REASSESSING THE INDUS WATERS TREATY: HYDROPOLITICS, CLIMATE VULNERABILITIES, AND THE 2025 SUSPENSION

Aeliya Zehra
Research Scholar
Department of International Relations
Federal Urdu University of Arts, Science and Technology,
Karachi - Pakistan

Abstract

Indus Waters Treaty (IWT) that was signed in 1960 under World Bank mediation is considered one of the most successful transboundary water cooperation. The treaty has been in existence to arrange water sharing in the past sixty years between India and Pakistan amidst military conflicts, political unrests, and turnover of suspicion. Nevertheless, the modern political environment with the increasing competition in hydropower, population pressures and the rapid effects of climate change now pose concerns regarding its sustainability in the long run. The present paper unravels the IWT in the context of a contemporary perspective, focusing on the hydropolitics, the water variability resulting as a consequence of climate, and the 2025 Indian suspension of treaty participation that has never happened before. The study uses liberal institutionalism, neorealism, constructivism, transboundary water management theory and game theory based on secondary qualitative analysis to explain the change in the relevance of the treaty. The results show that despite the success of the IWT to avoid the great water conflict and introduce institutionalised predictable cooperation, it is still structurally fixed and environmentally antiqued. The paper suggests the adaptive reform agenda to be based on climate-responsive governance, enhanced data-sharing systems, and enhanced institutional arrangements to make sure the treaty is sustainable in a changing geopolitical and ecological environment.

Keywords: Indus Waters Treaty, hydropolitics, climate change, India–Pakistan, water governance, treaty suspension

1. Introduction

Water is not only the source or origin of life in the region but also a source of conflict within the region as almost two billion individuals rely on a common river system with common ecosystems. This is largely felt nowhere than in the Indus Basin, which supports agriculture, energy production, and domestic consumption in India and Pakistan. Possessing a common set

of water resources, after the elections of 1947, political disintegration, and territorial rivalry turned them into a controversial problem in the centre of bilateral relations. It is against this background that the Indus Waters Treaty (IWT) was signed in 1960, and marked a breakthrough in institutionalisation of cooperation despite a hostile geopolitical backdrop (Michel, 1967). Gradually, it was to be an exception to the rule of being able to maintain a consistent interest between two nuclear-armed competitors.

The treaty apportioned the three eastern rivers, Ravi, Beas, and Sutlej, to India, and gave the three western rivers, Indus, Jhelum, and Chenab to Pakistan, but allowed India a limited non-consumptive usage of the latter (Gulhati, 1973). The Permanent Indus Commission (PIC) was created with the aim of supervising the data exchange, project notifications and dispute resolving. All these institutional structures served to ensure that the water problems were isolated of the wider political strains, even when there was war in 1965, 1971 and 1999 (Iyer, 2010).

However, the security environment, hydrology, and dynamic development in the region that conditioned the treaty in 1960 have changed dramatically. The increasing focus of India on run of the river based hydropower projects in Jammu and Kashmir combined with the constant objection by Pakistan and legal obstacles has fuelled the mistrust (Salman, 2008). At the same time, climate change increased the seasonal variability, accelerated the melting of glaciers, and upset the regular patterns of monsoon, subjecting the hydrology of the basin to so much pressure (Rasul, 2014). The fact that the population is rapidly growing and urbanising also does not ease the water management process, particularly in Pakistan, where over 90 percent of agricultural production relies on the Indus system (Mustafa et al., 2013).

When India voted in 2025 to put the treaty on abeyance following a large-scale terror attack in Indian-controlled Kashmir, it was a historic doom (The Hindu, 2025). The IWT became a suspended tool of politics the first time in history. Pakistan appealed this action to the Permanent Court of Arbitration (PCA), which in June 2025 found that unilateral suspension of the dispute procedures was not in line with the treaty requirements (Arab News, 2025). This episode brought the insecurity of water collaboration in the climate of increased securitization to the fore and posed a fundamental question regarding the future of the treaty.

In this regard, the current research reviews the IWT in a modern lens, evaluating IWT resilience, constraints, and geopolitical changes of hydropolitics in South Asia.

1.1 Background

The Indus Basin is a highly important river system in the world in terms of hydrology and geopolitics, and is estimated to span 1.1 million square kilometres that falls between India, Pakistan, and disputed regions (IWMI, 2007). With the British rule of colonists, canals, barrages, and headworks were interconnected in a single system, particularly in Punjab (Gilmartin, 1994). This integrated network was broken by partition, leaving India as the upper riparian with strategic control of the river headworks and Pakistan as the lower riparian, which is highly dependent on the upstream flows.

Such disproportionate disposition became dramatic when India stopped the water supply at

Ferozepur in April 1948, and irrigation ceased in the West Punjab of Pakistan (Zawahri, 2009). Even though the crisis was averted by the Delhi Agreement, the event rooted the water insecurity of Pakistan. Territorial claims and lack of trust led to bilateral stalling of negotiations, which led to World Bank intervention in 1951. A model of negotiation that was suggested was the engineering-led, apolitical model that focused more on technical, but not political solutions (Gulhati, 1973). The IWT was subsequently signed in 1960 after nine years of complicated negotiations.

Hydrological considerations were not the only factors that influenced the treaty, but also Cold War geopolitics. The US wanted the region to be stable, and Pakistan was seen as its strategic ally through the use of the Indus Basin Project, whereby it funded important dams like Mangla and Tarbela (Briscoe and Qamar, 2006). Therefore, the treaty was formed at the crossroads of hydrology, international relations, and world strategic interests.

