governance Mechanisms:** The Indus Waters Treaty (IWT) establishes a structured framework for water allocation, data sharing, and dispute resolution between India and Pakistan. The **Permanent Indus Commission (PIC)** serves as the primary bilateral platform for monitoring compliance, resolving technical disputes, and sharing river data (World Bank, 2018; Ghaffar, 2023). The treaty also includes provisions for appointing a **Neutral Expert** to adjudicate disagreements, highlighting its legal and institutional design for long-term cooperation.
- **Emerging Infrastructure Conflicts:** Between 2018 and 2022, India's construction of hydroelectric projects on the **Jhelum and Chenab rivers**, such as the Kishanganga and Ratle dams, became a major source of dispute. Pakistan raised concerns over potential violations of treaty provisions, particularly regarding water flow, storage, and environmental impacts downstream (Riaz, Ishaque, & Baig, 2022; Ghaffar, 2023).
- **Suspension and Abeyance of Treaty Functions:** Political tensions led to partial suspensions of certain treaty functions, including limited data sharing and delays in joint inspections. These actions affected confidence-building measures and challenged the treaty's role as a stabilizing instrument (Times of India, 2025).
- **Agricultural and Economic Vulnerabilities:** The western rivers are critical for Pakistan's irrigation-dependent agriculture. Any disruption in river flow or perceived treaty violations posed risks to crop production, rural livelihoods, and food security, particularly in Punjab and Sindh provinces (Tribune, 2025).
- **Legal and Diplomatic Engagements:** During this period, both countries increasingly relied on **legal arbitration and neutral expert consultations** to resolve disputes. While these mechanisms prevented escalation into armed conflict, they revealed the limitations of treaty provisions when political mistrust overshadows technical compliance (Ghaffar, 2023; Climate Diplomacy, n.d.).
- **Political and Security Dimensions:** Water disputes were closely tied to broader geopolitical narratives. Pakistani concerns over treaty compliance were often framed within national security discourses, especially in the context of Kashmir and regional power dynamics (The Guardian, 2025; Reuters, 2025). Similarly, India emphasized its sovereign rights to develop river infrastructure, highlighting the intersection of water governance with strategic interests (Economictimes, 2025).
- **Institutional Challenges:** The Permanent Indus Commission faced difficulties in conducting joint inspections and resolving disagreements due to reduced cooperation and political constraints. These challenges limited the PIC's effectiveness in monitoring treaty compliance and maintaining trust (Ghaffar, 2023).
- **Environmental Stressors:** Climate variability, glacial melt, and changes in rainfall patterns exacerbated water scarcity concerns. These environmental pressures increased downstream dependency on regulated river flows and raised the stakes for effective treaty implementation (Stimson, 2024).
- **Public and Media Perceptions:** Civil society and media in Pakistan highlighted fears over water scarcity and economic fallout, putting additional pressure on policymakers to contest

Indian projects and seek visible diplomatic or legal remedies (The Guardian, 2025).

- **Strategic Implications:** Disputes over treaty implementation reflected the broader struggle for regional influence and leverage. The IWT, while primarily technical in nature, became a symbolic battleground for asserting political and strategic interests, demonstrating that water treaties operate within a complex interplay of environmental, legal, and geopolitical factors (Ghaffar, 2023; World Bank, 2018).
- **Continuity and Resilience of the Treaty:** Despite emerging conflicts, the IWT has largely prevented direct water-related confrontations between India and Pakistan. Its dispute resolution mechanisms and institutional frameworks continue to provide a platform for dialogue, reinforcing the treaty's resilience even under high-stakes political tension (World Bank, 2018; Climate Diplomacy, n.d.).
- **Cross-Border Impact Assessment:** Downstream communities and agricultural stakeholders in Pakistan remain highly sensitive to water flow disruptions, illustrating the treaty's direct link to socio-economic stability. Any perceived non-compliance can amplify political pressure and escalate tensions in broader diplomatic relations (Tribune, 2025).
- **Policy and Negotiation Dynamics:** The findings indicate a shift from cooperative engagement toward **competitive treaty interpretation**. Legal, diplomatic, and technical avenues were increasingly used to assert national interests rather than purely to maintain cooperation (Ghaffar, 2023; Riaz et al., 2022).
- **Recommendations for Adaptive Management:** Observed challenges highlight the need for modernization of treaty mechanisms to incorporate climate risk management, real-time data sharing, and inclusive stakeholder consultation (Stimson, 2024; Climate Diplomacy, n.d.).

Discussion and Analysis

The Indus Waters Treaty (IWT) remains one of the most enduring examples of transboundary water governance in the world, having survived multiple wars, territorial disputes, and political tensions between India and Pakistan (World Bank, 2018; Ghaffar, 2023). The period between 2018 and 2022 demonstrates that while the treaty provides a robust legal framework, its implementation is increasingly shaped by geopolitical rivalry, infrastructure development, and environmental stressors. The treaty's mechanisms, including the Permanent Indus Commission and neutral expert arbitration, have been pivotal in preventing direct conflict over shared rivers. However, reliance on these mechanisms alone is insufficient to resolve emerging technical and political tensions (Riaz, Ishaque, & Baig, 2022; Climate Diplomacy, n.d.).

