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REVISED EDITION

Revisiting the Indus Waters Treaty

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Centre for Research on Strategic and Security Issues

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NatStrat produces a variety of material, including research papers, commentaries, monographs and policy briefs. Its contributors are authoritative and experienced professionals of international repute and acclaim. It also promotes new and fresh perspectives by encouraging young thinkers to write and work for it. As part of its activities, NatStrat hosts seminars, round table discussions, podcasts and interviews. NatStrat seeks to provide an authentic Indian perspective on understanding the world and aims to ensure India's voice is heard and counted in the international community.

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FOREWORD

In October 2023, NatStrat published a compilation of essays by Indian experts on what they felt was wrong with the Indus Waters Treaty. The publication coincided with official Indian demarches to Pakistan and World Bank addressing these issues and calling on Pakistan to review the functioning of the Treaty. Trouble was brewing before the terror attack in Pahalgam in April 2025, yet the essays were rooted in technical, engineering and climate change arguments.

The Treaty has a long history of surviving decades of tensions and wars between India and Pakistan. While the Treaty was in operation, Pakistan pursued a reckless approach, taking for granted the good deal it had got in 1960, and misusing Treaty provisions to derail or delay several Indian projects. India went along, but the Pahalgam attack was the straw that broke the camel's back. The Treaty has been put "in abeyance" by India. Pakistan has activated global opinion and is knocking at international forums. It has raised the level of its rhetoric.

Given the interest and commentary the Treaty has evoked since 2025, NatStrat has decided to publish a revised edition of its 2023 compendium, *Revisiting the Indus Waters Treaty*. The current collection juxtaposes essays written before the abeyance with those after it, enabling readers to trace the evolution of Indian perspectives. These range from calls to modernise and renegotiate the existing framework to more assertive positions on India's control over its rivers. The debate will intensify.

We are grateful to our contributors for their sustained engagement with this subject. We hope the anthology will provide scholars of diplomatic practice, international law, water sharing and national security a fact based account of the issues involved in one of the most complex basins in the world.

Pankaj Saran
Convenor, NatStrat

ABSTRACT

Signed in Karachi in 1960 by Prime Minister Jawaharlal Nehru and President Ayub Khan, with the World Bank brokering nine years of negotiations, the Indus Waters Treaty allocated the Eastern Rivers — Ravi, Beas, and Sutlej — to India, and the Western Rivers — Indus, Jhelum, and Chenab — to Pakistan, while permitting India limited “non-consumptive” use of the Western Rivers. Anchored by the Permanent Indus Commission and a structured dispute-resolution mechanism, the Treaty proved remarkably resilient, surviving three wars and numerous military and diplomatic crises between the two countries.

More than six decades later, however, the strategic, technological and environmental landscape surrounding the Indus Basin has changed dramatically. Climate change, new engineering capabilities, growing water stress and evolving security realities have exposed tensions between the Treaty’s original architecture and contemporary requirements. NatStrat had published a compilation of articles in *Revisiting the Indus Water Treaty* in October 2023, bringing together Indian perspectives on the flaws of the treaty and why it had become outdated.

In the aftermath of the Pahalgam terror attack on April 22, 2025, India placed the Indus Waters Treaty in **abeyance**, marking a decisive shift in a longstanding debate. On April 23, 2025, Indian Foreign Secretary Shri Vikram Misri announced the Cabinet Committee on Security’s decision:

“The Indus Waters Treaty of 1960 will be held in abeyance with immediate effect, until Pakistan credibly and irrevocably abjures its support for cross-border terrorism”.

The statement made clear that the Treaty’s future was now conditional on Pakistan’s conduct on cross-border terrorism, rather than insulated from it. This decision marked the first instance in the Treaty’s 65-year history where India departed from the established practice of separating water-sharing from broader bilateral relations.

In light of the abeyance, NatStrat decided to update its publication and bring out a revised edition containing articles written by Indian experts in the post-abeyance phase.

The collection begins with **Devendra Kumar Sharma’s ‘Separating Reality from the Rhetoric: Facts, Fiction, and the Indus Waters Treaty’**, which examines the Indus Waters Treaty (IWT) from the initial water-sharing disputes at Partition and Pakistan’s 1952 allegations at the UN Security Council to subsequent accusations of India weaponising water following India’s April 2025 decision. By distinguishing historical facts from constructed narratives, the author provides essential context for the articles that follow.

The first section containing articles, written between 2023 and early 2025, examine the IWT while it remained fully operational even as India sought renegotiation with Pakistan and conveyed its concerns to the World Bank.

In **‘Indus Waters Treaty - Overtaken By Technology And Climate Change’**, **Devendra Kumar Sharma** contends that the 1960 IWT’s technical provisions are outdated,

compelling India to employ obsolete dam designs on the Western rivers, resulting in significant silting and losses in Jammu and Kashmir, while Pakistan utilises modern technology for its projects. Highlighting severe water stress in Punjab, Haryana, and Rajasthan, as well as Pakistan's disproportionately larger share of the Indus system, the author advocates for renegotiation in light of contemporary engineering and climate realities.

Pankaj Saran and **PK Saxena**, in '*Indus Waters Treaty: Time to Move Ahead*', focus on the Treaty's dispute-resolution mechanism and its impact on Indian hydropower projects. They argue that repeated disputes and delays, compounded by the World Bank's handling of proceedings, have disadvantaged India and strengthened the case for renegotiation and faster development of India's hydroelectric potential.

PK Saxena further develops this argument in '*Indus Waters Treaty 1960 - A Flawed Judgement*' examining the Court of Arbitration's 2023 decision in the Kishenganga and Ratle disputes and arguing for a fundamental reassessment of the dispute-resolution framework.

In the context of another water related challenge, **Devendra Kumar Sharma's** '*Upper Siang Hydroelectric Project – Key to Prosperity in Arunachal Pradesh*' analyses China's proposed hydropower project on the Yarlung Tsangpo (Brahmaputra) near Arunachal Pradesh and its potential risks to India's downstream water supply and flood safety. He advocates that India's Upper Siang project could serve simultaneously as a strategic, developmental, flood-management and clean-energy response.

Uttam Kumar Sinha, in '*The Indus Waters Treaty: Look Back, Looking Ahead*', places the Treaty within the broader history of India-Pakistan tensions. He argues that India's continued adherence to the Treaty reflected its strategic calculations and the Treaty survived largely because India chose to preserve it.

Both **Devendra Kumar Sharma**, in his essay, '*Rethinking Indus Waters Treaty: A Critical Review for a Sustainable Framework*,' and **PK Saxena's** '*Indus Waters Treaty: Why Pakistan's Obsession Masks Its Failures*' revisit the Treaty's original negotiations, its engineering constraints and Pakistan's objections to Indian projects. Taken together, these essays build a common argument: a framework designed for the realities of 1960 is increasingly ill-equipped to address today's water, technological, and strategic challenges.

The section concludes with **PK Saxena's** '*Indus Waters Dispute: India's Strategic Victory in Neutral Expert Proceedings*', which examines the Neutral Expert's January 2025 decision and assesses both its significance for India and the likelihood of continued disputes over future projects.

The second section contains articles written after India's decision to place the Treaty in abeyance on April 23, 2025.

In '*Revitalising the Tulbul Navigation Project for Jammu and Kashmir's Development*', **PK Saxena** revisits the decades-long suspension of the project on the Jhelum. He argues that India should now reconsider the project in light of its potential benefits for flood control, navigation, tourism and power generation.

In '*Indus Waters Treaty: A Critical Analysis of India's Diplomatic Concessions*', **PK Saxena** looks back at the Treaty's negotiating history and argues that successive Indian concessions created structural constraints that Pakistan was able to exploit. The article

draws a broader lesson for future negotiations: strategic generosity must be balanced against long-term national interests.

Devendra Kumar Sharma's 'Engineering in Handcuffs under the Indus Waters Treaty — Salal Dam on the River Chenab', revisits the Salal Hydroelectric Project, illustrating how Pakistan's objections led India to close the dam's sediment-flushing gates, despite the absence of such a requirement in the Treaty. Under the current circumstances, he advocates for reopening the gates and adopting contemporary sediment management practices.

In ***'A Year After: Reassessing the Indus Waters Treaty Suspension'***, ***PK Saxena*** dismantles Pakistan's year-long media campaign portraying the abeyance decision as an act of aggression, arguing instead that the Treaty was never a genuine instrument of cooperation but one of asymmetric division that India alone honoured for six decades. The article asserts that keeping the Treaty in abeyance is not an escalatory or destabilising act but a legitimate and overdue correction to an inequitable, outdated arrangement.

In ***'The Politics of Hydraulic Deflection: The Myth of Upstream Deprivation in Pakistan's Indus Basin Crisis'***, ***PK Saxena*** argues that Pakistan — allocated over 80 per cent of the Indus system's flow — is not water-poor but is creating its own scarcity through chronic institutional failure. The article situates this within a broader pattern: Pakistan's use of 'hydro-hegemony' rhetoric against India's run-of-the-river projects reflects the same security-establishment logic that has substituted cross-border militancy for national development since 1947.

In his article ***'North India's Suppressed Growth Under the Indus Waters Treaty'***, ***Devendra Kumar Sharma*** presents a detailed empirical analysis demonstrating that the Treaty was structurally inequitable from its inception. He asserts that India received only 19.6 per cent of the Indus system's waters despite possessing nearly double the catchment area, and contextualises these losses within India's April 2025 decision to suspend the Treaty.

In ***'The Kabul River: The River of Sorrow between Afghanistan and Pakistan'***, ***PK Saxena*** examines a lesser-studied tributary that contributes directly to the Indus system. He argues that Afghanistan remains water-insecure despite abundant resources, while Pakistan, in the absence of a binding treaty, captures about 70 per cent of the basin's flow through unilateral infrastructure. Drawing parallels to India's situation, he recommends that India help Afghanistan develop storage capacity to strengthen its position in future water-sharing negotiations with Pakistan.

The volume concludes with ***Uttam Kumar Sinha's 'After Abeyance: Indus Basin and the New Water Politics'***, which contends that India's decision to put the Treaty in abeyance has dispelled the notion that water-sharing can remain isolated from broader India-Pakistan tensions. This shift has led Pakistan to pursue legal challenges and adopt a more securitised approach to water issues. He argues that although the abeyance gives India greater autonomy to develop storage and power capacity, this advantage should be exercised cautiously and guided by a comprehensive long-term strategy.

Separating Reality from the Rhetoric: Facts, Fiction, and the Indus Waters Treaty

By Devendra Kumar Sharma



A view of Baglihar Dam, also known as Baglihar Hydroelectric Power Project
| Source: X/@ AbhishekOfficl

The Indus basin has become a unique global anomaly in which India, as the upper riparian state, is denied its natural rights to utilise rivers flowing through its territory for essential water needs and contingency storage. Meanwhile, Pakistan, as the lower riparian state, allows nearly twice that volume to be lost through systemic wastage and unutilised discharge into the sea.

1 INTRODUCTION

The Indus Water Treaty (IWT), signed in Karachi on September 19, 1960, by Indian Prime Minister Jawaharlal Nehru and Pakistani President Ayub Khan, represented a landmark water-sharing agreement. Negotiated under the World Bank's auspices, the Treaty was intended to secure peace and stability for both nations. However, technological advancements have since surpassed the original intent and provisions of the Treaty. Currently, the Treaty's technical parameters are widely regarded as outdated, rendering its framework inflexible and static.

The Indus River system, known as 'Sindhu' in Vedic texts, comprises two principal river systems: the Kabul River, a significant right-bank tributary originating in Afghanistan and joining the Indus just upstream of Attock in Pakistan, and the Panjnad ('Panchnad'), which marks the confluence of the Jhelum ('Vitasta'), Chenab ('Asikni'), Satluj, and Ravi rivers with the Indus. The Beas River, also part of the Indus system, merges with the Satluj in Indian territory upstream of the Harike barrage.

As per the Indus Waters Treaty (IWT)¹, the Indus, Jhelum and Chenab are classified as the 'Western Rivers', whereas the Ravi, Beas, and Satluj are designated as the 'Eastern Rivers'. This Indus system ultimately discharges into the Arabian Sea south of Karachi.

The Indus River originates in Tibet (Mansarovar) near Demchok; it enters India upstream of Nimoo and leaves at Batalik in Kargil District, near Skardu, into Pakistan-occupied Kashmir. The Satluj River is another river that originates in Tibet from Mansarovar near Rakas Lake (Tal) and enters Pakistan downstream of Ferozepur Headworks.

The primary tributaries of the Indus system in India include the Jhelum, Satluj, Chenab, Ravi, Beas, and Ghaggar rivers. While the Indus and the Satluj rivers originate in Tibet, the remaining four major rivers, namely, the Jhelum, Chenab, Ravi, and Beas, originate within Indian territory. The Jhelum River leaves India near Chakothi on the Indian side and Muzaffarabad on the Pakistan-occupied Kashmir side. The Chenab and Ravi rivers leave India near Akhnoor and at Goina/Kakarmani village in Amritsar district, respectively. The Indus River System is shown in the figure.



Fig. 1 The Indus River System| Source: [PMFIAS](#)

Since its signing, the IWT has endured three major wars between India and Pakistan (1965, 1971, and 1999), as well as significant incidents such as the 2001 Parliament attack, the

2008 Mumbai terror attack, the 2016 Uri attack, and the 2019 Pulwama attack on a CRPF convoy. On each occasion, India refrained from taking action against the IWT.

On April 22, 2025, terrorists and groups supported by Pakistan targeted and killed 26 individuals based on religion in Pahalgam, Kashmir. Credible evidence indicated direct involvement by Pakistan, constituting a significant threat to India's national security interests and prompting India to suspend the Treaty.

4 BACKGROUND OF THE WATER DISPUTE

During the pre-independence era, a water dispute existed between the Punjab and Sindh provinces in undivided India. With the emergence of India and Pakistan after Independence in 1947, the water dispute took the shape of an international dispute.

The British Parliament passed the Indian Independence Act 1947 on 18th July, 1947. At that time, the use of river water was left to be decided by the future Governments of the two dominions, i.e., India and Pakistan.

Sir Cyril Radcliffe², Chairman of the Punjab Boundary Commission, could not lay down any arrangement for water sharing, as it was not within his terms of reference. He stated in his award, "to preserve the undivided irrigation system of the Upper Bari Doab Canal"; he could only express a hope that "a solution may be found by the Agreement between the two States for some joint control of what has hitherto been a valuable common service".

5 WATER RESOURCES DISTRIBUTION IMMEDIATELY AFTER INDEPENDENCE

Following partition, only 12 of the 143 canals in undivided Punjab were allocated to East Punjab (India), while 131 went to West Punjab (Pakistan). The most profitable and technically feasible schemes were located in West Punjab, leaving East Punjab largely deprived of development, particularly in areas distant from the rivers. The Indus plains that became part of India were significantly less developed compared to those in Pakistan.

Most of the large canals lay entirely in Pakistan and a few entirely in India. The Upper Bari Doab Canal (UBDC) was the only major canal system whose origin at Madhopur Headworks was severed by the new boundary at several places. The lower portions of several UBDC channels that went to West Punjab (Pakistan), known as the Central Bari Doab Canal (CBDC), had to receive water from the upper portions of those channels in East Punjab (India). The Dipalpur Canal, which exclusively served West Punjab (Pakistan), had its headworks at Ferozepur.

After partition, at the instance of West Punjab (Pakistan), two Chief Engineers, one each of East Punjab and West Punjab, entered into an Agreement on 20th December, 1947 to continue the status quo ante on the UBDC and Ferozepur Headworks till 31st March, 1948. Deliberately or accidentally, West Punjab (Pakistan) did not take any step until 31st March, 1948, to negotiate any Agreement with East Punjab regarding the supply of water to the Central Bari Doab Canal and Dipalpu Canal. In the absence of any Agreement, East Punjab, on April 1st, 1948, discontinued use of its installations for the benefit of CBDC in West Punjab.

Central Bari Doab Canal and Dipalpur canals irrigated only six per cent of Pakistan's total irrigated area. Chaudhuri Muhammed Ali, then Secretary General of Pakistan and later its

Prime Minister, said: "... on part of the West Punjab there was neglect of duty, complacency and lack of common prudence – which had disastrous consequences for Pakistan".

Pakistan created a false narrative that India turned off water from all six rivers on 1st April, 1948. On 16th December, 1952, M. Zafrulla Khan, Pakistan's Representative in the Security Council debate stated: "... On April 1, 1948, ... India turned off the waters of these rivers which used to flow into Pakistan". Ironically, the record of the meeting shows no doubt cast on the accuracy of this statement by any permanent or temporary member of the Security Council.