1.2 Statement of the Problem

Although the IWT remains resilient historically, it has never been under such pressure. The model of strict allocations that the treaty requires, the narrowness of its focus on the environment, and the obsolete assumptions about hydrology make it less effective in addressing the accelerating climate changes and increasing demographic growth. In addition, recent project-based conflicts, including Baglihar, Kishanganga, and Ratle, underscore structural failures in mechanisms of obtaining and sharing data and dispute resolution. Further weakening of the treaty following the 2025 suspension of India, the treaty itself had become vulnerable to geopolitical shocks, and urgent questions of enforceability, institutional credibility, and long-term sustainability were raised.

1.3 Research Questions

1. How is it possible that the Indus Waters Treaty is historically viable and relevant?
2. What is the reason why water sharing conflicts continue even after institutional arrangements?
3. What are the impacts of the climate change and demographic pressures on the implementation of the treaty?
4. What happens to the geopolitical situation of the 2025 Indian suspension?
5. What should be fixed in order to update and empower the treaty?

1.4 Significance of the Study

The study has a contribution to the literature in the international relations, hydropolitics, and water governance insofar as it provides a current evaluation of Indus Waters Treaty concerning 21st-century pressures. With the incorporation of environmental change, security relations, and institutional action, the research contributes to the academic knowledge in the manner in which long-standing treaties change with the changing realities or do not. The results are especially relevant to policymakers who want to ensure the protection of the regional water security during the increasing risks of climate and political conflicts.

2. Literature Review

The Indus Waters Treaty (IWT) has been widely discussed in international relations, international law, hydropolitics, political geography, climate security, and development literature. Deep geopolitical rivalry has not affected its longevity, as scholars in the world now use it as a global point of reference. This literature review summarises previous research on six key themes, including historical development, hydropolitics and controversies, climate insecurity, law, securitization of geopolitics, and gaps in the research.

2.1 Diplomatic and Historical History of the IWT

The underlying literature focuses on the historical context under which the treaty was formed. The initial works by Michel (1967) and Gulhati (1973) give detailed indications of the crisis that was induced by Partition, the closure of the canals in 1948, as well as the negotiation process spanning nine years. It is demonstrated in these works that the treaty was developed not only as a water-sharing device but also as a diplomatic instrument to avoid further coercion and normalise the bilateral relations in the future.

The intervention of the World Bank is the subject of much academic research. Schmeier (2013) states that the intervention of the Bank was critical since the bilateral negotiations were stalled due to the lack of trust and territorial conflicts. The strategy of the Bank, which is based on engineering neutrality instead of political bargaining, was aimed at protecting the water cooperation against conflict. Biswas (2011) concurs, saying that the Bank had depoliticised the negotiations with a technical perspective, but critics say that this has made it impossible to have a more holistic and basin-wide solution.

It is a known fact among scholars that the longevity of the treaty was a result of its strict partitioning of the rivers that divided the rivers in the form of whole rivers, as opposed to proportional flows (Iyer, 2010). This organisational clearance reduced the day-to-day conflict through not having grey or variable distributions. Other researchers, however, claim that this inflexibility posed ecological and legal problems in the long run (Wolf and Newton, 2008). However, the treaty was too rigid, which worked in the 20th century, and can now pose a challenge in adapting to the current hydrological realities.

The other body of literature denotes the Cold War setting. Briscoe and Qamar (2006) demonstrate that the American assistance to the Indus Basin Project in Pakistan was on strategic interests because Washington was keen to enhance the infrastructure in Pakistan at a time when the region was being realigned. Hydropolitics were therefore mixed in the treaty with the world politics.

Altogether, the IWT is a novel combination of geopolitical need, hydrology engineering, and institutional innovation, which are portrayed by historical scholarship.

2.2 Hydro-politics and Persistent Water Disputes

The second literature is based on the findings of long-standing conflicts, especially regarding hydropower schemes on the Western rivers. There is disagreement over the technical provisions of the IWT by Zawahri (2009) and Alam (2002), who assert that both states will interpret the

treaty in a way that it favours their national interests. India insists on maximum harnessing of the little rights, whereas Pakistan insists on unhindered flows to agriculture and food security.

The cases of Baglihar (2007) and Kishanganga (2013) are both at the centre of the analysis of hydropolitics. Such controversies as noted by Wirsing and Jasparro (2006) are seen as expressions of so-called hydro-hegemony whereby India is capitalising on its upstream geo-political position to increase hydropower generation. PCA decision and Neutral Expert decision have given Indian projects with amendments several times, strengthening the Indian experience of legal development within the framework of the treaty (Hussain, 2017). On the other hand, Pakistani researchers point at the threats on the health of downstream ecosystems and the irrigation schedule (Ahmed, 2015).

The other set of literature explores the strategic aspect of the upstream action of India. Sinha (2019) explains that the hydropower development in India is a component of a more significant plan to increase the entity and influence in Kashmir, whereas Mustafaa (2020) states that any upstream infrastructure development is viewed as the threat to national security in Pakistan. Such perceptions influence the bargaining behaviour where both states will be pushed towards formal dispute mechanisms rather than informal cooperation.

Another criticism towards the treaty by scholars is the old dated technical annexures. Its design parameters (developed in the 1950s) are not in line with current hydropower engineering, sedimentation management, and seismic (D'Souza, 2018). Consequently, newer projects tend to undergo legal arbitration a factor that leads to recurrent contestation.