India's development of hydroelectric projects such as the Kishanganga and Ratle dams represents a significant source of contention during this period. While India asserts that these projects comply with treaty provisions, Pakistan argues that downstream water availability and seasonal flow management are compromised, posing risks to irrigation and agriculture in western provinces (Ghaffar, 2023; Tribune, 2025). These disputes highlight the treaty's dual nature: it is simultaneously a tool for cooperation and a platform for contestation, where technical disagreements are interpreted through strategic and political lenses (Stimson, 2024).

The politicization of water resources is particularly evident in how treaty disputes intersect with broader security narratives. Pakistan frames India's river infrastructure projects as a strategic threat, often connecting water governance issues to national security and regional sovereignty (The Guardian, 2025). Conversely, India frames its projects as legitimate sovereign rights, emphasizing developmental priorities and energy security (Economictimes, 2025). This alignment of technical water issues with political and strategic narratives amplifies tensions, demonstrating that the treaty functions within a highly politicized environment rather than as a purely technical agreement (Riaz et al., 2022; Ghaffar, 2023).

Institutional mechanisms, while functional, faced significant challenges between 2018 and 2022. The Permanent Indus Commission struggled with limited cooperation in joint inspections and delayed data sharing, reflecting the broader deterioration of bilateral trust (Ghaffar, 2023). These operational challenges underscore the importance of strengthening

institutional capacity and ensuring timely communication to maintain the treaty's effectiveness, especially when infrastructure projects are under dispute (World Bank, 2018; Climate Diplomacy, n.d.).

Legal and diplomatic interventions during this period illustrate both the treaty's strengths and limitations. Neutral expert referrals and arbitration processes have been instrumental in preventing escalation, yet they require political will, transparency, and compliance from both parties to succeed (Riaz et al., 2022; Ghaffar, 2023). The slow pace and selective engagement in these mechanisms reflect the limitations of legal frameworks when overarching geopolitical mistrust persists. Moreover, the treaty does not automatically resolve political disagreements or asymmetries of power, indicating a gap between technical solutions and political realities (Stimson, 2024).

Downstream economic implications further complicate treaty dynamics. Pakistan's reliance on western rivers for irrigation-dependent agriculture makes water flow disruptions highly consequential for food security, rural livelihoods, and provincial economies (Tribune, 2025). Seasonal variations in river discharge, coupled with India's hydroelectric management, have heightened uncertainty for agricultural planning. These challenges demonstrate that water treaties cannot be evaluated solely on legal compliance but must also consider socio-economic outcomes (Ghaffar, 2023; Climate Diplomacy, n.d.).

Environmental factors also play a crucial role in shaping the treaty's relevance. Climate variability, glacial retreat in the Himalayas, and changing precipitation patterns affect river flows, complicating water management (Stimson, 2024). These stressors amplify the stakes for downstream users in Pakistan, necessitating adaptive management strategies within the treaty framework. Without integrating climate risk considerations, technical disputes over dams and river storage are likely to escalate, creating conditions for conflict despite existing legal frameworks (World Bank, 2018; Riaz et al., 2022).

Public perception and media discourse have emerged as additional pressures influencing the treaty's function. Civil society actors and media in Pakistan framed Indian projects as existential threats to water security, intensifying domestic political demands for aggressive diplomatic responses (The Guardian, 2025). Similarly, media coverage in India emphasizes national rights and sovereignty, reinforcing narratives that can harden political positions. These societal factors demonstrate that treaty implementation operates within a broader information environment where perception management is as important as technical compliance (Ghaffar, 2023; Economictimes, 2025).

The treaty's resilience is evident in its continued operation despite these challenges. Dispute resolution mechanisms have prevented overt water conflicts, and both countries have engaged in structured dialogue through the Permanent Indus Commission (World Bank, 2018; Climate Diplomacy, n.d.). This illustrates that well-designed institutional frameworks can sustain cooperation even under strained political circumstances, although their effectiveness depends on mutual commitment and technical transparency (Riaz et al., 2022; Stimson, 2024).

However, the treaty's fragility is also apparent. Partial suspensions of data sharing, delays in inspections, and selective engagement in dispute mechanisms demonstrate vulnerabilities that can be exploited during periods of political tension (Times of India, 2025). This fragility highlights the importance of institutional modernization and confidence-building measures to maintain treaty relevance in increasingly complex environmental and political contexts (Ghaffar, 2023).

The legal ambiguity surrounding permissible water storage and flow management under the IWT has been a recurring point of contention. Indian projects on the Chenab and Jhelum rivers illustrate the challenge of interpreting treaty clauses that were drafted over six decades ago, prior to modern hydroelectric technology and climate stressors (Riaz et al., 2022). These disputes emphasize the need for periodic treaty updates or supplementary protocols to incorporate evolving technical, environmental, and socio-economic conditions (Stimson, 2024; Climate Diplomacy, n.d.).