Pakistan created a completely false narrative in the Security Council in 1952. It is evident that after independence on August 15th, 1947, India had not constructed any structure on any of these six rivers during the 9 months till March 31st, 1948, which could control the water of all six rivers. Pakistan's representative in 1952 succeeded in misguiding the Security Council. M. Zafrulla Khan did not mention, nor was he questioned in the Security Council, about the mechanism to turn off the flow of the water and India's capacity to channel or store the water of these six mighty rivers for six weeks. Through this false narrative, Pakistan's representative in 1952 succeeded in misguiding the Security Council and the world.

6 *IMBALANCE IN WATER DISTRIBUTION IN INDUS WATERS TREATY*

Under the Indus Water Treaty, India received exclusive rights to the waters of the Eastern rivers, estimated at 40.7 BCM (33 MAF), while Pakistan was granted use of the entire Western rivers, estimated at 168 to 170 BCM (135 to 140 MAF). Notably, India is allocated only approximately 19.6 per cent of the Indus system's water, despite possessing nearly double the catchment area corresponding to this share. Conversely, Pakistan receives about 81 per cent of the water, even though only half of the relevant catchment area lies within its territory.

According to the 1941 census, the population depending on the waters of the Indus system was 25 million (54 per cent) in Pakistan and 21 million (46 per cent) in India. Forty-six per cent of the population on the Indian side received only 19.6 per cent of the water, whereas 54 per cent of the population in Pakistan's Punjab received around 80 per cent. Of the 26 million acre-feet of irrigated land supplied by the Indus canals, 21 million acre-feet went to Pakistan, and only 5 million acre-feet reached India. The newly imposed political environment after partition not only disrupted India's food supply line but also severed the hydrologic unity of the Indus system. It posed a serious threat to the development of several million acres of highly arid but otherwise fertile land in the Indian part of the Indus Basin.

In 2019, Pakistani officials reported receiving 168.6 BCM in the Western rivers and an additional 6.04 BCM in the Eastern rivers. Pakistan receives 19 to 28 million acre-feet (MAF) of water from the Kabul River in Afghanistan. Of the total water in the Indus system, around 40 MAF flows to the Arabian Sea due to inefficiencies in Pakistan's water system.

Pakistan was given a disproportionate and excess share of water despite having a lesser catchment area. In contrast, India faces acute water shortages in the states of Punjab, Haryana, Rajasthan, and the National Capital Region of Delhi.

7 WATER CRISIS IN INDIAN STATES

In the Indian State of Punjab, net dynamic groundwater resources are 21.44 MCM (million cubic meters). In contrast, net draft (groundwater pumping) is 31.16 MCM, leading to a groundwater deficit of 9.72 MCM each year. Thus, the stage of groundwater development for Punjab state in India as a whole is 145 per cent, and the State falls under the “over-exploited” category. In most parts of Punjab, the groundwater table is more than 200 m to 300 m below the surface. Out of the State’s area of 5.03 million hectares (ha), 4.32 million hectares have a severe problem of falling groundwater levels.

Similarly, the Indian State of Haryana (carved out of Punjab in 1966), having an area of 4.42 million hectares, is suffering badly and is under severe water stress. The State of Rajasthan, which has the Thar Desert, receives only 83 mm of annual rainfall in its Jaisalmer district. Large stretches of land in Rajasthan, a state with many communities affected by temperatures above 50 degrees Celsius, are covered by desert dunes. Water availability for Rajasthan’s growing population is under severe stress.

In addition, Indus basin States in India are characterised by an increasing population and decreasing per capita water availability. The Indus basin has a strong strategic component in the country’s overall food security and socio-economic development. The States of Punjab and Haryana, which account for 4 per cent of India’s total population, produce 25 per cent of total wheat production. The State of Punjab, known as the breadbasket of India, is facing a water crisis. Meeting the water requirements of the States of Punjab, Haryana, and Rajasthan in the Indus basin is vital to support their financial and human development and ensure food security for more than 1.4 billion people in India.

8 FALSE NARRATIVE BUILDING BY PAKISTAN

Similar to its approach in 1952, Pakistan continues to promote a misleading narrative. Central to these allegations is the claim that India manipulates river flows to induce droughts in Pakistan, while also being accused of causing floods during the monsoon season. Pakistan has amplified this rhetoric on international platforms. In making these accusations of upstream manipulation, particularly regarding flow fluctuations in the Chenab River, Pakistan disregards both the hydrological realities of water availability and the established operational practices of run-of-the-river hydropower projects.

For instance, transboundary water was framed as a “weaponised global common” during a major policy seminar titled “Transboundary Water Resources: A Weaponised Global Common,” held in Brussels and co-organised by the Centre for European Policy Studies (CEPS) and Pakistan’s Mission to the EU. Similarly, during the International Seminar titled “The Indus Waters Treaty: An Instrument of Peace and Regional Stability”, held at the Jinnah Convention Centre in Islamabad on 30th June, 2026, Pakistan sought to draw parallels between the Indus River and critical global maritime chokepoints like the Strait of Hormuz and the Suez Canal. By doing so, it argued that the international community must establish global norms to prevent upstream nations from utilising water for geopolitical coercion. Ultimately, building such false narratives proves counterproductive to regional cooperation.

A Pakistani Cabinet Minister reportedly threatened to “chop off” the hands of anyone constructing diversion structures on the Western rivers. Similarly, during an address to the

Pakistani diaspora in Tampa, Florida, General Asim Munir issued direct military and nuclear threats against India. Among these threats, he warned that Pakistan would launch missile strikes to destroy any future Indian dams built on the Indus River basin. Such statements significantly heighten tensions. Both sides must refrain from issuing provocative remarks that only serve to inflame public opinion across the border.

9 CONCLUSION

Pakistan receives more than 80 per cent of the water from the Indus River system, while India has been allocated only 33 MAF. Even within this share of 33 MAF, around 5 to 6 MAF still flows to Pakistan due to local site constraints. Currently, Pakistan is using around 140 MAF of water. Of the total Indus system water available in Pakistan, approximately 30 to 40 MAF escapes unutilized into the Arabian Sea, while an additional around 30 MAF is lost due to operational inefficiencies and unlined irrigation canals.

Consequently, Pakistan's system suffers an aggregate annual loss of more than 60 MAF. This systematic wastage of 60 MAF of water out of a total available water of around 140 MAF in Pakistan, compared with India's restricted usage of around 28 MAF as the upper riparian state, starkly illustrates the current imbalance in the Indus basin. Even while accounting for the mandatory ecological baseline of 8.6 MAF of water flow below the Kotri barrage near Hyderabad/Jamshoro and upstream from Karachi, as recommended by the International Panel of Experts in Pakistan, around 52 MAF is wasted within Pakistan's water management system. Instead of advancing unsustainable rhetoric in domestic and international forums, Pakistan should prioritise reducing internal water wastage and optimising resource management to promote regional peace and stability in South Asia.

Furthermore, India has to adopt the best international sediment management practices on the Western rivers, such as hydraulic sluicing via low-level under-sluices, mirroring the exact technical standards Pakistan employs for its own dam projects already constructed as well as under construction. Also, operation and maintenance of hydroelectric projects on the Western rivers in India must align with the best international practices.

Threats like “chop off hands” of people who construct water structures on the Western rivers in India by the Pakistan's Minister and “using missiles to destroy water infrastructure” as well as direct military and nuclear threats against India by General Asif Munir of Pakistan in Tampa, Florida thus, creating false narrative for its own public as well as at the international forums are not sustainable and are not in the interest of both countries.

The Indus basin has thus become a unique global anomaly in which India, as the upper riparian state, is denied its natural rights to utilise rivers flowing through its territory for essential water needs and contingency storage. Meanwhile, Pakistan, as the lower riparian state, allows nearly twice that volume to be lost through systemic wastage and unutilised discharge into the sea.

BEFORE ABEYANCE:
INDIA BEGINS TO SPEAK OUT

Indus Waters Treaty: ***Overtaken By Technology and Climate Change***

By Devendra Kumar Sharma



Zaskar River–Indus River confluence in the Himalayas| Source: Pixabay

The Indus Waters Treaty between India and Pakistan, signed in Karachi on September 19, 1960, by the then Indian Prime Minister Jawaharlal Nehru and the then Pakistani President Ayub Khan, is a water distribution treaty organised and negotiated by the World Bank, to utilise the water accessible in the River Indus and its tributaries. This landmark Treaty at that time brought an end to the water dispute between the two nations. However, with the passage of time, it has become clear that technological progress has outpaced the original intent and spirit of the Treaty, thus making it imperative for both India and Pakistan to re-negotiate the Treaty under Article XII (3). That technical knowhow mentioned in the Treaty has become outdated is a known fact and also there is a need to re-examine the pact in the light of climate change.

1

BACKGROUND OF THE WATER DISPUTE: THE ROLE OF THE WORLD BANK

During the pre-independence period, water debates existed among Punjab and Sindh areas, in unified India. The water dispute developed into an international conflict after India and Pakistan gained independence in 1947. The dispute over the water was brought to the attention of the Governments of India and Pakistan in 1948, and after that, for the next four years, representatives of both countries had discussions, but both sides continued to state and reiterate their positions. In May 1952, the World Bank, which had active institutional and financial interests in both countries, entered the scene. The World

Bank's then President, Eugene Black, offered the Bank's assistance in resolving this conflict. After lengthy discussions, the offer of the World Bank to mediate was accepted by both countries. Thereafter, negotiations continued and finally on September 19, 1960, the Treaty was signed between both countries. This Treaty was one of its kind for both emerging economies at that point in time to peacefully manage a valuable natural resource.

Under the Treaty, waters of the Eastern Rivers shall be available for unrestricted use of India. Pakistan is under an obligation not to permit any interference with the waters of the River Satluj Main and the River Ravi Main in reaches where these rivers flow in Pakistan and have not yet crossed into Pakistan. Similarly, Pakistan shall receive the waters of Western rivers. India shall have restricted use of the Indus, the Jhelum, and the Chenab rivers for domestic use, non-consumptive use, agriculture uses as set out in Annex C of the Treaty, and generation of hydroelectric power as set out in Annexure D of the Treaty. The Treaty also covers the engineering and legal complexities of the dispute in its eight Annexures.

2 *THE INDUS RIVER BASIN*

Broadly, the Indus River has two main tributaries, the river Kabul on the right bank and the river Panjnad (Panchnad) on the left. The river Panjnad is the culmination of the river Jhelum and the River Chenab, known as the Western rivers in the Indus system. The River Panjnad empties into the Arabian Sea south of Karachi. The Ravi, the Beas, and the Satluj rivers are known as the Eastern rivers.

In India, major tributaries of the Indus include the Jhelum, the Satluj, the Chenab, the Ravi, the Beas, and the Ghaggar rivers. The Indus and Satluj rivers originate in Tibet, and the rest originate in India. Apart from these tributaries, the Kabul originating from Afghanistan joins the River Indus in Pakistan. The outlets of the sub-basins are at Nimoo for the River Indus and Akhnoor for the River Chenab.

3 *IMBALANCES IN WATER DISTRIBUTION*

According to the Treaty, India was allowed exclusive use of the waters of the Eastern rivers which was estimated at 40.7 BCM (billion cubic meters) or 33 MAF (million acre-feet). Pakistan was allowed to utilize the whole of the Western rivers which was estimated at 166.5 BCM or 135 MAF. Ironically, India is allowed only around 19.6 per cent of the water share of the river Indus system through the Eastern rivers though it has almost double the catchment area of this percentage. On the other hand, Pakistan receives around 81 per cent of the water share of the Indus system, with around half of the catchment area of this percentage falling in Pakistan.

The latest estimations of the water flow in the Indus basin through the different riparian countries may differ from the values of the 1960s. In the River Indus system, 50.86 BCM of water originates from India through the River Indus and the River Satluj. 186.48 BCM of water is allotted to Pakistan through the Western rivers. In 2019, Pakistani officials reported that they received 168.6 BCM in the Western rivers and an additional 6.04 BCM in the Eastern rivers. In addition, Pakistan also receives 33 BCM of water from

Afghanistan. Thus, in total Pakistan receives 207.2 BCM, out of which around 46.9 BCM flows to the Arabian Sea due to inefficiencies of its system.

Pakistan was given a disproportionate and excessive share of water despite having a lesser catchment area. On the other hand, on India's side, there is an acute shortage of water in the States of Punjab, Haryana, and Rajasthan.

In the Indian State of Punjab, net dynamic groundwater resources are 21.44 MCM (million cubic meters), whereas pumping from the ground is 31.16 MCM, leading to a groundwater deficit of 9.72 MCM every year. The State falls under the “over-exploited” category. The groundwater table in most parts of Punjab is today more than 200 metres below the surface. Out of the State’s area of 5.03 million hectares, 4.32 million hectares have a severe problem of falling groundwater levels. Similarly, the Indian State of Haryana, carved out of Punjab after the signing of the Treaty, is suffering badly and is under severe water stress. The State of Rajasthan where the Thar desert is located receives only 83 mm of annual rainfall in the Jaisalmer district.

Large stretches of land in Rajasthan, which has multiple communities that are impacted by high temperatures of more than 50 degrees Celsius, are covered with sand dunes. Water availability for the survival of the growing population in the State is under severe stress.

4

WATER CRISIS IN INDIAN STATES

Inefficiencies in agriculture, a deteriorating canal system, surface/groundwater pollution, soil pollution, and interstate differences between Indian states plague the Indus Basin. In addition, the region is characterised by an expanding population and declining per capita water availability. The states of Punjab and Haryana, accounting for around 4 per cent of the population in India, produce 25 per cent of total wheat production. It is vital to meet the water requirements of these States, support their financial and human advancement and ensure food security to the 1.4 billion people in India.

5

TECHNOLOGY IS NOT FROZEN IN TIME: LOCATION OF THE SPILLWAYS

The generation of hydroelectric power on Western rivers in India is another area of contention. Part 3, Annexure D of the Treaty allows India to construct new run of the river hydroelectric plants. It further adds that in case gated spillways are necessary in such plants, the bottom level of such gates in “normally closed position” shall be located at the highest level consistent with “sound and economical design and satisfactory construction and operation of works”.

The fact is that the technological know-how for construction of dams for hydroelectric projects has undergone a sea change since 1960. In 1960, the concept of low-level sluice spillways in a dam for passage of the entire flood discharge and flushing of sediments did not exist due to limitations on the capacity of hydraulic hoisting arrangements for the operation of sluice gates. The Chenab and the Indus rivers carry huge amounts of sediments each year.

A proper interpretation on the Treaty implies that its provision of “sound and economical design and satisfactory construction and operation of works” should enable India to use current best technologies rather than being forced to construct dams with “overflow spillways” at the top of the dam. The location of these spillways is critical to the longevity of the reservoirs.

Spillways located at the top of the dam hasten the sedimentation process with the result that the dam gets clogged in a few years after commissioning of the project, leading to reduction of peaking storage capacity and severe wear and tear of generating units and operation and maintenance problems.

The dam of the Salal Hydroelectric Project on the River Chenab is already filled with sediment almost up to the top of the dam. Similarly, the dam of the Baglihar Hydroelectric Project located on River Chenab has suffered the same fate with the filling up of the reservoir almost up to the top. As per a study conducted by an International Consulting Company, about USD 0.8 billion per year or Rs. 6000 crore per year has been denied to J and K every year during the past five decades due to restrictive provisions in the clauses of the Treaty.

6 PAKISTAN'S DOUBLE STANDARDS

A number of major hydroelectric projects like Daimer Basha, Dasu, Mahl, Patrind, and Gulper are under construction on the River Indus and its tributaries in Pakistan and Pakistan Occupied Jammu & Kashmir. The Karot Hydroelectric Project was commissioned in 2022. These projects have a provision of passing design flood and sediments through low-level sluice spillways. In other words, none of these projects are using the technological knowhow of the 1960s. It is therefore untenable for India to be restrained by the technological know-how of the 1960s, as the Treaty does. The question the World Bank needs to answer is whether it will approve a project for funding anywhere in the world using a technology with overflow spillways on highly sediment laden sluices that dates back to the 1960s, as is being thrust upon India.

The Treaty also does not take into account the impact of rapid climate change on the environment. Risk resilience has not been built into the governance mechanism of the Treaty. Climate change and its likely impact on the Indus water basin warrants a modification.

7 LOOKING AHEAD: REVISITING THE TREATY

As we look ahead, the circumstances under which the Treaty was ratified 63 years ago no longer hold good.

The Treaty needs to consider new realities of India as an emerging economy with the world's largest population that is heavily dependent on the monsoon and agriculture economy and high risks associated with climate change and sedimentation. India's success in dealing with climate change is vital not only for its large population but also for humankind. These factors must be taken into account if the Treaty has to remain sound, sustainable and fair to the people of the Indian subcontinent.