The hydropolitical literature will therefore show a tendency of technical conflicts which are based on more fundamental geopolitical asymmetries and distrusts.

2.3 Environmental Vulnerabilities and Climate Change

The Indus Basin is one of the most climate-sensitive regions in the world as climate change research recognises its importance in the world. Rasul (2014) points out that Himalayas, the creator of the Indus tributaries, is warming at approximately twice the global mean. This also increases the rate of meltdown of the glacier, interferes with snowpacks, and changes the behaviour of the monsoons, undermining the hydrological assumptions that the treaty was being written on.

Researchers point out that the IWT does not give any provisions that would cover climate variability, seasonal flow change, and glaciers. According to Khan et al. (2021), this omission has long-term risks due to the fact that the agricultural system of Pakistan is reliant on predictable Indus flows. The effect of increased variability is that it makes sowing seasons difficult, irrigation canals become less recharged, and droughts and floods increase.

The ecological implications of the hydropower projects are also underlined in the environmental literature. According to Dutta (2020), the manipulation of upstream flow influences the paths of sedimentation, which brought about the decline in soil fertility in the downstream plains in Pakistan. Iqbal and Baig (2019) emphasise the ecological unrest in wetlands, fisheries, and delta systems with the lack of sediment flowing under the impact of the construction of reservoirs.

Special attention is paid to the Indus Delta. Studies indicate that a sluggish freshwater release, which has been aggravated by climate change and upstream development, has led to seawater intrusion, loss of mangroves, and disruption of livelihood in the Sindh (Hassan, 2019). Researchers claim that the engineering orientation of the treaty did not consider ecological systems basin-wide and sediment cycles as ingredients of long-term sustainability.

Moreover, the Intergovernmental Panel on Climate Change (IPCC) cautions that the region of South Asia will face even more heatwaves, unpredictable monsoons, and water shortages due to the climate by 2050 (IPCC, 2021). The IWT is not designed to be adaptive to such disruptions because of its static design.

It is climate scholarship that proposes a shift of the rigid allocation into the adaptive and climate-responsive form of governance with a focus on the early warning systems, joint monitoring, and basin-wide environmental management.

2.4 Legal Interpretations and International Water Law

The other significant subfield of literature places the IWT into the international context of the international water law. Though the treaty is older than the Watercourses Convention of 1997, researchers tend to relate its clauses to such current legal principles as equitable utilisation, no significant harm, and duty of cooperation (Salman & Uprety, 2018).

Others claim that the strict allocation model of the IWT is contrary to modern standards that put much emphasis on flexibility and environmental protection (Zawahri and Mitchell, 2011). People also add that the dispute resolution provisions of the treaty are advanced and have been used as models in other basins, including PIC, Neutral Expert, and Court of Arbitration (Wouters, 2015).

There is an increasing literature that examines the results of arbitration. Hussain (2017) concludes that the tribunals have generally been in favour of the concerns of Pakistan regarding drawdown flushing, pondage levels, and gated spillways. They have, however, not banned the hydropower projects of India, but demanded technical alterations. This trend shows a compromise between downstream protection and development rights.

Legal studies have seen a lot of growth following the decision of the 2025 PCA, which concluded that the unilateral suspension of the treaty by India was a contravention of Article IX. Preliminary interpretations (Sharma, 2025; Riaz, 2025) say that the decision strengthens the enforceability of third-party arbitration and establishes that political disputes have no power to supersede water-sharing obligations.

Altogether, according to the legal literature, the IWT is depicted as a strong (yet inflexible) tool, efficient but becoming more and more inconsistent with the changing international practices.

2.5 Water Geopolitical Securitization

One of the most notable changes in the recent research is associated with the understanding of water as a securitized problem. Wirsing (2013) asserts that water has become a part of national security discussions, especially since Article 370 of India was abrogated in 2019. Noor (2020) emphasises that the infrastructural development in Kashmir is an indication of India to exercise

of strategic control over headwaters.

The literature of the securitization theory proposes that water issues may be defined by the states as existential threats to legitimise exceptional actions. Pakistanese politicians are often talking about Indian dams as a war by other means, whilst Indian policy makers are citing Pakistani protests as a geopolitical barrier (Kugelman, 2025).

The suspension of 2025 increased the trends of securitization. It has been pointed out by analysts that India employed the instrument of water diplomacy as a reaction to the security incidents, which could be dangerous as a precedent (Khalid, 2025). The legal challenge in Pakistan is an indication of fears that uncontrolled upstream activities may disrupt the national food and water security.

The necessity of de-securitization, i.e., changing water issues out of politics and into institutions, is highlighted by this literature.

2.6 Liquidity Disjunctions in Existing Scholarship

Even though there is a lot of literature on the matter, there are still a few gaps:

1. Slim research on the 2025 suspension owing to it being a new concept with changed overtones.
2. The lack of synergistic analysis between hydrology, climate science, and international law.
3. Little attention towards the degradation of deltas and sediment in the IWT literature.
4. Lack of adequate Pakistani academic opinions in the international water law discourse.
5. Absence of stringent examination between the treaty and the existing security principles and hybrid geopolitics.

This study fills these gaps by integrating a multidisciplinary approach, which includes hydropolitics, climate science, legal framework, and international relations theory.