Regional geopolitical dynamics further complicate treaty compliance. Tensions over Kashmir, terrorism allegations, and broader Indo-Pak strategic rivalry influence how each

side approaches treaty implementation (The Guardian, 2025; Reuters, 2025). Water management becomes both a technical and symbolic arena, with treaty disputes reflecting broader mistrust rather than isolated resource disagreements (Ghaffar, 2023; Economictimes, 2025).

The findings indicate a shift from purely cooperative engagement toward competitive treaty interpretation. Both states increasingly use legal, technical, and diplomatic mechanisms to assert national interests, highlighting the challenges of maintaining neutrality in treaty operations (Riaz et al., 2022; Ghaffar, 2023). This dynamic underscores the importance of transparency, third-party verification, and multilateral oversight in sustaining treaty credibility (World Bank, 2018; Climate Diplomacy, n.d.).

Adaptive management emerges as a critical theme for sustaining the treaty. Incorporating climate risk modeling, real-time hydrological data sharing, and inclusive stakeholder consultations can reduce disputes and enhance trust (Stimson, 2024). Without such adaptation, legal and technical mechanisms alone cannot prevent disputes from escalating into political conflict or exacerbating socio-economic vulnerabilities (Tribune, 2025).

Finally, the treaty illustrates the intersection of environmental governance, national security, and regional diplomacy. The IWT functions not just as a water-sharing agreement but as a framework through which India and Pakistan negotiate broader issues of trust, sovereignty, and strategic influence (Ghaffar, 2023; World Bank, 2018). Its continued relevance depends on maintaining both technical compliance and political dialogue, highlighting that effective transboundary water management requires multidimensional engagement that integrates law, diplomacy, environment, and society (Climate Diplomacy, n.d.; Stimson, 2024).

Conclusion

The Indus Waters Treaty has long served as a cornerstone for cooperative water governance between Pakistan and India, offering a structured framework for dispute resolution and resource sharing (World Bank, 2018; Ghaffar, 2023). Between 2018 and 2022, however, the treaty's role evolved in response to intensified political tensions, infrastructure disputes, and environmental stressors (Riaz et al., 2022; Stimson, 2024). Indian hydroelectric projects, including the Kishanganga and Ratle dams, challenged Pakistan's perceptions of treaty compliance, highlighting the delicate balance between developmental ambitions and cooperative water management (Ghaffar, 2023; Tribune, 2025). These events underscore the treaty's continued relevance while revealing vulnerabilities when technical disputes intersect with geopolitical considerations (Climate Diplomacy, n.d.).

During this period, the politicization of water governance emerged as a key challenge. Disputes over treaty interpretation and infrastructure development were framed by both countries in terms of national security, sovereignty, and strategic leverage (Reuters, 2025; The Guardian, 2025). As a result, water governance became inseparable from broader diplomatic tensions, revealing the limitations of treaty mechanisms in politically charged contexts (Economictimes, 2025; Ghaffar, 2023). Despite these challenges, the treaty's dispute resolution provisions and institutional structures helped prevent escalation into open conflict, demonstrating both its durability and adaptability (World Bank, 2018; Stimson, 2024).

Looking forward, the sustainability of the IWT depends on institutional modernization and multilateral engagement. Integrating adaptive management strategies, enhancing transparency in project implementation, and strengthening dispute resolution procedures are critical steps for reinforcing trust and stability (Climate Diplomacy, n.d.; Stimson, 2024). Moreover, expanding diplomatic, scientific, and civil society participation can help transform water governance from a zero-sum contest into a cooperative platform, ensuring that the Indus Waters Treaty continues to promote regional stability, water security, and bilateral cooperation (Ghaffar, 2023; The Guardian, 2025).

Way Forward

To strengthen the Indus Waters Treaty's impact, Pakistan and India must modernize institutional frameworks to account for 21st-century challenges, including climate variability, technological change, and increased water

demand (Stimson, 2024; Climate Diplomacy, n.d.). Updating technical clauses, incorporating climate-resilient water management strategies, and reinforcing neutral third-party oversight will improve compliance, reduce disputes, and enhance mutual confidence (World Bank, 2018; Ghaffar, 2023).

Simultaneously, expanding water diplomacy is essential for transforming water governance into a cooperative enterprise. Track-two dialogues, joint research initiatives, and inclusive stakeholder engagement — involving agricultural, scientific, and civil society actors — can foster trust, reduce misperceptions, and promote shared investment in sustainable water infrastructure (Climate Diplomacy, n.d.; The Guardian, 2025). By combining legal modernization with diplomatic and environmental collaboration, both countries can ensure that the treaty remains a stabilizing instrument rather than a source of tension, contributing to long-term peace and regional resilience (Stimson, 2024; Tribune, 2025).

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