In accordance with modern engineering practices, India must have the freedom to construct hydroelectric projects with provision for low level sluice spillways. This needs a new framework to be established. Such a revision is also necessary to mitigate the losses India is suffering each year on account of damage to the dams. The Treaty can survive only if it addresses the changed parameters and advances in technological knowhow and thereby ensures both equitability and sustainability.

Indus Waters Treaty 1960: ***A Flawed Judgement***

By PK Saxena



Indus Valley from the Karakoram Highway, North of Besham (Khyber Pakhtunkhwa)|
Source: Zacharie Grosse/Pixabay

1 INTRODUCTION

On July 6, 2023 the Court of Arbitration at Hague rendered its Award on its competence, in an arbitration initiated by Pakistan against India on its two hydroelectric projects, namely Kishenganga (330 MW) in the Jhelum basin and Ratle (850 MW) on Chenab. India did not take part in the proceedings of the Court on its principled position that the constitution of this Court of Arbitration (CoA) is in contravention of the provisions of the Indus Waters Treaty. In its decision, the Court held that India's non-appearance in these proceedings does not deprive the Court of Arbitration of competence to address all questions raised in Pakistan's Request for Arbitration.

India rejected the Court's observation and reiterated its "consistent and principled" position that the constitution of the unauthorised "so-called Court of Arbitration" is in contravention of the provisions of the Indus Waters Treaty as the same violates the graded mechanism for resolution outlined in the treaty. India holds that, as per Article IX of the Treaty, when a question arises concerning the interpretation or application of this Treaty, it is first taken to the Permanent Indus Commission, comprising two Commissioners from either country; if the differences are not resolved, then either party can escalate the issue to a neutral expert. The matter can be taken to the Court only under two conditions: one, if both the parties agree that the issue requires legal interpretation

of the Treaty; and two, when the neutral expert appointed earlier, refers the matter to the CoA. But in the present case, both options were not followed and Pakistan unilaterally dragged India to the CoA.

2 ANALYSIS OF THE COURT'S AWARD

The Court's Award, which India rejected, is skewed - deliberately or otherwise - and overlooks a multitude of vital facts to reach the conclusion that India's request for the appointment of a neutral expert was after Pakistan had already initiated the proceeding for the Court, an action which consequently resulted in the parallel proceedings.

In carefully chosen words, the Award stated that "By way of a Request for Arbitration dated 19 August 2016, Pakistan initiated the present arbitration proceedings before the Court of Arbitration..." and "Subsequently, on 4 October 2016, India requested the World Bank to appoint a neutral expert..." A careful read of the Award will reveal that while the Court mentioned the date on which Pakistan "initiated the proceedings" to appoint the Court i.e., 19 August 2016, it carefully avoided mentioning the date when India "initiated the proceedings" of appointment of the Neutral Expert and instead used the phrase "requested the World Bank". This skewed interpretation which was made by the Court several times in its Award doesn't seem to be without an intent.

While arriving at this conclusion, the Court completely ignored the fact that the request for appointment of the Neutral Expert is a three-stage graded procedure outlined in Annexure F of the Treaty. It begins with a notice issued by a commissioner to his counterpart under paragraph 5(a), to notify his intention to ask for the appointment of a Neutral Expert and prepare a joint statement within two weeks under paragraph (5)(b). After the expiry of the period of two weeks, the first Commissioner may request both Governments under paragraph 5(c) to jointly appoint a Neutral Expert under paragraph 4(b)(i). If no appointment is made jointly by both Governments within one month after the date of the request, the Commissioner can request the World Bank to appoint the Neutral Expert under paragraph 4(b)(ii). In the present case, India initiated the process by serving notice to Pakistan Commissioner on August 11, 2016, eight days before Pakistan initiated the proceedings of the Court. This was followed by the notice to both Governments on September 6, 2016 and then a request to the World Bank made on October 4, 2016. Clearly, India initiated the process of appointment of a Neutral Expert much before Pakistan, a fact that the predetermined Court chose to overlook, for the reason brought out subsequently.

Further, the Court noted that India's "non-appearance does not deprive the Court of competence, nor does it have any effect on the establishment and functioning of the Court, including the final and binding nature of its awards." In its zeal to go ahead, the Court ignored that the non-participation of a party in the proceedings of the already constituted Court is different from its non-participation in the constitution of the Court itself.

Paragraph 4 of Annexure G of the Treaty stipulates how the Court is established. It states that "Unless otherwise agreed, between the Parties, a Court of Arbitration shall consist of seven arbitrators appointed as follows..." and goes on to describe how these seven Arbitrators are appointed, i.e. two Arbitrators each from both the countries and the three

Neutral Umpires appointed pursuant to paragraph 4(b) of Annexure G. Further, paragraph 11 of the same Annexure stipulates that “As soon as the three umpires have accepted the appointment, they together with such arbitrators as have been appointed by the two Parties under paragraph 6 shall form the Court of Arbitration.”

There is not a single provision in the Treaty that provides for a different or curtailed composition of the Court in the absence of the participation of a party. This vouches for India’s assertion that the formation of the court itself is illegal.

Pakistan relies on paragraph 11 of Annexure F, that “Unless the Parties otherwise agree, the Court shall be competent to transact business only when all the three umpires and at least two arbitrators are present.” This is a “transaction of business clause” for the seven-member court constituted under paragraph 4 of Annexure G and not for constituting the Court itself. It is difficult to believe that ignoring such a glaring provision by the Court is not deliberate.

Furthermore, the Court held that a “dispute” could arise and be placed before a court of arbitration without first being addressed by a neutral expert, so long as a commissioner had not already made an actual request for the appointment of a neutral expert to address the matter. On the factual record, India made no such request prior to Pakistan’s initiation of the Court’s proceedings”. This conclusion, again, has been reached based on the skewed interpretation of the dates of “initiating” the respective proceedings, as mentioned earlier.

Lastly, the Court admitted that an essential requirement of Article IX(3) relating to the preparation of a report in the Commission on the “dispute” has not been fulfilled and no report had been prepared by the Commission. To justify the same, it jumped to the provisions of Article IX(4) to hold that “the Treaty permitted the process of forming a court of arbitration to move forward where one Party was of the view that the report was being “unduly delayed”. The Court found that, in the present circumstances, Pakistan had reasonably come to the conclusion that the report was being “unduly delayed”. The fact that the then Pakistan Commissioner intimated his intent to constitute the Court of Arbitration on February 25, 2016 and the Indian Commissioner, on March 14, 2016 had requested for an early meeting of the Commission, only to be ignored by Pakistan, is not commensurate with this assertion. Pakistan continued to reject India’s requests for a meeting of the Commission.

It is also interesting to note that the questions raised by Pakistan explicitly fall within the provisions of Part 1 of Annexure ‘F’ which requires them to be resolved by a Neutral Expert under Article IX(2)(a). This was done in the case of Baglihar (2005-2007) where the issues were resolved by the Neutral Expert. This fact was admitted several times by the Pakistan side itself before giving the notice for the appointment of the Neutral Expert to resolve these issues in 2015 but revoked later in 2016. The Court did not explain why it had chosen to ignore this unambiguous provision of the Treaty, as well as the precedence. Ignoring the facts brought out by India and even twisting them while giving the Award, highlights the bias in the award.

Despite the World Bank's claims that its role is procedural, the facts remain that backed by some poor legal advice, the World Bank did not interpret its role accurately, much to the ire of both parties. To cover up the initial follies, it went on to commit a series of blunders resulting in what can only be dubbed as a tragedy of errors.

More than a week after India filed a request with Pakistan on August 11, 2016 to jointly appoint a Neutral Expert, Pakistan responded on August 19, 2016 to appoint a court of arbitration and quite mischievously copied the request to the World Bank as well. It was duly acknowledged by the President of the World Bank pursuant to paragraph 9 of Annexure G. This was against the provisions of the Treaty. Paragraph 7 (b)(ii) of Annexure G allows both parties 60 days to establish the Court of Arbitration jointly. Only if the parties fail to do so, does the Treaty allow the World Bank to step in. Thus, there was no reason for the World Bank to enter the stage in this issue before 18 October 2016. However, the Bank brought itself into the act, invoking paragraph 9 of Annexure G, much before the mandatory sixty days, based only on Pakistan's perception that "there is no reason to wait until that date". The Treaty does not provide for the World Bank to act on the requests based on the perceptions of either party.

Further, after India's request dated August 11, 2016 to appoint the Neutral Expert did not evoke a favourable response, the Indian Commissioner informed the Governments of both India and Pakistan on September 4, 2016 under the provisions of paragraph 4(b)(ii) of Annexure F. This was followed by a request dated October 4, 2016 to the World Bank, after the mandatory sixty days to appoint the Neutral Expert under paragraph 4(b)(iii) of Annexure F. Thus, on October 4, 2016, by way of India's request to appoint the Neutral Expert, the World Bank had only one legal request before itself i.e. that of India. However, instead of acting on the same, the World Bank waited till October 18, 2016 when the aforesaid mandatory 60 days period elapsed and then declared that the Bank was now seized of two requests and would initiate the two parallel processes. This, while acknowledging that "such an action is 'fraught with practical and legal difficulties, risking to render the Treaty unworkable.'" The Bank has no acceptable answer for its inaction between October 4-18, 2016 thus keeping the Indian request pending. It attributed this delay to "due diligence" and "evaluating whether the submission had been made in accordance with the relevant Treaty requirements". This action of keeping the Indian request pending for two weeks allowed Pakistan's request to mature. Clearly, it is more than a "function of happenstance" as the Bank later claimed.

Additionally, during the first round of the process of appointment of the Neutral Expert, the World Bank deliberately and wrongly disclosed to Pakistan, the names acceptable to India as Neutral Expert and went on pursuing hasty and unreasonable timelines for action on Pakistan's request. This puts in shadow, the Bank's impartiality in handling the matter. In a nutshell, the World Bank's actions were arbitrary - both legally and logically - and contradict its stated "usual neutral, proactive and pragmatic approach."

The Indus Waters Treaty 1960 is the most generous Treaty ever signed by an upper riparian country wherein India could get only 18 per cent of the waters and even for this, she contributed £62.06 million (around USD 4 billion at today's level) towards the costs of the replacement works. The restrictions imposed by the Treaty are not generous but accepted nevertheless. It is India's right to design the project on Western Rivers consistent with the principles of sound and economical designs within the limiting conditions imposed by the Treaty. India cannot relegate this right given under the not-so-generous provisions of the Treaty and cannot accept selective and convenient interpretations of Pakistan, based on nefarious perceptions to impose further restrictions.

India, as a responsible state, has never hindered water flows to which Pakistan is entitled, not even during wars and other periods of tense relations. The success of any water Treaty largely depends on the upper riparian state. The fact that the Treaty is widely quoted as a success story for over sixty years, highlights the commitment of India towards the successful implementation of the Indus Waters Treaty, which was originally signed with a mutual desire to attain the most exhaustive and satisfactory utilization of the waters of the Indus system of rivers.

Lately however, for quite a few years now, this Treaty is being abused by Pakistan to advance its political agenda of hampering the development of Kashmir by objecting to every project in J&K, irrespective of its size. Because of Pakistan's obstructionist approach, there is a growing feeling that the Treaty is a major impediment towards the development of water resources in the Union territory of J&KL, thereby becoming the proverbial albatross around our collective necks. The Pakistani "intransigence" on its implementation aided by the actions of the World Bank and the so-called Court of Arbitration has proven to be a flash point.

It is a welcome step by India to reject the Award of the illegally constituted Kangaroo Court and call for renegotiations of the Treaty. The dispute resolution mechanism in the present Treaty is a relic of the colonial era which heavily relies on the West and allows them to meddle in bilateral affairs. It is time for India to assert her right to exploit her resources for the benefit of our people, and take all necessary steps to secure this right.

Indus Waters Treaty: ***Time to Move Ahead***

By PK Saxena and Pankaj Saran



Indus River in the Skardu | Source: Pixabay

1 BLOOD AND WATER CANNOT FLOW TOGETHER

In September 2016, Prime Minister Narendra Modi made what was one of the boldest statements³ on the Indus Waters Treaty by an Indian Prime Minister. He said, following the terrorist attack in Uri, that blood and water cannot flow together. The message to Pakistan was that it cannot run with the hares and hunt with the hounds. It cannot expect business as usual from India while waging a proxy war of terror and more against India. His remarks were a sign that India's patience had finally run out.

The Prime Minister's remarks however also reflected the deep-seated conviction that India had given way too much to Pakistan in 1960 through the Treaty in the initial euphoria of trying to build good-neighbourly relations with a newborn state, and belief in the principle of "fairness".

2 ENTER THE WORLD BANK

To further compound the error, the Treaty handed over a central position to the World Bank by making it the arbiter of disputes that may arise between the two countries. This faith reposed by India in the World Bank to act as a neutral party was yet another gross

misjudgement after the naivete displayed in referring the invasion by Pakistani soldiers disguised as raiders and tribesmen into Indian territory to the UN a few years ago.

Time and successive events have shown that the trust reposed by India on both Pakistan and the World Bank has proved to be misplaced. It is only the current government that has become alive to the realities of the Treaty and ready to correct historical errors. Not many had wagered, for example, that there would one day be a Government in India that would abrogate Article 370 of the Indian Constitution.

As far as Pakistan is concerned, it has repeatedly used the Treaty provisions to block projects by India. The objections could not prevent the Baglihar and Kishenganga projects from being implemented and coming into operation in 2019 and 2018 or for the Ratle project to get final investment approval. They did however lead to significant time delays and cost overruns, the onus for which rests on Pakistan.

As far as the World Bank is concerned, its inability to deal with Pakistani challenges to the Kishenganga and Ratle projects in recent years reveal two flaws. One, the imperfections and ambiguities in the Treaty on dispute resolution and second, the lack of adequate technical and legal competence within the World Bank to handle such disputes.

3

THE CASE OF BAGLIHAR

The Baglihar Project is a good case study of Pakistan's behaviour. It is a 450 MW run-of-river hydroelectric project located in Ramban district in the Union Territory of Jammu & Kashmir on the Chenab River. The project was conceived in 1992 and approved in 1996. India gave advance notice to Pakistan under provisions of the Treaty in May 1992. Pakistan's objections raised in August 1992 remained under discussion in the Permanent Indus Commission.

In January 2005, Pakistan formally moved the World Bank for the appointment of a 'Neutral Expert' to decide on the differences between the two countries, in response to which the World Bank appointed a Swiss expert a few months later. The 'Neutral Expert' gave his determination in February 2007, largely supporting the Indian position. This proved that Pakistani objections to Indian projects on the Western Rivers of the Indus, all run of the river, are more a reflection of Pakistan's anxieties as a lower riparian, than an actual violation of the Treaty by India.

4

THE CASE OF KISHENGANGA

In 2007, Pakistan raised six objections on the 330 MW Hydro-Electric Project on the river Kishenganga, a tributary of the Jhelum River – four of them related to the design and two on legality of diversion and drawdown of water below the dead storage level. The matter remained under discussion in the Permanent Indus Commission till 2009. Even as discussions were in progress Pakistan decided to take the two legal issues to the Permanent Court of Arbitration. The Court gave its Final Award on December 20, 2013. While upholding the water diversion by India, the Court indicated that the minimum release of nine cubic meters per second should be maintained by India which can be reviewed by the parties after seven years, if necessary. The Court also held that India

should not employ drawdown flushing meant for removing sediment from the reservoir of the Kishenganga Hydro-Electric Plant and her future projects on Western rivers.

This ruling is most significant because it effectively prevents India from using modern techniques that are being used around the world to remove sedimentation from reservoirs since these technologies were not available when the Treaty was signed. Denying India, the option of using technological advances in dam construction has affected the longevity of Indian projects on Western rivers. The irony is that Pakistan is itself using the same technologies in its own projects.

In 2016, even as the four design issues were under bilateral discussion, Pakistan, guided by political considerations, unilaterally approached the World Bank for constituting a Court of Arbitration. India argued that these issues are technical and requested for appointment of the Neutral Expert. Ignoring India's repeated written advice, and after keeping the whole matter paused between 2016 and 2022, the World Bank simultaneously initiated parallel processes to satisfy both sides - appointment of a Neutral Expert in October 2022 and constituting a Court of Arbitration whose hearings began in January 2023.

This was an extraordinary decision with no basis in the Treaty. The Bank's actions were in clear violation of the Treaty. It has no mandate to unilaterally interpret the Treaty. India has refused to participate in the latter process.

5 *THE CASE OF RATLE*

Similar objections on the design aspects were raised by Pakistan on the 850 MW Ratle Project in 2012. These were also under discussion in the Commission till July 2015, but as in the case of Kishenganga, Pakistan unilaterally approached the Bank for a Court of Arbitration for Ratle.