3. Theoretical Framework

The Indus Waters Treaty (IWT) needs a multidimensional theoretical approach to understand the tenacity, strains, and modern weaknesses of the treaty. There is no single theory on international relations that can explain why India and Pakistan have engaged cooperatively and competitively on the same rivers in the last six decades. Thus, the section uses a composite framework, based on neoliberal institutionalism, neorealism, constructivism, transboundary water management theory, and game theory to bring a holistic analytical basis to the topic. The sum of these theories is that the foundations of the treaty were cooperative, the security dilemma has constantly occurred, the normative and perception aspects of water politics, the environmental and basin-wide lapses in treaty design, and the strategic calculations that inform the actions of the states.

3.1 Neoliberal Institutionalism and the Logic of Prolonged Cooperation

The IWT has a long history owed to neoliberal institutionalism, which offers one of the best explanations. Keohane (1984) argues that international institutions facilitate the aspect of

cooperation by alleviating uncertainty, communication, and compliance. The IWT immediately succeeds this reasoning. Its institutional framework, such as the Permanent Indus Commission, the mandatory data sharing and the optional measure of dispute resolution provides some predictable interaction even where there is no political trust.

Over the decades the treaty had worked as a buffer shielding water cooperation against geopolitical tensions. The Commission remained in place even in the years of 1965, 1971 and 1999, as the wars took place showing how the treaty institutionalised norms of interaction, which endured in spite of political enmity. This strength fits the orchestras of neoliberal institutionalists that cooperation is possible in an anarchic international system provided that institutional contexts provide incentives to engage in the long-term interaction.

The weaknesses, however, are also brought out in the theory. States that view cooperation as good survive and thus institutions do the same. This was shaken by the suspension of treaty participation by India in 2025, which showed that institutional norms could be disregarded in the face of political shocks. Although neoliberal institutionalism matches the historical persistence of the treaty, it does not suit well to explain an intentional institutional failure caused by security crises. This weakness outlines the necessity of supplementary theoretical prisms.

3.2 Structural Politics of the Indus Basin and Neorealism

In its structural variant as explained by Waltz (1979), neorealism presents an opposing theory that emphasises asymmetry in power distribution, the strategic interests, as well as competition in security. There is a distinct upstream- downstream asymmetry the upstream riparian, India, is more easily geographically and hydraulically positioned; the downstream riparian, Pakistan, relies on continuous flows to farm and domestically feed the population. This is an imbalance in structure that influences their bargaining behaviour.

The moves of India and hydropower activities on the Western rivers, such as Baglihar, Kishanganga, Ratle, and others, are typical neorealist ideas to get maximum strategic resources and utilise them. The fears of decreasing flows and the possibility of coercive manipulation are the other causes of objections that Pakistan voiced, which are also the manifestations of neorealist dynamics. These concerns are aggravated by the fact that the Kashmir conflict is tied to the Indus Basin. Since the rivers are going through disputed land, water has strategic significance in addition to economic and hydrological importance.

The suspension of 2025 can be easily placed in the framework of the neorealist paradigm: when it was time to respond to an escalated security crisis, India preferred to rely on strategic independence rather than on institutional obligations. This action proved that the politics of power may override the cooperative agreements when states feel their existence is threatened. However, neorealism is not able to completely answer the question of why India has been longer than sixty years on the treaty, nor why both states returned to the treaty mechanisms after a dispute several times, which is an indication that no single structural realism can grasp the complexity of the IWT.

3.3 Constructivism and the Influence of Identity, Narratives, and Perceptions

Although institutions and power are important to the state, social aspects of state behaviour are important as well. Constructivist theory puts great focus on how identities, narratives, and common meanings influence foreign policy (Wendt, 1999). Within the IWT, the two countries, India and Pakistan, build and internalise their own narratives that shape the way they interpret the water issues.

Pakistan often represents itself as a fragile downstream country whose existence lies on the flows of the Indus. The Indian hydropower projects are presented in the media in a way that they are seen as existential threats, thus strengthening the collective identity, which is founded on insecurity and mistrust. This identity will influence the continuing use of international arbitration by Pakistan, its reserved attitude toward Indian infrastructure creation, and its use of water as a national security concern.

India, on the other hand, sees itself as an emerging powerhouse that has the right to utilise its natural resources to ensure economic modernization. Pakistani objections to the dams are consistently seen as political opposition by Indian policy makers as opposed to hydrological issues. These conflicting identities are causes of deep-rooted mistrust, which restricts the chances of shared management or collaborative ecological planning.

Constructivism also highlights the reason why the treaty lived so long. A prolonged tradition developed that water was supposed to be closed off to war. This common belief, which was internalised by both, was a key to decades of stable cooperation. The fact that India was suspended in 2025 is an indication of a greater change in identity-based visions of water and security.

3.4 Transboundary Water Management Theory and Environmental Gaps

Transboundary Water Management (TWM) theory emphasizes basin-wide governance, ecological protection, and holistic adaptive management that is holistic. This school of thought regards rivers as complex ecological networks that cannot be positively managed using hard political lines.

From the perspective of TWM, the major strength of the IWT is its well-designed communication, data distribution, and conflict management mechanisms. The theory, however, also reveals major gaps. The founders of the treaty dealt with water management more on an engineering perspective, which is about allocation but not ecology. Consequently, the treaty does not provide for the environmental flows, the sediment transportation, the ecological sustainability, or the climate adaptation.

These gaps are further increased by climate change. The increased rates of Himalayan glacial melting, the increase in monsoon variability, and the temperature pattern contradict the original hydrological assumptions of the treaty. According to TWM scholars, the treaty cannot be effective as it lacks adaptive, flexible, and ecologically attentive measures, which would render it outdated and, therefore, incapable of reacting to the new hydro-climatic realities.

The destruction of the Indus Delta is a case of non-ecological governance. Freshwater flows, already suppressed by upstream diversion and sea intrusion induced by climate change, have

devastated mangroves, fisheries, and livelihoods based in the coastal areas. The TWM theory, therefore, highlights the importance of the modernization of the treaty to include environmental science, climatic modeling, and integrated management of the basin.

3.5 Strategic interdependence and game theory.

Game theory offers a further point of view in that it analyses the behaviour of states in a strategic manner when the interaction is repeated. India and Pakistan had been playing what may be conceptualised as an iterated prisoners' dilemma over a period of over six decades. Long-term mutual benefits of cooperation, such as stable water supply, risk of reduced conflict, and international legitimacy, and long-term mutual loss through defection were realised.

The IWT design, consisting of the ongoing communication via the PIC and pathways of binding dispute-resolution, was successful in raising the shadow of the future, leading to cooperative behaviour. Frequent interactions caused predictability, and the reputational cost of breaking the treaty prevented defection.

The suspension in 2025 is an interim failure in the cooperative equilibrium. Game theoretically, the move by India could be understood as a strategic signal meant to bring political concessions in another policy field, which is probably Kashmir. Nonetheless, the game theory also forecasts that the short and long-term instability will drive both actors into a herd of cooperation, as chronic defection is expensive on the part of both.

This theoretical perspective implies that the reestablishment of cooperation will take place only after the reconstitution of communication channels, transparency, and incentives to pursue an institutional commitment.

3.6 Combining the Theories: The Holistic View

All theoretical approaches describe various aspects of the IWT. The institutional resilience and cooperation of neoliberal institutionalism are compared with the power asymmetry and security competition of neorealism, the identity-based perception of constructivism, the environmental and structural gap identified by TWM theory, and the strategic interdependence of game theory. Collectively, they offer an overview of why the treaty has survived, why even conflicts have not been eliminated, and why the current geopolitical environment has been a danger to institutional stability.

This integrated framework is the analytical platform for discussion of challenges, disputes, and prospects of the treaty in the latter parts of this research paper.

4. Methodology

The research methodology used in this study is qualitative and interpretive research as it aims to analyse the Indus Waters Treaty (IWT) in terms of its political, legal, and environmental contexts. Since the research questions are dedicated to the awareness of the patterns of cooperation, conflict, treaty interpretation, as well as climate vulnerability, the qualitative design is the best possible choice. It enables the close analysis of meanings, narratives, and institutional practices that cannot be measured using quantitative indicators only.

The approach to the research and data sources will be presented as follows:

4.1 Research Approach and Data Sources

The research applies an interpretivist methodology, which presupposes that the behaviour of the state and treaty relations is determined by perception, identity, past experiences, and political narration. The interpretivism approach is especially useful in the context of hydropolitics as the water conflict is highly conditioned by the national security issues, historical resentment, and various interpretations of the legal texts.

The study information is based fully on secondary sources, such as academic books, peer-reviewed journal articles, the text of the Indus Waters Treaty (1960), records of the cases of the Neutral Expert and Permanent Court of Arbitration, the reports of potential organisations like the World Bank and UN agencies, climate evaluations, and reliable media coverage. The author of the research also resorts to the uploaded thesis document that provides comprehensive information on the history of the treaty, hydropower conflicts, and political events.

4.2 Analytical Strategy

The thematic content analysis is employed in the study to determine recurrent patterns with regard to institutional cooperation, power asymmetry, hydropower contestation, climate threats, and securitization. The sources were analyzed and divided into thematic clusters, which included institutional resilience, climate vulnerability, legal disputes, and geopolitical tensions. These themes were further analysed in the theoretical perspectives described above- neoliberal institutionalism, neorealism, constructivism, transboundary water management theory, and game theory to offer a more analytical perspective.

4.3 Limitations

The research also only uses secondary data, which implies that some of its interpretations are based on available literature as opposed to primary interviews or on-field observations. Also, the 2025 suspension is a novel phenomenon, and there is still no final result of its impacts on a long-term perspective. In spite of these shortcomings, the methodology is adequately deep and rigorous to examine the modern relevance and issues of the IWT.

5. Analysis and Findings

One of the most well-known and long-standing water sharing practices in international relations is the Indus Waters Treaty (IWT). However, the modern performance of the treaty exposes sophisticated political, environmental as well and institutional stressors that were not envisaged during the drafting of the treaty. This section examines the IWT in terms of five interrelated dimensions, including past performance, hydro-power controversies, climate and population changes, legal/institutional issues, and the geopolitical effects of the 2025 suspension. All these themes give an idea of a treaty that has attained an impressive life span but is under pressure like never before.

5.1 The Priory of History and the History of Cooperation

The initial important discovery is that the IWT has achieved its longevity based on its unique institutional design. The framers of the treaty intentionally sought a depoliticized, engineering-focused solution by subdividing the Indus system into eastern and western rivers with almost absolute dominance being given to each country over its respective basin. This transparency

minimised day to day encounters which could otherwise lead to friction. The Permanent Indus Commission (PIC) evolved into a reliable mechanism of information exchange, inspection, and resolution of disagreements, and even operated in the situation of extreme political crisis.