6 *COMPOUNDED BY ILLEGAL ACTIVITIES IN POJK*

Meanwhile, Pakistan has built or is building hydro-electric projects in territory which belongs to India in Pakistan Occupied Jammu and Kashmir, some with Chinese funding. These include the major Daimer Basha project and those in Mahl, Patrind and Gulpur on the River Indus and its tributaries.

7 *INDIA THROWS THE GAUNTLET*

In January 2023, India finally served notice to Pakistan seeking amendments to the Treaty. This is a major and long overdue move which should have been done many years ago. In its notice, India has accused Pakistan of violating the "graded mechanism" of dispute settlement under Article IX, and has correctly pointed out that the first step has to be the appointment of a Neutral Expert. India has further accused Pakistan of refusing to discuss the issue during the Permanent Indus Commission meetings held between 2017 and 2022.

India has thus drawn attention to Pakistan's misuse of the Treaty, the lacunae in the Treaty itself and gone a step further by suggesting an "update" in the Treaty to take into account the lessons learnt over the last sixty-three years.

It is understood that Pakistan has responded to India's notice and stated that the proposal for amending the Treaty may be taken up in the Permanent Indus Commission. India has rejected this suggestion, arguing that the Commission is meant only for technical issues, not issues of substance relating to the Treaty itself.

The full import of these moves in the last few months has not been fully understood.

8 **FAST-TRACKING AT HOME**

At the same time, India has been tardy in not fully utilising the share of water it has under the Treaty for power generation and irrigation. It is again the Modi government that has sought to correct this neglect.

Concerted action is now being taken by the Centre as well as the concerned State governments to fast-track various hydro-electric projects on the Western rivers. The Government has set up a Task Force under the directions of the Prime Minister's Office to ensure exercise of India's rights under the Treaty. The second meeting of the Task Force took place on May 26, 2023, in Srinagar under the chairmanship of Deputy National Security Adviser Vikram Misri.

The nine main projects being fast-tracked include Ratle, Sawalkote, Kirthai-II, Kiru, Kwar, Sachkhas, Dugar, Kiru and Kwar, with a combined capacity of more than 6500 MW⁴.

9 **NOTHING IS CAST IN STONE**

International treaties enjoy acceptance and therefore legitimacy not only by force of law but also by virtue of being implemented in good faith by all sides and being equal and just. This is even more important when the parties to the Treaty are adversaries. Additionally, international agreements are not cast in stone. There are numerous instances where Treaties have been updated or modified or otherwise have simply been relegated to the dustbin of history.

Pakistan has flouted all norms of civilised behaviour and international principles governing inter-state relations by its brazen use of terrorism as a tool of war against India. Its expectation of compliance by India of bilateral agreements that suit Pakistan such as the Indus Waters Treaty is unrealistic.

Pakistan has overplayed its hands. Such brinkmanship has been the hallmark of Pakistan's overall India policy. However, the time for reckoning for Pakistan has come. Its free ride of the liberal share of the river waters granted to it under the Treaty, repeated attempts to veto India's legally permissible usage as well as benefiting from the historical neglect by India to ensure full utilisation of its share can no longer be taken for granted. The time has come to move ahead

Upper Siang Hydroelectric Project: Key to Prosperity in Arunachal Pradesh

By Devendra Kumar Sharma



The River Siang in Arunachal Pradesh | Source: Pixabay

1

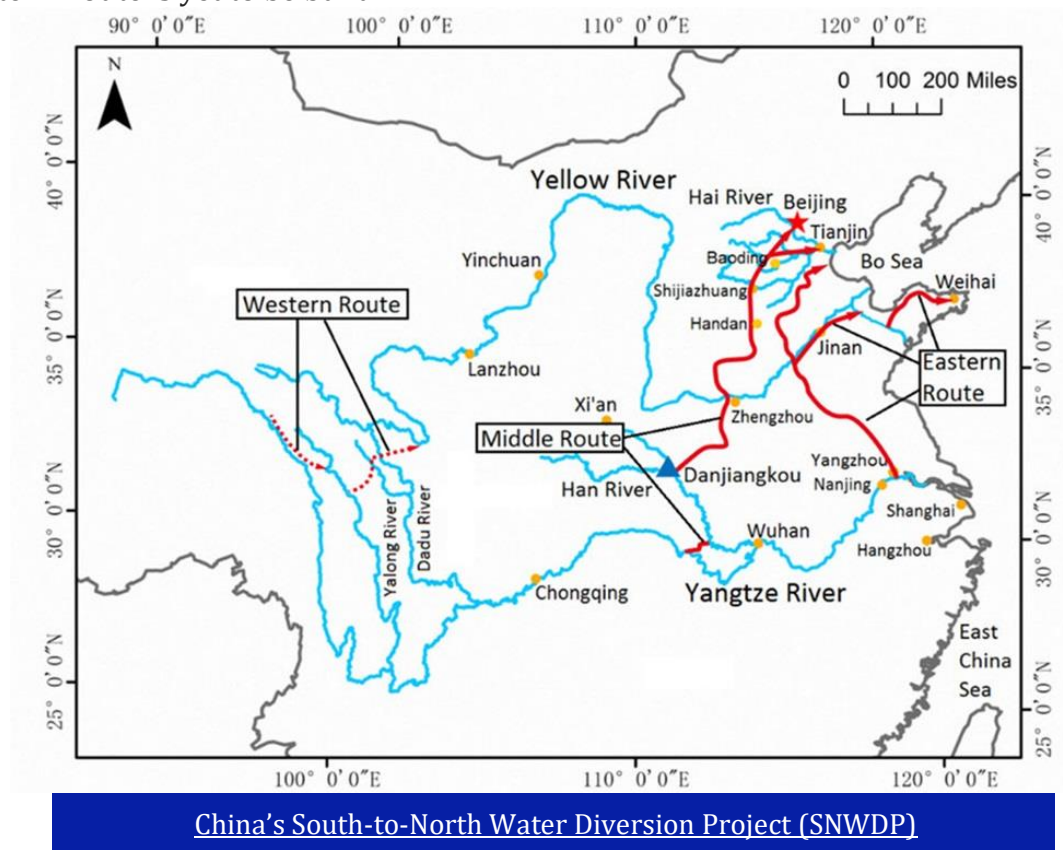
CHINA'S PROPOSED CONSTRUCTION OF THE DAM ON THE YARLUNG TSANGPO

China has proposed the construction of a 60,000 MW (60 GW) Hydropower Project in Medog county, just 30 km from the international border close to the Indian state of Arunachal Pradesh, on the Yarlung Tsangpo, also known as the Brahmaputra in India. There have been reports that China plans to divert the Yarlung River through the construction of a South-North Diversion Project which will be 1,000 km in length.

Since people in both Arunachal Pradesh and Assam are heavily dependent on the Brahmaputra River for their quotidian water needs, the diversion of lean season flows will affect their day-to-day existence. Similarly, the diversion will affect the flora, fauna and river ecology of the region. Moreover, the diversion of the Yarlung Tsangpo (Brahmaputra) to the north by China during the lean season will reduce the flow of the Brahmaputra River. This will adversely impact run-of-the-river projects like Lower Siang. Finally, a large volume of water storage by China at the Great Bend could act as a catalyst in creating artificial floods during monsoons endangering populations living in the Indian states.

According to a report in CGTN TV on February 5, 2023, China has already diverted 60 billion cubic metres of water since November 2013 from the major rivers in the south to meet the water demands of the drought-prone regions of Northern China. This mega

project has three routes (see map below), two of which have started operations. The middle route starts at the Danjiangkou Reservoir Project in Hubei Province and runs across Henan and Hubei before reaching Beijing and Tianjin. The eastern route transfers water from China's Jiangsu Province to areas including Tianjin and Shandong. The Western Route is yet to be built.



2

UPPER SIANG HYDROELECTRIC PROJECT (11000 MW)

In the event of the construction of the 60 GW Project at the Great Bend by China, the feasibility of the Lower Siang Hydroelectric Project (2,700 MW) in India, which is a run-of-the-river project, will be severely affected. The construction of Upper Siang Hydroelectric Project (HEP) with large water storage in the reservoir, on the other hand, will keep the river alive during the lean season and will also absorb any flood water released by China after the 60 GW hydroelectric project at the Great Bend is constructed.

The proposed location of the Upper Siang Hydroelectric Project is in the Upper Siang district of Arunachal Pradesh, with its headquarters at Yingkiang. The National Hydroelectric Power Corporation (NHPC) and the Northeastern Electric Power Corporation (NEEPCO) have jointly been assigned the task of construction of this project. On December 30, 2022, NHPC submitted a pre-feasibility report of the Project according to which the installed capacity of the project would be 11,000 MW, the reservoir would have a storage capacity of 9 billion cubic metres (BCM) and the estimated cost of the project would be around Rs. 1,13,000 crores (USD 13 billion). Investment of such a large magnitude in Upper Siang district in Arunachal Pradesh would have a multiplier effect on the economy of the state and lead to improvements in the infrastructure of this remote district. For instance, the approach road from Assam.

DIRECT BENEFITS OF UPPER SIANG HYDROELECTRIC PROJECT TO ARUNACHAL PRADESH

Notably, out of the total annual electricity generation of about 47,000 MU in a 50 per cent mean year, 12 per cent will be given free to the state of Arunachal Pradesh, as per the policy of the Government of India. The annual share of free energy at 12 per cent to the state of Arunachal Pradesh will be around 5,640 MU. This indirectly means that Arunachal Pradesh, in terms of installed capacity will get 1320 MW of power, free of cost. At the time of the commissioning of the Upper Siang Project, the average rate of sale of electricity in the market may be around Rs 6.00 to Rs 7.00 per unit. Thus, even by considering a sale rate of Rs 6.00 per unit of electricity, Arunachal Pradesh will get additional annual revenue of around Rs 3384 crore from free power from this project in a normal year. In addition, 1 per cent of total revenue from the project will be distributed among the local population in the project affected area. This means an additional generation of revenue of around Rs 282 crore would be distributed to the project-affected people.

In addition, every family affected by the project will be entitled to get 100 units of free electricity as per the provisions enshrined in the National Hydro Power Policy 2008. This permanent annual income would be in addition to the Rehabilitation and Resettlement compensation to be given to the project-affected population for acquisition of their land and property for construction of the project.

The Upper Siang Hydroelectric Project, once constructed, will become the backbone of the Arunachal Pradesh economy and will usher in an era of prosperity in the State, providing meaningful employment to the local youth and generating economic opportunities for the local population. Fish breeding in the 125 km length of the reservoir would enhance the income of the local population. Water transport for the people in the higher reaches in precipitous hilly terrain and water sports activities in the reservoir will be another attraction that will generate revenue to the local people on a permanent basis.

IMPACT OF CLIMATE CHANGE IN ARUNACHAL PRADESH AND ITS MITIGATION BY UPPER SIANG HYDROELECTRIC PROJECT

This project will play a major role in combating the impact of climate change in the Brahmaputra basin by keeping temperature rise commitments in consonance with the 2015 Paris Agreement, and achieving net zero carbon emission targets committed to during the COP26 Climate Summit in Glasgow and the COP27 held in Sharm El-Sheikh.

The construction of the Upper Siang Multipurpose Project will enable India to move quickly on the path of energy transition by phasing down coal generation to non-fossil fuel renewable energy. It will prevent the release of approximately 32 million tonnes of CO₂ annually into the atmosphere, presently being released from coal-based power generation.

A recently concluded study on climate change in Arunachal Pradesh by the author reveals that the present average annual temperature of 29°C will increase by 1.5° to 2°C by the

year 2060 and a 2.3° to 2.8°C rise by 2100. This study also depicts that the present average annual precipitation of 2987 mm will decrease up to 7.5 per cent to 10.2 per cent in the near future by the year 2060. This annual precipitation will decrease by 8.4 per cent in the far future by the year 2100 in case of SSP1-26 (sustainability pathway with low energy demand) and will increase by 2.9 per cent in case of SSP5-85 (fossil-fuelled development pathway). Spatial and temporal distribution of rainfall would, however, undergo significant change. Effects of global warming and climate change risks can be mitigated with corrective measures such as reducing dependency on fossil fuel power generation, storing water in dams to meet irrigation, drinking water and industrial water needs while at the same time generating hydropower. Construction of dams in India to address water and energy security needs is essential. Against this overall context the construction of the Upper Siang Dam will be a step in the right direction.

5**RENEWABLE ENERGY AND GRID BALANCING BY UPPER SIANG HYDROELECTRIC PROJECT**

While solar and wind power generation have seen exponential growth in India in the past, a lot more work is required. Till the end of September 2023, the total installed capacity of renewable energy in India was 178,633 MW, out of which 71,780 MW came from solar, 46,850 MW from hydro, 44,184 MW from wind, 4,983 MW from small hydro, 10,262 MW from biomass and 573 MW from waste to energy. By the year 2030, the installed capacity of renewable energy is expected to increase to about 500,000 MW. It is well known that both solar and wind are intermittent sources of energy which suffer from variability and uncertainty, are location-specific and have a low-capacity factor. With the significant injection of solar and wind renewable into the grid, storage dams with hydropower generation including pump storage have become the backbone of energy transition. The Upper Siang Hydroelectric Project (11,000 MW) with water storage of 9 BCM will provide grid stability and will also help in the integration of large-scale renewable energy in the system.

Hydropower is the only reliable energy source which can be effectively ramped up and down as per demand. It holds a unique place amongst all other energy sources and plays a crucial role in ensuring grid stability. Sustainable hydropower is a clean, green, modern and affordable solution to climate change.

Water stored in Upper Siang Dam will be crucial in ensuring water security for the populations, keeping in mind the nature of extreme climatic events that have affected the region since the advent of climate change. With its inbuilt storage capacity, this project will reduce the intensity of floods in the Siang basin in Arunachal Pradesh and in the Brahmaputra basin in Assam. It will also ensure reliable water flow in the Siang River and Brahmaputra River during the lean season thus providing water security to the Northeastern Region.

6**CONCLUSION**

The positive impact of this project could be negated by the diversion of the Yarlung Tsangpo by China to the north. It is therefore imperative that work on the Upper Siang Dam progresses at a fast pace and there are no further delays in its implementation.

With a hydroelectric potential of 50,000 MW, India's North-East could offset China's proposed diversion of Yarlung Tsangpo. The Upper Siang Hydroelectric Project will be key to the development not just of Arunachal Pradesh but of the entire Northeastern Region. We cannot afford to waste more time on the initiation of the Upper Siang Hydroelectric Project.

Indus Waters Treaty: Looking Back, Looking Ahead

By Uttam Kumar Sinha



Ratle Hydroelectric Project | Source: Swarajyamag

1 INTRODUCTION

The Indus Waters Treaty (IWT) signed in 1960 between India and Pakistan, despite having functioned for 63 years, is, in the current political context, troubled. Well-wishers of the Treaty—like those who champion an India-Pakistan dialogue—often dub it as “uninterrupted and uninterruptible”. The World Bank, as a third party—pivotal in facilitating the IWT—is feeling the heat and erring in judgement⁵ while observing the implementation of the Treaty. The role of India as a responsible upper riparian state abiding by the provisions of the Treaty, has been consistent, but it is under pressure to rethink the extent to which it can commit itself as its overall political relations with Pakistan become intractable. It is also important to underline that the reason the Treaty has remained ‘uninterrupted’, is because India allows it to work. This also means that the Treaty can become *quidquid voverat atque promiserat* (null and void) if India decides to make it so. However, for this to be achieved, several politico-security and hydrological factors need to be determined as also a political consensus to abrogate the IWT in which India has invested politically and financially.

Every now and then there is a clamour for abrogating the Treaty as a response to Pakistan's support to cross-border terrorism. Inevitably, the discourse shifts away from the rationality of sharing the waters with Pakistan to using the shared rivers as an instrument of coercion and a tool of punishment. What emerges in the water debates with Pakistan is an interesting interplay between India's justifiable anger over Pakistan's support to cross-border terror and correcting the history of Indian generosity. Importantly, it reopens the past and with it, the re-examination of the IWT—both the context in which it was framed and the text that was negotiated.

It is remarkable that the IWT has survived the tumultuous relationship between India and Pakistan. That the Treaty has lived is because India respects being its signatory and values trans boundary rivers as an important connector in the region both in terms of diplomacy and economic prosperity. There have been several occasions—the Indian Parliament attack in 2001, the Mumbai terror attack in 2008, the terrorist attacks in Uri in 2016 and the 2019 Pulwama attack—which could have prompted India, within certain conditions, to contemplate withdrawing from the IWT. However, on each occasion, based on its cost-benefit assessments, India chose not to.