The ability to withstand wars of 1965, 1971 and 1999 by the treaty shows how powerful the design of the treaty was in terms of cooperation. Even in the face of wider geopolitical hostility both India and Pakistan realised the mutual gains of water stability. This is what neoliberal institutionalism explains as cooperation despite anarchy, in which an institution structures incentives to make states stay committed even in case the level of trust is minimal. This way, the IWT not only did not control water, it served as a stabilising factor in a relationship that was full of conflicts.

However, the historical power can be confused with the future strength. The design of the treaty is a result of technological and political realities of the 1950s. It was not designed to serve new hydropower engineering, new environmental demands or new population and demographic pressures. These characteristics that used to be the guarantee of the stability, inflexible allocation, frozen annexure, and little joint management, now turn out to be the obstacles to the flexibility in the fast-changing geopolitical and ecological environment. It is one of the main conclusions of this work as this stability of the past and tension of the present exist.

5.2 Hydropower Controversies and the Change of Technological to Strategic Contestation

The second key finding is the frequent hydropower conflicts which have influenced the contemporary course of the treaty. Although the IWT permits India to use the Western rivers in certain non-consumptive manner, all big Indian projects in the past 20 years have elicited Pakistani opposition. This Baglihar Dam dispute (2007) was a breakthrough. The design parameters of the dam were claimed to infringe Annexure D constraints by Pakistan, but the Neutral Expert made decisions that were in parts biassed to India due to the embrace of modern engineering methods. The ruling was a shift in the interpretation of treaties, as Pakistan had long thought that they needed to be read literally.

This legal situation was even made more difficult with the Kishanganga case (2013). The Permanent Court of Arbitration did not dispute the right of India to bypass the Neelum/Kishanganga, but demanded that Pakistan be allowed to receive minimum environmental flows. The decision incorporated environmental factors in the jurisprudence of treaties in the first place. It showed that the treaty was capable of an evolution but it equally portrayed that India could work on projects which Pakistan considered to be of extreme danger, without any repercussions.

Later conflicts, such as Ratle, were more political and not technical. India began to interpret Pakistani protests as a form of obstructiveness, whereas Pakistan interpreted Indian hydropower development as an effort to have leverage measures to downstream flows. These conflicts have become symbolic of the discourse of national security. The argument about pondage or the location of gates turns into a geopolitical point of contention, and it turns out that hydropower has become an offshoot of the geopolitical competition.

This paper concludes that these controversies around hydropower reveal a more fundamental change: the mechanics of the IWT are no longer sufficient to navigate the politics of water in

the modern world. Although the treaty does allow formal avenues, the political interests involved in such projects have become too high to be decided by technical discourse only.

5.3 Climate and Demographic Pressures as Emerging Structural Threats

The third significant discovery is climate change and the population growth that jointly constitute the most severe long-term risks to the treaty. When the IWT was negotiated, climate variability was not a policy issue. The Indus Basin today, however, is one of the most climate-vulnerable areas in the world. The natural reserves of the basin are the Himalayan glaciers, which are melting faster, thus changing the hydrological cycles and disrupting the flows of seasons (Rasul, 2014). The sudden floods, long droughts, and unpredictable monsoons not only pose a problem to the upstream storage facilities but also to the irrigation requirements in the downstream areas.

The 2022 mega-floods in Pakistan, e.g. flooded a third of the country, showing that the nuisance of climate change is devastating. On the other hand, during the times of prolonged drought, inflows into downstream canals decline, which makes Pakistani concerns about scarcity more pronounced and the discourses about upstream activity in India stronger, which makes such activity threatening. Both states are vulnerable to severe changes in climate because the treaty lacks any clauses to jointly monitor the climate, coordinate flood/ drought planning, and hydrological modelling.

These weaknesses are exacerbated by demographic pressures. By the time of signing the treaty, the population of Pakistan was approximately 45 million; now it goes above 240 million. The population of India has already exceeded 1.4 billion. The agricultural, industrial, and domestic water demands have become exponentially high in the two states. Nearly 90 percent of Pakistan is dependent on the Indus to produce food, and India is increasing its energy requirements to expand hydro power. Such pressures were not envisaged in the treaty, and neither of the states has taken any significant steps to change its water management to 21st-century demographic realities.

Finally, climate change and population increase not only disrupt the hydrology but also political perceptions. With water being more and more unpredictable as well as limited, distrust grows. Every new Indian project provokes even greater fears in Pakistan; every Pakistani protest against it is perceived by India as a political protest. Climate and demographic stresses are therefore drivers and worsening the already existing geopolitical anxieties.

5.4 Legal and Institutional Problems in a Shifting Geopolitical Environment

The fourth key observation has to do with the increasing legal and institutional pressure on the treaty. The IWT has some of the most comprehensive annexures of any water treaty, though they are a reflection of the engineering wisdom of the 1950s. Vital notions like sediment management, environmental flows, and climate variability are missing. Consequently, the designs of modern hydropower are often outside the technical imagination of the original treaty design, which generates interpretive conflict.

India is becoming more and more demanding on the technical provisions of the treaty to be

interpreted flexibly and modernly, whilst Pakistan is demanding that the treaty be interpreted literally. Those are the positions that have brought about conflicting legal discourses: India focuses on evolution and modernization; Pakistan focuses on downstream rights and sanctity of treaties. These conflicting legal philosophies are the ruin of possible consensus.

The dispute-resolution mechanisms have been put under pressure, too. The cases of Baglihar and Kishanganga showed that ambiguities can be resolved with the help of arbitration. Nonetheless, the most significant institutional disruption since 1960 is the Indian refusal to join the Permanent Court of Arbitration in 2025. India indicated it is willing to compromise the details of the treaty that is politically unfavourable to it by circumventing binding mechanisms. This puts a question mark on the integrity of the enforcement system by the IWT.

The paper concludes that institutional and legal mechanisms continue to operate; however, they are proving inadequate to cope with the new political realities. The treaty can be easily characterised as being stiff and old-fashioned unless it is properly reformed, especially with the inclusion of environmental science, the highest engineering standards, and climate adaptation.

5.5 Geopolitical Securitization and Implications of Suspension of 2025

The fifth and most important result is the Indian break in the year 2025 of treaty interaction. This incident marks a pinnacle point in the IWT history since it marks the rupture of the tradition that the water problem should not be sensitive to conflict. For over 60 years, the two states had observed the concept that water cooperation was sacrosanct regardless of their political hostility. The move by India to put the treaty on hold questioned this basic understanding.

The suspension came on an upsurge of tensions after a major security incident in Kashmir. India made the move look like a retaliation action against terrorism, but Pakistan viewed it as coercive diplomacy. The global community raised some concerns that an otherwise stable water-sharing model had gone to a precarious stage. Pakistan instantly invoked the Permanent Court of Arbitration, and it adjudged that Unilateral suspension was a breach of the treaty. But political trust can not be rebuilt by law affirmation only.

The present research concludes that the 2025 suspension presents the intersection of multiple destabilising tendencies: climate susceptibility, increased nationalism, securing the territory, and the asymmetry of power. Water is now not considered a resource but something that has been integrated into the national security doctrine. To Pakistan, the Indus system has become the reality; its interruption would interfere with the food security, livelihood, and stability of the nation. In the case of India, upstream infrastructure is associated with the development and tactical management of disputed land. These competing priorities make the politics of the situation an emotionally charged factor, whereby institutional processes are troubled to de-escalate conflict.

Precedent is also an issue in the suspension. When water could be used as a diplomatic element, the normative base, which supported 60 years of co-operation, is weakened. This is not only the long-term implication to bilateral relations but also to the regional stability, as the Indus Basin is a strategic location.

6. Future Prospects and Policy Recommendations

The fate of the Indus Waters Treaty (IWT) lies at a crossroads. Although the treaty is known to have had unparalleled resilience, the integration of Geopolitical tensions, climate change, hydropower disputes, and population strains requires immediate re-evaluation. This part considers the long-term viability of the treaty and presents some policy suggestions to enhance the level of cooperation in water management between India and Pakistan. It can be argued, as a result of the analysis, that the stabilising role of the treaty may slowly diminish unless structural adjustments and a fresh political commitment are made.

6.1 Future Prospects of the Indus Waters Treaty

6.1.1 Future of further Institutional Resilience

Nonetheless, the IWT still has several strengths, which help in justifying its existence against very adverse odds. These legal specifics, the existence of the Permanent Indus Commission, and the long-standing strength of the communication protocols give some institutional inertia that makes it hard to dissolve. In the past, both states have been cognizant of the fact that abrogating the treaty would create instability with devastating effects on the agricultural sector, energy, and security in the region. These pragmatic factors indicate that the collapse of the treaty will not be achieved in the near future, in full realisation.

The suspension of 2025, however, has proven the fact that the treaty can no longer solely afford institutional inertia. The political lines that used to cocoon water cooperation in its cocoon have been crossed. In the future, resiliency will be based less on past standards and more on proactive diplomacy and institutional transformation, and the integration of climate-responsive mechanisms.

6.1.2 Uncertainty in Climate as a Determinant of stability in the future

It will be the climate change variable that will define the future of the treaty. The increased melting of the glaciers, unpredictable weather patterns of the monsoons, and increased temperatures are likely to increase the variability of the flows within the next few decades. This would exacerbate seasonal conflicts, with low flows making more people in Pakistan worry about being manipulated upstream, and high flows making people in India more susceptible to floods. Hydrological forecasting, joint climate modeling, and adaptive management are the only ways that climate shocks can be made politically destabilizing.

6.1.3 Hydropower Expansion and Strategic Competition

Jammu and Kashmir is part of the long-term energy plan of India involving the rapid growth of hydropower. The downstream insecurity in Pakistan is expected to escalate because new projects will be put online. Until dispute-resolution systems develop, every new project might initiate geopolitical tensions and lawsuits. This trend indicates that technical problems may also have a strategic connotation in the future.

6.1.4 Geopolitical Trends and Risk of Securitization

The politics of the region will also determine the path of the treaty. The hydropolitics have been altered by increasing nationalism, water territorial struggles, and the securitization of water. In case water is still used rhetorically or strategically in political crises, there is the possibility that

institutional trust can be worsened. The 2025 suspension has already demonstrated an example that can be repeated in case of even greater tension.

6.2 Policy Recommendations

Under these prospects, the recommended policy options will see the treaty modernised, improve basin-wide cooperation, and reduce emerging threats.