2 LOOKING BACK

Partitioning the Indus River system, comprising the six rivers, was inevitable after the partition of India in 1947. The sharing formula, devised after prolonged negotiations and with the World Bank's good offices, divided the Indus system into two halves. The three western rivers (Indus, Jhelum and Chenab) went to Pakistan and the three eastern rivers (Sutlej)⁶, Ravi and Beas) were portioned to India. Equitable it may have seemed, but the fact remained that India conceded 80.52 per cent of the aggregate water flows in the Indus system to Pakistan. Probably it is the only Treaty in the world that was not only volumetric (water-sharing) but also partitioning. India also gave £62 million to Pakistan to help build replacement canals from the western rivers. Such generosity is unusual of an upper riparian.

Did India compromise its position? This is a query raised in retrospect. Water was critical for India's development plans, irrigation facilities and power. It was crucial, therefore, to get the waters of the eastern rivers for the proposed Rajasthan canal and the Bhakra Dam. Without these waters both East Punjab and Rajasthan would be left dry, severely hampering India's food production. India's Prime Minister Jawaharlal Nehru, while inaugurating the Bhakra canals described it as "a gigantic achievement and a symbol of the nation's energy and enterprise". In Pakistan, however, it was an occasion for the expression of strong resentment. Nehru was always conscious that the Bhakra canals should not be at the cost of reduced water supplies to Pakistan. However, he was also very clear that India's interest on the eastern rivers should be protected. Nehru at a public meeting in Bangalore stated: "So far as Pakistan and India are concerned, I have been convinced that the only policy we should pursue is one of friendship with Pakistan. So, we have consistently pursued that policy. Naturally, that does not mean that we should abandon our vital interests. That is not the way to seek friendship."

On the Indus waters, Nehru in the same speech goes on to say, "The Indus water dispute is one of the differences still to be settled between India and Pakistan. On all these issues

India pursues a policy of candour and regard for human needs on both sides of the border and is always willing to negotiate in a friendly spirit to the end that she and Pakistan should someday come to live on their sub-continent as amicably and cordially as the United States and Canada live in North America.”⁷

It is interesting to note that India’s negotiating approach was in clear contrast to the position on the Farakka barrage on the Ganga in East Pakistan (which later became independent Bangladesh). Pakistan in 1951, had objected to India’s plans, fearing that such a barrage would reduce the availability of water for projects in East Pakistan. Several notes were exchanged and in 1957 Pakistan even suggested taking the matter to the UN. But India did not budge an inch.

Soon after the signing of the IWT, Nehru and Pakistan’s Ayub Khan discussed the Farakka barrage in London in 1961, but nothing concrete was decided. A Number of expert-level meetings held between 1960 and 1969, but the issue remained unresolved until 1996, when India and Bangladesh signed the Ganges Water Treaty.

Clearly, due to its strategic location and importance, the Indus basin attracted far more serious attention than the Farakka issue. The Indus tributaries passed through Jammu and Kashmir (J&K) which had received, by then, considerable international attention.

In fact, David Lilienthal, the US public administrator who headed the Tennessee Valley Authority and later the Atomic Energy Commission, wrote in August 1951 in the US magazine Collier’s after visiting India and Pakistan, that the two countries were on the edge of a war over Kashmir and the US might be drawn into it. Lilienthal had feared that “another Korea is in the making.”⁸

While in India the IWT is perceived to be highly generous towards Pakistan, the view in Pakistan has been radically different. The main impression in Pakistan has been that the loss of the eastern rivers was irreparable. Commentators such as Bashir Malik have challenged the Treaty’s provisions, saying that it was Nehru who manipulated the Radcliffe Award to ensure that the headworks of Ferozepur remained in India.⁹ Malik grieves that the signing of the Standstill Agreement and the Delhi Agreement was a colossal error, which in the end cost Pakistan its rights over the eastern rivers, and goes on to say that India’s negotiation tactics were superior to those of Pakistan.¹⁰ He also questions the World Bank’s motive behind the 1954 plan, as it was well aware that the loss of the eastern rivers would be “a rude shock to bear with [for] Pakistan.”¹¹ Malik writes: “It would seem as a tactical strategy to assure her, though falsely, of availability of enough flow of waters of Western Rivers.”¹² He adds that the Bank’s proposal “incorporated the core elements of the Indian plan. In fact, she gained much more than she could ever imagine ... She got away with the total flow of 33 million acre-feet (MAF) virtually for a song.”¹³

3 CURRENT SITUATION

What is disputable today has nothing to do with water-sharing, which is settled under the Treaty, but whether the Indian projects on the Western Rivers, in particular Jhelum and Chenab, as Pakistan claims, conform to the technical stipulations.

Storages on rivers indeed create anxiety for lower riparian states and the IWT's provisions factor in the water supply concerns of Pakistan. It must be noted that there is not a single storage dam that India has built on the western rivers even though the IWT allows storage entitlement of up to 3.6 MAF (million-acre feet). However, this is being corrected by the Modi government since 2016. Each project, in accordance with the IWT, requires India to provide specified information to Pakistan at least six months before the commencement of the works.

Clearly the question of India acquiring capacity to manipulate or withhold the flow of water is, under the IWT's provisions, not only untenable but can also be monitored. Pakistan's objections to the projects over several decades have been tactical and less technical. Its objective principally has been to stall any water development projects in Kashmir. A prosperous and developed Kashmir increasingly locked to mainstream India is an anathema to Pakistan's leadership.

Pakistan has cleverly used its lower riparian position to garner international sympathy and domestic incapability. The country receives 67 per cent of international waters, making it a boxed-in lower riparian not only with India but also with Afghanistan vis-à-vis the Kabul River. The leadership articulates its vulnerability and victimhood by raising water as a "lifeline" issue, suggesting clearly that the sharing of the waters with India still remains unfinished business.

A section of Pakistan's political-military leadership, given its feudal and industrial background, believes that the water issues not only help divert attention from Pakistan's inefficient water management policies and inter-provincial water disputes between Punjab and Sindh but would also provide a "back door" for international involvement, once again, in the Jammu and Kashmir dispute.

The *raison d'être* of the IWT was precisely to de-link the water issue from territorial disputes and settle any differences within the mechanism of the Permanent Indus Commission (PIC), with one commissioner from each country to implement the treaty as well as settle differences and disputes by agreement, neutral expert, court of arbitration or any other manner as agreed. The commissioners have met at least once a year except in 2020, when the meeting was cancelled due to Covid-19. India's leadership and water development planners in the 1970s lost much ground to Pakistan on the interpretation of IWT when it came to various projects on the western rivers (Indus, Jhelum and Chenab). India conceded to Pakistan's objections, for example on the Salal Hydroelectricity Project and then later the Tulbul navigation. The adjustment on the height of the Salal resulted in huge siltation of the dam and the Tulbul waterway even till today remains shelved.

The fact, however, remains that the provisions of the treaty entitled for India on the Western Rivers remain woefully unutilised both in terms of storage capacity and hydropower generation. After the effective abrogation of Article 370 of the Indian Constitution, the current NDA government, which realises water as a means to socioeconomic ends, has fast-tracked a number of multi-purpose river projects in Kashmir including a ₹5842 crore investment for the 850 MW Ratle project. The NHPC expects to install 3800 MW of projects with an investment worth ₹2,300 crore (USD 243.25) for J&K. It is estimated that hydropower on the Chenab will triple in the coming years. India has done well in recent times to communicate, in no uncertain terms, to the

international community and even to the World Bank, as the third party to the treaty, that riparian sympathy towards Pakistan is misplaced.

In January 2023, India issued notice to Pakistan for its continued “intransigence” on implementing the Indus Waters Treaty (IWT), signed in 1960. India’s argument is that there cannot be “two separate processes” to resolve differences over the Kashmir-based Kishanganga and Ratle Hydroelectric Projects on the Jhelum and the Chenab and considers such actions as a ‘material breach’ of the Treaty. India’s notice to Pakistan, probably for the first time, called for negotiations on modification of IWT. India would like to relook certain annexures relating to dam designs as well as the dispute resolution mechanism, given its legitimate water development projects on the western rivers (Indus, Jhelum and Chenab). Article X of the IWT mentions “modification of the provisions”. Pakistan would not like to enter any renegotiations given that it extracted a more than favourable Treaty. Any mutually acceptable modifications would require both to abide by the letter and the spirit of the IWT.

One principal reason why the IWT has been robust is the in-built “difference and dispute resolution”. Article IX has a three-step graded mechanism. If the two sides cannot resolve a ‘question’ or ‘difference’ bilaterally, then it becomes a ‘dispute’ and is referred to either a Neutral Expert (NE) or the International Court of Arbitration (ICA)³. Technical differences are referred to an NE with a provision of court of arbitration. Clearly, Pakistan’s rather well-styled infringement is political and not technical and solely intended to stymie much-needed hydroelectric projects in Kashmir by taking the matter from the bilateral and technical ambit to the ICA. Such positioning might seem foolhardy, but rationality does not come easy to the Pakistani establishment with issues concerning India being deeply politicised and securitised.

Interestingly, the framework for arbitration would not have come about had it not been for the intervention of Zulfikar Bhutto, the Oxford-educated lawyer who had joined Pakistan president Ayub Khan’s cabinet as the minister of water, power, communication and industry. Bhutto played an active role in the final phase of the Indus treaty negotiations but more significantly, his statement in the United Nations (UN) as a member of the Pakistan delegation, drew a crucial link to arbitration. A Soviet draft resolution on the question of defining aggression was put forward in the UN General Assembly in October 1957, and Bhutto said that “economic aggression or indirect aggression is perpetrated if lower riparian is deprived of natural rights in use of rivers which flow through two or more countries.”

4 *WHAT SHOULD INDIA DO?*

There have been debates in India about:
(a) the need to replace the Treaty with another improved one (Indus Water Treaty-II),
(b) to abrogate it, and
(c) to utilise the provisions of the Treaty to inflict pain on Pakistan as a countermeasure.

Those advocating revision argue that the Treaty is outdated in the sense that it does not take into account new realities and grounds for cooperation (proper survey of the basins for better exploitation of water resources; reconsideration of the interests of Kashmiris

whose interests were overlooked; and new technologies being used for dam-making, de-siltation and ecological issues, among others) and hence begs for revision.

On the other hand, the advocates of abrogation argue that the Treaty has unjustly signed away more waters to Pakistan than it rightfully deserved and has not ensured friendly behaviour from Pakistan. Moreover, it has taken undue advantage of the relevant clauses of the Treaty to stall and delay power and navigational projects in the state of Jammu and Kashmir which has hurt the interests of the people of Kashmir. Therefore, India should abrogate the Treaty unilaterally in response to irresponsible and hostile behaviour demonstrated by Pakistan ever since the Treaty was signed.

But there is a third perspective that centres around the optimal use of Treaty provisions. Those advocating this hold that India has been quite generous in not using the provisions of the Treaty to good effect (to store water granted by the Treaty to India) especially at a time when the problem of water scarcity has started haunting Pakistan.

In view of the third perspective, adequate attention must therefore be paid to harness maximum possible water from these rivers through multi-purpose projects. Under the NDA government (2014-2019) projects like the Ujh (storage of 0.82 MAF) and Shahpurkandi Dam (0.012 MAF) and the 2nd Ravi Vyas Link Project, on the eastern rivers, which can harness water flowing across border to Pakistan (about 0.58 MAF in non-monsoon period), but which were hanging fire, have become a national priority. Shahpurkandi Project on the Ravi River seeks a total production capacity of 206 MW. Jammu and Kashmir will get 20 per cent of power generated from this Project.

On the western rivers, the “permissible storage capacity” as per the Treaty provisions has not been given serious attention in India. One of the projects identified for storage purposes is the Bursar Multipurpose Project on the Marusudar river (the main Tributary of Chenab) in Kishtwar district of Jammu and Kashmir. It will store about 1 MAF, produce 800 MW of electricity and irrigate about 100,000 hectares. The second multi-purpose project being planned is the Gyspa on Bhaga River (Chenab Main) in Lahul & Spiti District of Himachal Pradesh. It is supposed to store water (0.74 MAF), produce 300 MW of electricity and irrigate 50,000 hectares of land. The Tulbul Navigation Project, which remains stalled, must now be completed. Pakistan, as explained earlier, termed this navigation project a violation of the IWT.

It will be worthwhile for New Delhi to engage the local government with a view to building pressure from the Kashmiri people for the execution of projects on the western rivers which will boost the local economy. Due attention must be given to raise popular awareness over the issue and expose Pakistani resistance to such developmental projects in the state.

The World Bank also needs to ponder its role. A much valued ‘third-party’ in the treaty negotiations and functioning, it tends to lend itself to larger geopolitical dynamics. By simultaneously appointing an NE on India’s request and setting up the court of arbitration, goaded by Pakistan, it has committed a gross procedural violation. The World Bank needs reminding that it is a facilitator and not an arbitrator on differences and disputes between India and Pakistan.

Modification may or may not happen. Will India then suspend the treaty? The best option for India is to fulfil the IWT's provisions, particularly on the western rivers. The Treaty allows storage up to 3.6 MAF and 13.4 lakh acres of irrigation. Many projects now underway will achieve the "permissible capacity". Any move to abrogate the IWT without first optimising the provisions of the Treaty is hardly pragmatic.

Rethinking Indus Waters Treaty: ***A Critical Review for a Sustainable Framework***

By Devendra Kumar Sharma



Salal Power Station | Source: NHPC Limited

1

INTRODUCTION

The Indus Waters Treaty between India and Pakistan, signed in Karachi on September 19th 1960, by the then Indian Prime Minister Jawaharlal Nehru and the then Pakistani President Ayub Khan, will complete sixty-three years of its existence today. This water distribution Treaty was arranged and negotiated by the World Bank to use the waters available in the river Indus and its tributaries. In 1960, at the time of signing of the Treaty, it was believed that this Treaty would bring an end to the water dispute between India and Pakistan.

Sixty-three years into its inception, the Indus Waters Treaty must reconcile with immense change in technical, environmental and socioeconomic factors. The pace of change challenges the operating parameters as well as the spirit of the Treaty. In the last sixty-three years, it has become clear that increased sediment load in the rivers, sustainability of reservoirs, technological progress, water stress in the Indian states as well as in some parts of Pakistan, have changed the key metrics for management of water resources in the region.

Restrictions imposed under the Treaty on the development of hydroelectric projects on the western rivers in India are not viable. More importantly, the Treaty must revisit its outlook and evolve as the threat of climate change becomes increasingly real. In this

scenario it is clear that there is an urgent need to re-negotiate the Treaty under Article XII (3).

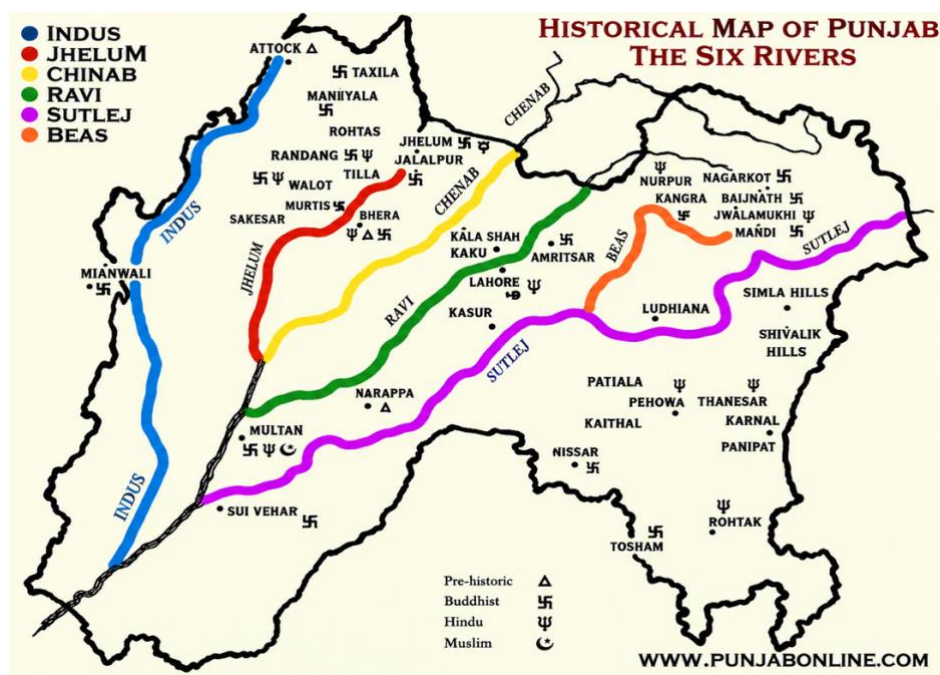
In order to understand why the Treaty is becoming non-functional, it is important to have a look at the irrigation system of undivided Punjab before Independence and its distribution to East Punjab (India) and West Punjab (Pakistan), after the partition of India in 1947.

2

THE IRRIGATION SYSTEM OF UNDIVIDED PUNJAB BEFORE INDEPENDENCE AND ITS DISTRIBUTION AFTER PARTITION

Undivided Punjab had an area of 3,58,354.50 square kilometres. This area is blessed with water resources drained by six mighty rivers, the lifeline for this historically-agricultural state. These rivers are:

1. Indus
2. Jhelum
3. Chenab
4. Ravi
5. Satluj (erstwhile Sutlej)
6. Beas



After partition in 1947, East Punjab (42 per cent of the area) became part of India while West Punjab (58 per cent of the area) became part of Pakistan. Before the partition of India, five major canals in undivided Punjab were constructed in the early 20th century. These are:

1. Lower Chenab Canal
2. Lower Jhelum Canal
3. Upper Jhelum Canal
4. Upper Chenab Canal
5. Lower Bari Doab Canal

Out of 26 million acres of land irrigated annually by the Indus canals, 21 million acres of irrigated land went to Pakistan whereas only 5 million acres came to India in East Punjab. Within the Indus plains, of the area irrigated in 1945-46, 19.5 million acres came to Pakistan and only 3.8 million acres came to India. According to the 1941 census, out of the population dependent on water of the Indus system, 25 million was in Pakistan and 21 million in India. After partition, apart from canals at Upper Bari Doab Canal (UBDC) and Ferozepur, in the remaining canal system, 131 canals were in Pakistan and only 12 in India. Thus, the ratio of water resources allocation was not proportionate to the population of the two Punjab.

This allocation of water resources had wider implications beyond the bordering regions. Areas distant from the rivers and the hilly region in the East Punjab were awaiting development at the time of partition. Out of the total quantity of water used, canals on the Indian side used only 8.3 million acres feet as against 64.4 million acres feet in Pakistan. India had around 2.2 acre-feet of water per acre of irrigated area compared to 3.3 acre-feet per acre in Pakistan. The few canals which came to India after partition were very thinly spread compared to those in Pakistan. This becomes important considering the fact that regions of Indus plains in East Punjab (India) were much less developed compared to the areas which fell in Pakistan.

As a result of partition, it can be clearly seen that the East Punjab portion in India was water thirsty and was almost left to starve with very little development and only a meagre portion of the irrigated system. Even today, Punjab state in India falls in an 'over-exploited' category with 145 per cent drawal of groundwater. The groundwater table in most parts of East Punjab in India has gone down and is in the range of 200 to 300 metres below surface.

In order to overcome the water crisis in East Punjab (India), immediately after Independence, India prepared a project report to divert the River Chenab in 1949 for construction of a dam across it in Himachal Pradesh, located around seven kilometres downstream of village Tindi in the state. This would have diverted the water of the River Chenab to the Churah valley in the River Ravi basin in Himachal Pradesh. This proposal, however, was shelved after signing the Indus Waters Treaty in 1960. This illustrates how the Treaty undermined development efforts rather than promoting them.

3

THE HISTORICAL BACKGROUND OF THE WATER DISPUTE AND SIGNING OF THE INDUS WATERS TREATY

To study any water dispute between the two parties, one has to travel back in time to the Indian Independence Act passed by the British Parliament on 18th July 1947. At the time of the passing of this Act, the boundary between India and Pakistan was not known. The use of river water was left to be decided subsequently by the two dominions. This happened against the backdrop of the partition that brought with it bloodshed on both sides, and an immeasurable cost to both.

The Upper Bari Doab Canal had its headworks in India at Madhopur. Depalpur Canal had to receive its water from a barrage at Ferozepur in Eastern Punjab. After Independence, two Chief Engineers of East (India) and West (Pakistan) Punjab, who had worked together

before partition entered into an agreement on 20th December 1947 to continue the status quo on the Madhopur and Ferozepur headworks located in East Punjab (India) till March 31st 1948.

After signing the agreement on December 20th 1947, West Punjab (Pakistan) did not take any action for its further renewal beyond March 31st 1948 despite East Punjab giving notice on March 29th 1948. East Punjab then decided on April 1st 1948 to discontinue the use of its installations despite downstream canals in Central Bari Doab Canal (CBDC) near Lahore running dry.

It is noteworthy how such decisions were made at a time when the people of both nations were under unfathomable emotional and financial distress. The Secretary General of Pakistan Chaudhari Muhammad Ali, who later became Prime Minister of Pakistan, described the behaviour of West Punjab in not renewing its agreement as a “...neglect of duty, complacency and lack of common prudence – which had disastrous consequences for Pakistan”.

4 THE TWO STANDSTILL AGREEMENTS

Two Standstill Agreements were signed between the engineers of East and West Punjab at Shimla on April 15th 1948, regarding the Depalpur Canal with headworks at Ferozepur and CBDC with headworks at Madhopur, to be in effect till October 15th 1948. West Punjab (Pakistan) agreed to pay seigniorage charges, proportionate maintenance cost and interest on a proportionate amount of capital to East Punjab.

These charges were similar to those levied by the undivided Punjab on the Bikaner state. Pakistan even started digging a new canal on the right bank of the river Satluj in its territory, upstream of Ferozepur Headworks in India to connect the River Satluj directly to the Depalpur Canal. This would have endangered the safety of the Ferozepur Headworks in India.

On a protest by East Punjab (India) to West Punjab (Pakistan), East Punjab (India) was told to take up the matter at the federal government level. On November 1st 1949, West Punjab (Pakistan) abruptly stopped paying seigniorage charges, and also in a manner that was unsubstantiated under all agreements. Despite the lack of cooperation, India continued to supply water to Pakistan in good faith. This position did not change until the signing of the Treaty in 1960.

5 PROVISIONS OF THE INDUS WATERS TREATY

The Indus Waters Treaty was brokered by the World Bank. The Treaty at that point resolved the disputes between both emerging economies to peacefully manage a valuable natural resource. The Treaty was signed with hope and optimism. However, over the years numerous technical and economic issues as well as unprecedented challenges that come with climate change have outpaced the framework and spirit of the Treaty. Moreover, even with the current state of the Treaty one must reconcile with the

disproportionate allocation of water resources relative to the catchment areas and per capita demand for those resources.

As per the Treaty, India is only allowed around 19 per cent of the water share of the Indus system through the Eastern rivers though it has almost double the catchment area of this percentage. On the other hand, Pakistan receives around 81 per cent of the water share of the Indus system, with only half of the catchment area of this percentage falling in Pakistan. In other words, Pakistan was given a disproportionate and excess share of water despite having half the catchment area, whereas India with almost double the catchment area has been given half the water share.

Despite the disproportionate allocation of water resources, India has upheld the spirit of the Treaty without much reciprocation.

For instance, despite Pakistan's failure to pay seigniorage charges for maintenance of the Madhopur and Ferozepur Headworks as per the Agreement dated October 15, 1948, India upheld its commitment to the region. From November 1st 1949, India, as per Article V of the Treaty, paid more than £62 million (around USD 4 billion at today's value) towards the costs of the replacement works. This demonstrates how the Treaty has been most generous towards Pakistan while undermining India's share of water resources as a function of catchment area and other factors.

6

CONSTRUCTION OF HYDROELECTRIC PROJECTS ON WESTERN RIVERS BY INDIA

One of the most significant limitations of the Treaty is its impact on developing hydroelectric projects on the rivers – Chenab, Jhelum, and Indus – collectively referred to as the Western Rivers.

Annexure D of the Treaty governs the use of the waters of the Western Rivers for the generation of hydroelectric power. Under Paragraph 8, Annexure D of the Treaty, hydropower plants on the Western Rivers are to be constructed by India so as to be consistent with “sound and economical design and with satisfactory operation of the works”. It also clearly defines that the hydroelectric projects be constructed with ‘customary and accepted practice of design for the designated range of the plant's operation’. The Treaty clearly states how new projects should be constructed as per the accepted range of design for satisfactory operation of the projects. However, the Treaty has clauses under Annexure D that contradict this principle, limiting the validity of the arguments under the annexure above.

This contradictory design is evident in Annexure D in which the Treaty is being interpreted to restrict provisions of outlets below the dead storage level, unless necessary for sediment control or any other technical purposes. Sediment load in the Chenab and other Western Rivers has become much higher than it was in 1960. The Treaty also refers to the unfeasible proposition of ungated spillways to be provided for development of hydroelectric projects on the Western Rivers. This is unfeasible for Western Rivers because they follow a steep gradient in the hilly regions.

7 SALAL AND BAGLIHAR HYDROELECTRIC PROJECTS

A case in point is the dam of the Salal Hydroelectric Project constructed by India on the River Chenab and commissioned in 1987. This dam has been completely silted almost up to the top. This project's operation and maintenance have become a challenge due to excessive sediment load and wear-and-tear of the turbine parts.

Sediment load in the river Chenab at the site of the Salal Dam is such that in the upper reaches of the reservoir, sedimentation has started building/rising above full reservoir levels and has started encroaching on the fields of the farmers and has started entering the houses of the villagers along the river banks.

Similarly, the dam of the Baglihar Hydroelectric Project (900 MW in Stage I & II) located on the River Chenab has suffered the same fate with filling up of the reservoir almost up to its top. The local population cannot be forced to undergo misery due to flawed interpretations of the Treaty. Even Pakistan, at international fora, agrees that part of the water storage of its Mangla and Tarbela dams has been filled with sedimentation.

8 SEDIMENTATION - THE NEW CHALLENGE

The subject of sediment control has acquired international salience, and the entire world is fighting to control the monster of sedimentation in their reservoirs. There have been thousands of books and journals on the subject across the world since 1955.

It would be unfair to assert that hydroelectric projects in India on the Western Rivers should continue to be constructed as per the standards prevailing for sediment control and operations as they existed in 1960. The Treaty must adopt an evidence-based framework and be updated to fulfil the provisions of ensuring 'sound and economical design' with satisfactory operation of the works contained in it. Pakistan is providing low-level sluice spillways in almost all its hydroelectric projects which are under construction or have been constructed in the past.

Similarly, projects in India are also required to be constructed with "customary and accepted practice of design for the designated range of the plant's operation" as per the provisions of the Treaty. The Treaty is limiting India's ability to adopt such similar state-of-the-art infrastructure as India cannot be expected to dump billions of dollars in the river on construction of hydroelectric projects such that its dams get filled up with sediments in a few years after construction. There cannot be double standards for the construction of hydroelectric projects in India and Pakistan.

9 SOLUTION TO SEDIMENTATION - EXAMPLES FROM CHINA AND JAPAN

Low-level sluice spillways are now being provided throughout the world to ensure long-term sustainability of hydroelectric projects.

For instance, Sanmenxia Dam, a concrete gravity dam on the middle-reaches of the Yellow River near Sanmenxia Gorge on the border between Shanxi Province and Henan Province in China was completed in the year 1960. This multi-purpose dam was constructed for flood and ice control along with irrigation, hydroelectric power generation and navigation. Construction began in 1957 and was completed in 1960 (at the same time of signing of the Indus Waters Treaty). Soon after its completion, sediment accumulation threatened the benefits of the dam. Renovation was carried out to flush out sediments and flushing pipes at the bottom began operating in 1966 and the tunnels in 1967 and 1968.

In the second stage, eight bottom sluices were added to the left side of the dam which became operational between 1970 and 1971 for sediment management. Silt balance was achieved in 1970. Two more bottom sluices were added which began operating in 1990 along with another in 1999 and the final in 2000. Thus, even in the existing dams bottom sluices are being provided to tackle the sediments.

The Yamasubaru Dam in Japan, constructed in 1931 on the River Miyazaki with overflow spillways, offers another example. In order to tackle the sedimentation problem, two sluice spillways have been provided by cutting the existing spillways section in the middle of the dam by 9.30 metres and lowering the invert for providing sluice spillways. This work has been completed in 2022. Such low-level sluice spillways have also been introduced in other existing dams in Japan. These examples clearly bring out that sluice spillways are essential for tackling the menace of sediments in the river. This shows that the interpretation of provisions of the overflow spillways in construction of new dams is unsustainable.

The examples above show how the number and size of sluice spillways has to be optimised based on international design practices and not be restricted because of unfounded fears of invalid interpretation of the provisions of the Treaty. Thus, for the sustainability of hydroelectric projects being constructed by India on the Western Rivers, it is essential to provide low level sluice spillways. This calls for a revision of restrictions under Annexure D, Paragraph 8 of the Treaty.

10 ANNEXURES D AND E

As per Paragraph 9 of Annexure D of the Treaty, “India shall, at least six months in advance of the beginning of construction of river works connected with the Plant, communicate to Pakistan, in writing, the information specified in Appendix II of this Annexure”. Under this Annexure, Pakistan has objected to all projects, whether small, medium or large. Annexure D has curbed the execution of Indian projects, thereby leading to cost and time overruns. More importantly, such provisions are not bilateral, giving one party asymmetric agency against the other. Therefore, it is essential to revisit such provisions in the spirit of bilateralism, which should lie at the foundation of all Treaties.

Annexure E on the other hand lays down provisions for the storage of waters by India on the Western rivers. At the moment, average annual unutilised water going to sea in Pakistan is around 35 million acres feet (MAF).

It would be in the larger interest of both the nations to store water in reservoirs on the Western rivers in India so that it is utilised for the benefit of humanity. Both countries need to move forward and carry out a review of the storage of water allowed under the Treaty.

Throughout the world, as and when an upstream facility for water storage and retention of sediments is created by the construction of a dam for hydroelectric or for irrigation projects, the downstream party has to share the cost of such storage facilities.

11 WATER STORAGE - THE NEW IMPERATIVE

Water storage has become critically important in a world where climate change resilience is a must. Water availability in the rivers has been severely impacted due climate change since signing of the Treaty in 1960. The pattern of inflow in the Himalayan rivers is changing due to climate change. Extreme hydrological events are already on the rise. As the intensity of extreme weather events becomes more severe and their frequency unpredictable, it is imperative to have storage of water on these Western Rivers. Water storage dams have now been recognised as a means to combat the adverse impacts of climate change as well as for energy transition. India's serious efforts to deal with climate change is vital not only for its large population but also for mankind.

Given the complexity and burdens that come with climate change adaptation, the Treaty has to be revisited to revise Annexure E towards a more resilient storage and distribution mechanism for both nations.

12 CONCLUSION

As highlighted throughout this article much has changed since the Indus Waters Treaty was ratified in 1960. Considering historical water disputes and a disproportionate allocation of water relative to drainage and population, the parameters of operating and implementing the Treaty must evolve. The Treaty must not restrict India's ability to upgrade and maintain its hydroelectric infrastructure as per the state-of-the art.

Further, considering the sediment load in the rivers, water stress in the Indian part of Punjab which extends to neighbouring states of Haryana, Rajasthan and Himachal Pradesh in India, and similarly downstream in some parts of Pakistan, it is essential to revisit the Treaty for the benefit of both nations.

Water storage, sediment management and climate change adaptation measures are critical for the construction of hydroelectric projects on the Western Rivers for sustainability of the Treaty. Changed parameters have to be taken into account if the Treaty has to remain sound, sustainable and fair to the people of the Indian subcontinent.

India and Pakistan need to agree to a new framework of the Treaty to allow the region to gain the maximum sustainable benefits from the Indus River system.

Indus Waters Treaty:

Why Pakistan's Obsession Masks Its Failures

By PK Saxena



The point where the River Indus meets the Zaskar River at Sangam near Leh in Ladakh, India | Source: Discover Leh Ladakh

1 INTRODUCTION

The world is home to approximately 263 transboundary lakes and rivers, which cover half the globe and impact around 40 per cent of the global population. According to the United Nations, 145 nations contain territory within international river basins, and 30 countries lie entirely within these shared water systems.¹⁴ As a result, water disputes are a common global phenomenon.

India too shares several major transboundary rivers, including the Ganga, Indus, Sutlej, Ravi, Kosi, Ghagra, Manas and Brahmaputra. However, India has an impressive history of resolving water disputes through international agreements and treaties, such as the Indus Waters Treaty, Mahakali Treaty and Ganges Treaty. Seen as one of the most successful international treaties, the Indus Waters Treaty had been described by the former U.S. President Dwight Eisenhower as “one bright spot ... in a very depressing world picture that we see so often.”¹⁵

2 THE INDUS WATERS TREATY

The Indus Waters Treaty, negotiated over eight long years, is outlined in its preamble. It focuses on achieving the most complete and satisfactory utilization of the Indus river system’s waters, in a spirit of goodwill and friendship. It was in this spirit that India accepted only 18 per cent of the Indus waters (the Ravi, Beas and the Sutlej) although 69

per cent of the flow is from its own catchments. India also contributed £62.06 million (around USD 4 billion today) towards replacement works in Pakistan to facilitate this lopsided water distribution.¹⁶ In return, India secured restricted rights to use the Western Rivers (the Indus, Jhelum and the Chenab), subject to numerous limitations made to address Pakistan's concerns and achieve lasting regional peace. As Prime Minister Nehru stated in Parliament, "...we purchased a settlement, if you like; we purchased peace to that extent and it is good for both countries."¹⁷ As time would tell, this hope for the spirit of the preamble was unfound.