6.2.1.1 Have a Joint Climate and Hydrology Commission

The treaty should include climate science and hydrological modelling in its institutional framework. Evidence-based decision-making would be achieved with the help of a joint commission dealing with glaciology, climate forecasting, sediment flow, and seasonal variability. This body would be able to come up with coordinated responses to floods and droughts, and less suspicion will exist in case of extreme occurrences.

6.2.2 Present Environmental and Ecological Provisions

The IWT must now be extended to the binding requirements of environmental flows, transport of sediments, and ecological safeguarding. The riverine ecosystems, the wetlands, and the Indus delta need a minimum flow, which the initial treaty failed to factor in. Direct impacts of ecological degradation include agriculture, fisheries, livelihoods, and so environmental provisions are a necessity and not an option.

6.2.3 Upgrade Dispute Resolution Systems

The Neutral Expert and Court of Arbitration mechanisms of dispute, as stated in the treaty, need to be modified to capture the current engineering and environmental standards. Easier guidelines regarding data transparency, project notification, and technical assessment would make it less ambiguous. Also, the two states should undertake to respect arbitration results to ensure the credibility of institutions.

Expanding data-sharing and transparency measures signify the acceptance of the principles underpinning the diligent society, where all individuals are required to assume responsibility to render their surroundings safer and more secure.

6.2.4 Expand Data-Sharing and Transparency Measures

This means the embrace of the truths that guide the hardworking society, where every person must take the responsibility to make his or her environment more secure and safe.

There are no doubts like mistrust where there is no information. Improved real-time flow of data, such as river flows, reservoir activities, sediment levels, and weather status, would reduce misinterpretations. Online surveillance and information exchange with the help of satellites could enhance transparency and minimise the level of politicisation.

6.2.5 Facilitate Origin-Wide Cooperation by Means of Confidence-Building

Formal negotiations can be supplemented by track-II diplomacy, academic cooperation, and civil-society engagement. The bilateral university associations, joint scientific seminars, and professional exchange may be used to restore confidence lost due to the suspension of 2025. Smaller steps toward greater reforms of the institutions can be introduced through means of incremental confidence-building.

6.2.6 Flood and Disaster Management Coordination should be institutionalised

Floods are very dangerous to the two states. Joint disaster preparation and early warning

procedures should be included in the treaty, especially when it comes to monsoon seasons. The upstream reservoir should prevent the downstream harm and inculcate the norms of cooperation in times of crisis.

6.2.7 Promote International Aid in Treaty Revision

Although the IWT is a bilateral agreement, the third-party knowledge, especially the World Bank, UNDP, and international river-basin bodies, may contribute to the process of modernization. It can also be assisted by external facilitation to depoliticise the technical issues and offer a neutral territory in which a dialogue can take place.

6.3 To a New Flexible and Partnership Future

The results show that the IWT has to move towards an active 21st-century ruler system rather than the stagnant system of the 20th century. Though the treaty traditionally is a beacon of stability, future resilience will refer to the ability to adapt, be modernised, and restore political trust. When the two states are willing to deal with the arising hydrological and geopolitical problems, the treaty may transform into a more holistic, climate-sensitive, and collaborative tool.

7. Conclusion

The Indus Waters Treaty remains one of the timeless examples of the idea of collaboration between two states with historical enmity. It had served, during the past six decades, as a stabilising device, immunising water relations to the larger turbulence of India-Pakistan geopolitics. By its design, based on transparent river shares, technical annexures, and efficient communication, it remained engaged, despite wartime, political enmity, and frequent crises. But the modern scene shows a different picture of a complicated and changing reality. The treaty is already facing stresses that are much more than what the treaty planners ever imagined.

This paper has shown that four overlapping forces influence the IWT's current challenges. To begin with, no longer are hydropower disputes a matter of technical disagreements, but one of a strategic rivalry with a touch of territorial and security issues. Second, the hydrology of the basin is threatened by unprecedented risks of climate change that are destabilising the basis on which the treaty relies. Third, population growth and rising water demand add to the feeling of scarcity, which increases the political sensitivity of upstream infrastructure. Lastly, geopolitical tendencies, specifically, the securitization of water and erosion of cooperative norms, have worsened institutional trust, and by 2025, the Indian suspension of treaty participation occurred.

Nevertheless, IWT has an everlasting worth despite these strains. Its institutional processes, clarity of law, and track record of avoiding water confrontation give it a solid base for future collaboration. But now this premise is no longer a sufficient one. The treaty needs to change in order to adapt to new hydrological, technological, and geopolitical realities. Devoid of adaptation, the disparity between the provisions of the treaties and the conditions of the basin shall be enlarged, which will pose a greater threat of misinterpretation, political interference, and aggravation.

The key to a better future of the Indus Basin lies in a new resolve on both sides of the border to

consider water as a common lifeline and not a power politics. To recover confidence, modernization of the mechanisms of dispute settlement, the introduction of the clause on climate and ecology, the enhancement of the transparency of the data, and the encouragement of scientific collaboration are the appropriate measures. Although the international community is not a replacement for bilateral dialogue, it can contribute positively in terms of bringing updates to institutional design.

Conclusively, the IWT is not merely a law document, but a political will document. Whether India and Pakistan are able to change their thinking of strategic rivalry into an ecological interdependence and shared vulnerability will determine their sustainability. Provided that both states are ready to adapt and cooperate, the treaty can remain one of the pillars of regional stability. Otherwise, its further existence can only be considered more unpredictable. This choice has never been as urgent as in the 21st century due to the pressing environmental, demographic, and geopolitical problems that are becoming more and more pressing.

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