Following the ratification of the Indus Waters Treaty, India's measured approach to development on the Western rivers inadvertently fostered a misconception in Pakistan that they held exclusive rights to these waters. India's attempts at fostering amicable relations have often resulted in concessions that have not always served its best interests. A prime example is the 1978 agreement regarding the Salal Hydroelectric Project. Pakistan's persistent objections led to India acquiescing to design modifications, which ultimately compromised the dam's operational flexibility. Similarly, India's decision to suspend work on the Tulbul Navigation Project, in hopes of improving bilateral relations, has rendered the project largely obsolete.



View of Salal Dam from Jyotipuram-Salal Road| Source: NHPC Limited

The efficacy of transboundary water-sharing agreements heavily relies on the upper riparian state's responsible conduct. In this context, the Indus Waters Treaty has endured through three wars and numerous bilateral tensions, primarily due to India's generous stance and willingness to accommodate Pakistan's concerns.

However, this approach has not always yielded the desired reciprocity or fostered the level of cooperation originally envisioned. This situation underscores the complex

dynamics of water diplomacy and the challenges in balancing national interests with international cooperation. It also highlights the need for a more balanced approach that ensures fair utilisation of shared water resources while maintaining regional stability.

3 RECOGNISING HYDROPOWER

India's policymakers gradually recognized the imperative for a rapidly growing economy like ours to meet its development needs by leveraging the hydropower potential available to her under the Treaty. Consequently, India accelerated the planning and execution of several hydropower projects, including Baglihar (900 MW), Kishanganga (330 MW), Ratle (850 MW), Sawalkote (1856 MW), Kirthai-I (390 MW), Kirthai-II (930 MW), Dulhasti-II (260 MW), Pakal Dul (1000 MW), Kiru (624 MW), Kwar (540 MW), and Sach Khas (288 MW).

Pakistan understands that the underdevelopment of Kashmir is crucial to fuel dissent in the region. Frustrated by India's rapid development in the Indus basin, Pakistan strategically began using the Treaty as a political tool to impede progress on our side, which aims to benefit the people of Kashmir.

To garner international support, Pakistan portrays itself as a victim and casts India as an aggressor, alleging that India is stealing its waters and waging a water war against a "helpless nation". This narrative, amplified by the ill-informed and skewed views of the international community, echoes that both countries might face war over Indus waters if issues are not resolved amicably. However, this is far from the truth. The reality is that Pakistan has failed to harness its own abundant resources and uses this issue to divert attention of its population from its systemic failures.

4 THE REAL CHALLENGES OF PAKISTAN

(a) Elevated Population Growth Rate

India, with a population of 450 million in 1960, increased to 1417 million by the year 2022. Throughout this timeframe, the country's population growth rate fluctuated around 2.30 per cent till the eighties and then steadily declined to 0.68 per cent by 2022. In contrast, Pakistan's population, starting at 45.9 million in 1960, experienced a more rapid growth trajectory, reaching 245 million by 2022. Its population growth rate, which stood at 2.48 per cent in 1960, continued to increase until 1980, reaching 4.52 per cent, after which it began a gradual decline to 1.91 per cent by 2022.¹⁸

Consequently, India's population expanded by 314 per cent over the period, whereas Pakistan's population surged by 533 per cent. This rapid population growth, combined with inadequate water management practices, has resulted in a significant decrease in the per capita availability of water. As a consequence, Pakistan, presently, has been ranked third among the most water-scarce nations by the International Monetary Fund (IMF), with concerns over its potential transition to an absolute water-scarce country by 2025.¹⁹

(b) Inefficient Water Management

Water scarcity in Pakistan stems primarily from inefficient distribution and mismanagement. The agriculture sector, while contributing only 18 per cent to the country's Gross Domestic Product (GDP), consumes a staggering 97 per cent of the Indus River's freshwater. This disproportionate usage is exacerbated by the cultivation of water-intensive crops such as rice, wheat, sugarcane, and cotton, reflecting poor crop selection strategies.²⁰

The Indus River system receives an average annual inflow of approximately 145 Million Acre Feet (MAF). Of this, 101 MAF is allocated to agriculture, 14 MAF to municipal and industrial use, and 30 MAF flows unutilized into the sea. Alarmingly, only 65 MAF of the water diverted for agriculture reaches the fields, with 36 MAF lost due to system inefficiencies. The total water wasted, including the unutilized flow to the sea, amounts to 66 MAF – twice India's share in the Indus Waters Treaty.²¹

(c) Depleting Ground Water

Groundwater depletion further compounds Pakistan's water crisis. Despite possessing the world's fourth-largest groundwater aquifer, larger than England, being the third-largest groundwater user globally with 1.2 million tube wells, Pakistan faces severe depletion issues. The Leadership for Environment and Development (LEAD) reports a continuous decline in groundwater tables across many areas of the Indus basin, indicating a critical imbalance between abstraction and recharge.

Excessive aquifer mining in freshwater areas has led to falling water tables, while saline waters predominate in central Doab areas. The Cholistan area in southern Punjab is notorious for its highly brackish water, unsuitable for drinking. Some regions in Punjab have reported high fluoride and arsenic concentrations in groundwater. The use of poor-quality groundwater for irrigation has resulted in widespread salinization of agricultural lands in the Indus basin, further compromising water quality and soil health.²²

(d) Lack of Storage

Pakistan's water storage capacity has stagnated since the construction of the Mangla (1967) and Tarbela (1976) dams. These two reservoirs have a combined live storage capacity of 14.399 million acre-feet (MAF), which represents only 10 per cent of Pakistan's annual share of Indus waters. In contrast, India has built major dams on each of its Eastern rivers: Ranjit Sagar on the Ravi, Bhakra on the Sutlej, and Pong on the Beas. These Indian dams collectively store 13.41 MAF, accounting for 41 per cent of India's share of Indus waters—a figure that aligns with the global average.

The disparity in water infrastructure is stark: Pakistan has approximately 164 dams, while India boasts 6,281.²³ This limited storage capacity in Pakistan results in over 30 MAF of water flowing unused into the Arabian Sea below Kotri Barrage annually. The combination of insufficient storage and changing climate patterns has led to severe water shortages in Pakistan as well as floods during monsoon.

(e) Inter Provincial Disputes:

In 1991, the Water Apportionment Accord (WAA 1991) was signed by Punjab, Sindh, Khyber Pakhtunkhwa, and Balochistan to resolve long-standing water distribution conflicts. However, ambiguities in the accord's language and conflicting interpretations by each province have undermined its effectiveness. Punjab argues that the new distribution percentages apply only to additional water resources, while Sindh maintains that they should be applied to the entire water quantity.

This disagreement has fuelled decades of tension between Punjab and Sindh over Indus River waters allocation. Balochistan has also accused Sindh of misappropriating its water share. The resulting mistrust has stalled crucial projects, such as the Kalabagh Dam—proposed in the 1980s to significantly increase water storage—which remains unbuilt while water continues to flow unused to the sea. Other infrastructure projects, including the Chashma-Jhelum Link Canal and Thal Canal, have also been mired in controversy, further hampering Pakistan's ability to effectively manage its water resources.

6 WATER SCARCITY IN PAKISTAN

Water scarcity has become a critical issue in Pakistan, threatening the country's ability to provide adequate water access to its growing population in the coming years without significant policy changes. To address this challenge, Pakistan must invest in infrastructure such as dams, reservoirs, canals, and irrigation systems to enhance water storage capacity and improve water use efficiency.

Additionally, the country should promote water conservation through micro-irrigation techniques, implement sustainable groundwater management practices, and shift towards less water-intensive crops. Crucially, Pakistan needs to adopt a pragmatic approach to resolving water-related disputes with India through dialogue, negotiation, and cooperation, while respecting India's rights. This approach would be more productive than creating political rhetoric against India to divert attention from domestic issues.

7 PAKISTAN AND INDIA'S WATER STRATEGY

Unfortunately, instead of a vehicle of progress, Pakistan has become a vehicle of protest. Its India-centric approach, prioritising perceived Indian losses over its own gains, has become counterproductive. This obsession has led Pakistan to object to nearly all of India's hydroelectric projects on the Western Rivers, regardless of their size or design, often using these objections to propagate a narrative of India infringing on Pakistan's rights. Paradoxically, Pakistan has opposed projects like Pakal Dul and Tulbul despite acknowledging their potential benefits in terms of regulated water flow. This approach has resulted in delays, such as the stay on the Kishanganga project through the Court of Arbitration, which appears to be Pakistan's primary objective in all Indian development projects. Consequently, Pakistan has neglected its own crucial infrastructure projects, such as the long-delayed Kalabagh Dam, and allowed its existing water infrastructure to deteriorate.

India, for its part, recognises both its obligations and rights under the Indus Waters Treaty regarding hydroelectric projects on the Western Rivers. The country remains committed to upholding the integrity of the Treaty and has consistently honoured Pakistan's water entitlements, even during periods of war and strained relations.

However, India cannot accept Pakistan's selective and convenient interpretations of the Treaty, which seek to impose restrictions beyond its already limiting provisions. Like India, Pakistan must acknowledge that neither can increase the quantity of available water. The path forward lies in mutual understanding and appreciation of each other's concerns, rather than confrontation and obstruction.

Indus Waters Dispute:

India's Strategic Victory in Neutral Expert Proceedings

By PK Saxena



Representative Image | Source: Incorporated Council of Law Reporting

In a significant victory for India in its ongoing dispute with Pakistan over the Indus Water Treaty, the Neutral Expert has ruled in favour of India. The Neutral Expert, on January 20, 2025, passed his decision²⁴ on his competence to decide on the Points of Differences between India and Pakistan on the design of the Ratle and Kishenganga Hydroelectric (HE) Projects.

The Neutral Expert's decision on his competence confirmed his authority to examine whether India's designs for the Kishanganga HEP and Ratle HEP plants conform to Paragraph 8 of Annexure D of the Treaty. Accepting that while some questions require interpreting other parts of the Treaty, the Neutral Expert held that these are "incidental questions" that still fall within his scope. Accordingly, the Neutral Expert determined that he can proceed to evaluate the merits of India's Points of Difference.

1

BACKGROUND

India and Pakistan have locked horns over two Indian hydroelectric projects namely, 850 MW Ratle HE Project on Chenab main and 330 MW Kishenganga HE Project on river Kishenganga, a tributary of river Jhelum. In 2007, Pakistan raised six objections to India's Kishenganga project. Four of them were regarding design of the project and two concerning legal aspects of water diversion and reservoir silt management. While these

were being discussed at the Commission level, Pakistan in 2009 took two legal issues to the Permanent Court of Arbitration.

The Court of Arbitration, formed in 2010, addressed two key disputes of the legality of water diversion for power generation and the permissibility of lowering reservoir water below Dead Storage Level for sediment flushing. After extensive proceedings, the Court issued its Partial and Final Awards in 2013 and upheld India's right to divert water, subject to a minimum release of 9 cumecs. The Court also prohibited India from bringing the water down below Dead Storage Level at Kishenganga and future hydroelectric projects on Western rivers, though exempting existing projects. The Court thus proscribed a sediment management technique known as drawdown flushing by India in hydroelectric projects on Western Rivers.

After resolving two legal issues through the Court of Arbitration, four technical disputes concerning the Kishenganga dam's design remained under discussion between India and Pakistan. One issue regarding freeboard was amicably resolved in 2014 by the two Commissioners. Meanwhile in 2012, Pakistan raised similar objections to the Ratle Hydroelectric Project in 2012, which also remained under discussion through 2015. In 2016, Pakistan unilaterally approached the World Bank to establish a Court of Arbitration to resolve these issues – three for Kishenganga and four for the Ratle HE Project.

India, on the other hand, asserted that the technical complexities of the dispute warranted resolution through a Neutral Expert, rather than proceeding with the Court of Arbitration.

This approach mirrored the precedent set by the Baglihar Hydroelectric Project case when the differences were settled by the Neutral Expert, Professor Raymond Lafitte, a Swiss national, civil engineer and professor at the Swiss Federal Institute of Technology in Lausanne, appointed by the World Bank in May 2005. Consequently, India simultaneously submitted a formal request for the appointment of a Neutral Expert.

Despite India's position, the World Bank initiated both processes simultaneously - the appointment of a Neutral Expert and the constitution of the Court of Arbitration. Following strong protests from India, the World Bank suspended both processes to encourage amicable resolution. However, in 2022, the World Bank lifted this suspension and proceeded with both mechanisms: constituting the Court of Arbitration and also appointing Mr Michel Lino, as the Neutral Expert.

Division of rivers as per Indus Waters Treaty

Eastern rivers to India: Sutlej, Beas, Ravi

Western rivers to Pakistan: Chenab, Jhelum and Indus



The Indus River system |Source: IASGyan

Michel Lino is a distinguished French engineer specialising in hydropower and dam engineering, with an impressive 39-year professional career dedicated to hydraulic infrastructure. His extensive expertise spans large dams, hydroelectric facilities, river infrastructure, hydrology, and seismic risk assessment. Throughout his career, Lino contributed significantly to the field through his technical insights and professional guidance, establishing himself as a prominent voice in engineering circles. Notably, Lino held the role of vice president of the International Commission of Large Dams (ICOLD) from 2016 to 2019, and currently serves as the organization's president, further solidifying his leadership in the international dam engineering community.

Currently, India participates only in the Neutral Expert proceedings while boycotting the Court of Arbitration process on its principled position that the constitution of this Court of Arbitration is in contravention of the provisions of the Indus Waters Treaty.

Although the Court, in its Award dated July 6, 2023, held that India's non-appearance in these proceedings does not deprive the Court of Arbitration of competence to address all questions raised in Pakistan's Request for Arbitration, India rejected the Court's observation and reiterated its "consistent and principled" position. Earlier, miffed with these developments and amid Islamabad's "intransigence" on its implementation, India announced in January 2023 its intention to modify the Indus Water Treaty, which has governed water-sharing between the two nations for seven decades.

2 THE PROCEEDINGS OF THE NEUTRAL EXPERT

In the proceedings before the Neutral Expert, Pakistan changed its position from earlier views that similar issues were appropriate for a Neutral Expert. Pakistan argued that the issues went beyond technical matters and involved broader Treaty interpretation and therefore the “systemic” issues affecting multiple plants should be handled differently. Pakistan also requested deferral, pending a separate Court of Arbitration decision on the ground that the matters overlapped with ongoing Court of Arbitration proceedings

Before the Neutral Expert, India held back to its principled position that as per Article IX of the Treaty, when a question arises concerning the interpretation or application of this Treaty, it is first taken to the Permanent Indus Commission, comprising two Commissioners from either country; if the differences are not resolved, then either party can escalate the issue to a Neutral Expert. The matter can be taken to the Court only under two conditions - one, if both the parties agree that the issue requires legal interpretation of the Treaty and two, when the Neutral Expert appointed earlier, refers the matter to the Court of Arbitration. But in the present case, both options were not followed, and Pakistan unilaterally and illegally took the matter to the Court of Arbitration. India also submitted that during the pause, she offered, on multiple occasions, the possibility of discussing and resolving the issues bilaterally at the level of the Permanent Indus Commission. This has not been possible due to lack of cooperation from Pakistan.

3 THE NEUTRAL EXPERT'S ANALYSIS

After considering the submissions from both sides, the Neutral Expert set aside Pakistan's argument that the points of difference are outside his competence on the ground that the questions put to him by India have a systemic effect beyond the individual plant. He agreed that his competence is plant-specific but held that this limitation does not serve to take any of the points of difference outside the scope of his competence.

Pakistan's argument that the issue requires the interpretation of the Treaty and therefore beyond his competence was also dismissed by the Neutral Expert with the view that the need to interpret Treaty provisions does not remove issues from his competence. He stressed that he can refer matters outside competence to other procedures if needed.

Pakistan's submission to hold the proceedings, pending a separate Court of Arbitration decision was also not considered by the Neutral Expert who held that although the Court of Arbitration is separately considering related but broader issues, the parallel proceedings do not prevent examining the differences and there is no requirement to defer the proceedings on the matter before him.

The Neutral Expert admitted that “technical” questions can involve legal interpretation but held that needing to interpret other Treaty provisions does not remove his jurisdiction over design-related differences. He confirmed his jurisdiction over the issues and decided to proceed to examine the merits of Points of Difference rather than wait for the award of the Court of Arbitration. The Neutral Expert clarified that his decision will be binding for Kishenganga HE Project (KHEP) and Ratle HE Project (RHEP) specifically.

4 CONCLUSION

This decision of the Neutral Expert is concerned solely with issues related to the competence of the Neutral Expert, and is not intended to address the merits of any aspect of the Points of Difference. The decision concludes that the Neutral Expert will move forward to examine the merits of India's questions regarding the plant designs, while maintaining the ability to refer any matters found to be outside their competence to other dispute resolution procedures under the Treaty.

This decision represents a significant clarification of the role of Neutral Experts under the Indus Waters Treaty, particularly in cases where technical and legal issues intersect. It affirms that technical expertise can coexist with legal interpretation while maintaining clear jurisdictional boundaries. The Neutral Expert's decision to proceed despite parallel proceedings also shows pragmatic approach to dispute resolution, especially given India's non-participation in the Court of Arbitration proceedings. This could have important implications for future water-related disputes between India and Pakistan.

5 THE ROAD AHEAD

Quite obviously, India welcomed the decision vindicating her stance that the seven questions referred to the Neutral Expert in the Kishenganga and Ratle hydroelectric projects fall within his competence under the Indus Waters Treaty. The Neutral Expert is expected to proceed on merits and provide his Determination in a couple of years.

The current resolution, however, is the beginning of a series of disputes in the time to come on India's upcoming projects, namely Kiru (624 MW), Kwar (540 MW), Kirthai I & II (1320 MW) and Sawalkote (1856 MW). Pakistan may continue to weaponize the Treaty as a political instrument, potentially spreading narratives about water theft and strategically impeding India's development in the Indus basin. This approach follows Pakistan's tendency to prioritise perceived Indian losses over mutual benefits.

India must respond strategically by accelerating development on Western rivers, pursuing proactive Treaty renegotiations, and systematically countering Pakistan's selective interpretations. The ongoing diplomatic and technical engagement around the Indus Waters Treaty underscores the complex geopolitical dynamics of transboundary water resources in the region. India's measured and principled approach will be crucial in navigating these challenges.

AFTER ABEYANCE:
STOCK TAKING AND IMPLICATIONS

Revitalising the Tulbul Navigation: Project for Jammu and Kashmir's Development

By PK Saxena



Wular Lake in Kashmir | Source: Pixaby

1

INTRODUCTION

On May 15, 2025, Jammu and Kashmir (J&K) Chief Minister Omar Abdullah raised an important question in his tweet regarding the Tulbul Navigation Project. Following the “temporary suspension” of the Indus Waters Treaty (IWT), Mr. Abdullah inquired whether India could now resume work on this long-stalled project. The Chief Minister highlighted two significant potential benefits of completing the project, namely, enabling the use of the Jhelum River for navigation purposes and improving power generation capacity of downstream hydroelectric projects, particularly during the winter months when water levels are typically lower.

This development has reignited discussion about a project that many consider emblematic of the challenges in India-Pakistan relations.

The history of the Tulbul project stands as evidence of the difficulties in achieving peaceful resolution of bilateral issues with Pakistan, despite numerous diplomatic efforts by India over the decades. The renewed possibility of implementing this strategically important infrastructure project could mark a significant shift in regional water management and energy production capabilities for Jammu and Kashmir.

2 BACKGROUND

The waterways of Kashmir have historically served as vital arteries for transportation and commerce. During the pre-Independence era, approximately 70 per cent of total cargo in the Kashmir Valley was transported via large boats locally known as ‘khachus’, with payload capacities reaching 15 tonnes.

The unprecedented boom in Kashmir’s horticulture sector post-independence, particularly in Sopore and adjacent areas led to significantly increased freight volumes. This situation necessitated alternative, more economical river transport systems with mechanised river transport services replacing traditional khachus propelled by manual or power. This would also reduce road congestion and environmental pollution caused by truck exhaust emissions in areas surrounding the Jhelum River.

3 GEOGRAPHICAL CONTEXT: THE JHELM RIVER AND WULAR LAKE SYSTEM

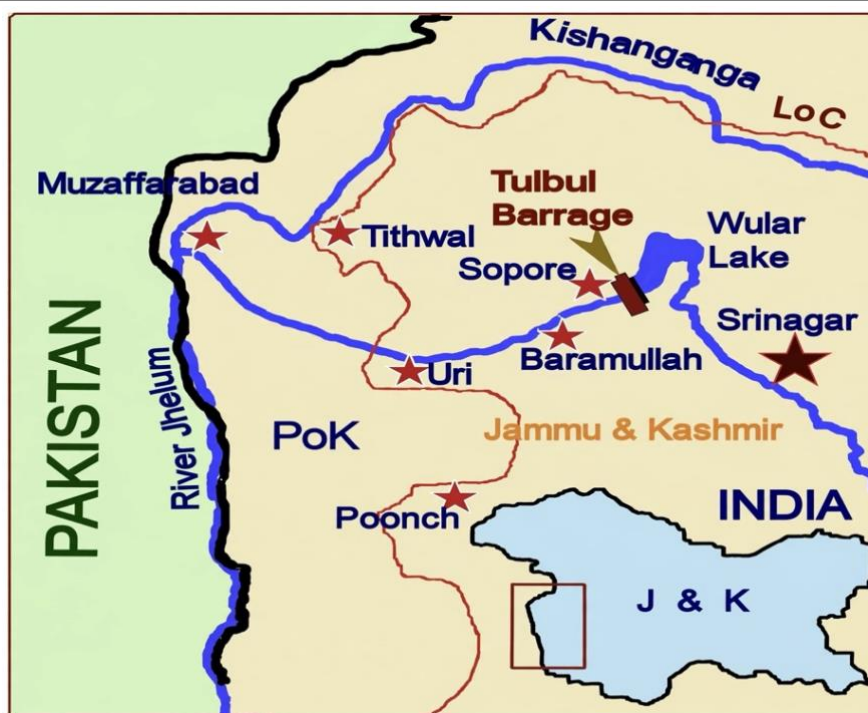
The Jhelum River constitutes the sole natural waterway in the Kashmir Valley with viable potential for inland navigation development. The river originates from a spring at Varinagh on the southeastern periphery of the Kashmir Valley. It enters the plains at Khanabal and subsequently flows through numerous significant population centres including Anantnag and Srinagar before emptying into Wular Lake at Baniyari. The Wular Lake extends to Ningli, where an outfall channel continues toward Baramulla. The river follows a gentle gradient between Khanabal and Baramulla—a distance of approximately 170 kilometres—rendering this stretch particularly suitable for navigation purposes.

Wular Lake receives multiple inflows (Jhelum River, Madhumati Nallah, Arin Popehin, Ningli, other tributaries) but has only one outlet through the Jhelum River at Ningli. Historically, the lake maintained highest natural levels around 5200 feet and ensured year-round navigation with sustained discharge.

In the 1960s, to address flooding in Sopore and nearby areas, authorities dredged 20 kilometres of the river channel from Ningli to Baramulla. While this action helped in reduced flooding, it created an unintended consequence: a premature depletion of the lake in the winter and consequent reduced winter discharge. This led to insufficient depth for commercial navigation between October and February and eliminated year-round navigation capability in the system.

4 THE TULBUL NAVIGATION PROJECT: CONCEPT AND DESIGN

The Tulbul Navigation Project was conceived and initiated by the Government of Jammu and Kashmir in 1984 to address two interconnected challenges: establishing year-round navigation capabilities and providing enhanced flood protection during monsoon periods. Situated on the Jhelum River immediately downstream of Wular Lake, the project aimed specifically to improve navigability along the critical 20-kilometer stretch between Wular Lake and Baramulla, thus facilitating continuous transportation and tourism operations throughout the year.



The proposed site of the Tulbul Navigation Project

The project design incorporates the utilisation of the natural storage capacity of the Wular Lake to augment the flows in the Jhelum downstream of Wular lake through controlled water releases during winter months (November through February) when natural water levels are insufficient for navigation.

The project's operational protocols allow the Wular Lake to fill naturally to its seasonal maximum level. Once the lake starts depleting, the regulatory intervention through active gate management would commence and would maintain the controlled release to ensure the required navigable depth throughout the year. Additionally, this regulated flow would enhance power generation efficiency at hydroelectric installations downstream, benefiting both Indian and Pakistani facilities.

5 PROJECT HISTORY AND THE CONTEXT OF THE INDUS WATERS TREATY

The Tulbul Navigation Project received technical clearance from India's Ministry of Shipping and Transport in November 1981, with an estimated implementation cost of Rs. 30 crores. Construction activities commenced in 1984 under the direction of Jammu and Kashmir's Tourism/Transport Department. However, in March 1985, Pakistan raised formal objections to the design of this project on the pretext that it violates the Indus Waters Treaty. The initial prolonged bilateral discussions within the Permanent Indus Commission did not yield any headway and the matter was escalated to the Secretary level. Pakistan demanded the immediate stoppage of work as a precondition to begin negotiations at the Secretary level.

As a goodwill measure to facilitate productive dialogue, India suspended project construction in September 1987 for an initial three-month period. Following two rounds

of Secretary-level talks, India agreed to an additional three-month suspension and subsequently granted two one-month extensions of the work suspension through June 2, 1988. During this period, five rounds of Secretary-level negotiations took place but remained without a conclusive resolution. After the fifth round, India agreed to Pakistan's request of an indefinite suspension until an amicable settlement could be reached.

In totality, the matter had been discussed in six meetings of Permanent Indus Commission (May 1986 to July 1987) in eight rounds of Secretary-level talks from 1987 to 1992 and in six more rounds at Secretary-level under composite dialogue (November 1998 to March 2012), a fair indication of Pakistan's intent of dragging the issue to ensure the work remains suspended.

6 LEGAL POSITIONS OF BOTH COUNTRIES

Pakistan's primary argument references Article I (4) to contend that the Wular Lake constitutes an integral component of the Jhelum River itself, thereby subjecting it to all restrictions applicable to the river proper. Pakistan further characterises the Tulbul Navigation Project as a barrage that violates the 10,000 acre-feet limit of storage capacity incidental to a barrage on the Jhelum Main, imposed by the Treaty under Article III (4) read with Paragraph 8 (h) of Annexure E.

India maintains that the project fully complies with the Treaty provisions, specifically referencing Article I (11) which explicitly permits navigation development. India emphasises that the project utilises only the natural storage capacity already present in the Wular Lake for navigation purposes—classified as “non-consumptive use” under the Treaty definitions. The Indian position holds that the infrastructure merely regulates outflow of the lake's natural storage rather than creating new impoundment capacity. India contends that the project does not constitute a storage work as defined by the Treaty and has comprehensively demonstrated the project's full compliance with Treaty provisions.

7 STRATEGIC ASSESSMENT OF INDIA'S POSITION

India's primary strength lies in Pakistan's inability to demonstrate tangible harm resulting from the project's implementation.

Pakistan's objections remain principally theoretical, based on isolated interpretations of specific Treaty provisions without consideration of broader context or practical impacts.

In contrast, the Treaty's preamble explicitly articulates its overarching purpose as facilitating “the most complete and satisfactory utilization of the waters of the Indus system of rivers.” The Pakistani position effectively advocates for an interpretation that mandates rapid depletion of Wular Lake waters without benefiting any stakeholders, while simultaneously causing significant navigational impediments on the Jhelum River.

Experts believe Pakistan's objections stem from a deep-rooted apprehension that this project has the capability to damage its Triple-Canal project. The Triple-Canal Project was a major irrigation initiative in British India's Punjab region, completed in 1917. It

consisted of three interconnected canals (Upper Jhelum, Upper Chenab and Lower Bari Doab) that transferred water between rivers to irrigate extensive agricultural lands, significantly improving agriculture and economic productivity in the region.

Pakistani experts also highlight that the storage behind the Wullar Barrage is estimated as 0.324 MAF, which is about 32 times the storage of 0.01 MAF incidental to a barrage permitted by the Treaty. In a nutshell, Pakistan apprehends that India shall have control over 0.324 MAF of water which is more than 20 times of storage of Kishenganga and thrice of Pakal Dul, and the same might be used as a weapon of war, if India so decides.

8 IMPLICATIONS OF THE SUSPENSION

The project has remained suspended since October 2, 1987, and has continued without a formal end date. This indefinite suspension effectively helps Pakistan in achieving the goal of stalling infrastructure projects in J&K.

The financial implications are substantial. Continued suspension generates multiple detrimental outcomes: local populations are denied anticipated benefits in navigation, fisheries, tourism and related economic activities; existing structures deteriorate while project costs continue escalating.

9 WAY FORWARD FOR INDIA: IT'S NOW OR NEVER

India's original work suspension constituted a voluntary goodwill gesture. The Indus Waters Treaty contains no provision requiring suspension of work undertaken by India on the Western rivers. With the Treaty in abeyance now, India is not bound by the restrictions imposed by the Treaty on her works on the Western rivers and not even obligated to provide project data to Pakistan. The work can be completed in four working seasons.

The Tulbul Navigation Project would revitalise regional transportation by enabling cost-effective bulk cargo movement via modernised watercraft, reducing road congestion while particularly benefitting the agricultural and horticultural sectors. The project would stimulate tourism along the Jhelum waterway, creating economic opportunities for riverside communities.

It would also improve flood management for vulnerable areas like Sopore while maintaining sufficient water depths year-round for navigation. Additionally, regulated water flow would enhance downstream hydroelectric power generation efficiency and will help firm up power generation in downstream hydroelectric projects in India to the tune of 192.1 GWh. The indefinite construction suspension has prevented realisation of the above advantages for decades.

10 CONCLUSION

The Tulbul Navigation Project represents a significant initiative to modernise and revitalise traditional water transportation systems in Kashmir while addressing flood management challenges. Its innovative design utilises natural lake storage through flow

regulation rather than creating new impoundment structures, making it compatible with sustainable water resource management principles.

The Tulbul Navigation Project, if implemented, could serve as a model for balanced development of water resources that preserves traditional livelihood systems while enhancing their economic viability through appropriate technological modernisation. This approach aligns with broader sustainable development goals for the region while honoring its cultural and historical relationship with its waterways.

The stalled Tulbul Navigation Project deserves immediate revival, addressing Kashmir's long-standing development needs after decades of diplomatic hesitation. This initiative would deliver crucial benefits in flood control and water management while alleviating downstream drainage issues. With Treaty constraints now suspended, India can pursue a more assertive water strategy, starting with the implementation of this shovel-ready project.

Engineering in Handcuffs under the Indus Waters Treaty: ***Salal Dam on the River Chenab***

By Devendra Kumar Sharma



Representative Image | Source: Culture, Commerce and Heritage of India.

The Indus Waters Treaty's technical provisions are increasingly outdated, failing to account for modern advancements in dam engineering and construction as well as the volatile impacts of climate change. By adhering to 1950s-era technical constraints, the Treaty has effectively stifled advancements and innovations in engineering and construction of dams as well as hydroelectric projects and sustainable sediment management. Technologically, the Indus Waters Treaty is 'frozen' in time.

1 INTRODUCTION

The Indus Waters Treaty (IWT), negotiated under the auspices of the World Bank and signed in Karachi on September 19, 1960, by Indian Prime Minister Jawaharlal Nehru and Pakistani President Ayub Khan, was a landmark water-sharing Agreement. The Treaty allocated about 20 per cent of the total Indus Basin's waters to India and about 80 per cent to Pakistan. At that time, it was aimed to achieve the most complete and satisfactory utilisation of the waters of the Indus system of rivers in a spirit of goodwill and friendship.

However, over six decades later, it has become clear that fundamental changes in circumstances since the Treaty was signed, including demographic growth, technological progress and the increasing need for clean energy, require a reassessment of the

obligations under the Indus Waters Treaty. The technical know-how available at the time of negotiation of the Treaty has become outdated over time. It is clear that the technological progress and environmental shifts have outpaced the Treaty's original framework. When the Treaty was signed, it was regarded as a progressive document, well ahead of its time.

Over the years, however, Pakistan has sought to undermine the very basis and foundation of the Treaty by advocating narrow interpretations that prevent technical advances from being implemented in Indian hydropower projects and effectively bind India to outdated technologies and concepts. Pakistan has sought to restrict India's design and construction of dams and hydroelectric projects to the technological standards of the 1960s, despite the fact that the Treaty itself allows consideration of sound engineering practices. At the same time, Pakistan continues to use the latest and updated technologies for its own projects in the Indus basin.

The Treaty's technical provisions are increasingly outdated, failing to account for modern advancements in dam engineering and construction as well as the volatile impacts of climate change. By adhering to 1950s era technical constraints, the Treaty has effectively stifled advancements and innovations in engineering and construction of dams as well as hydroelectric projects and sustainable sediment management. Technologically, the Indus Waters Treaty is 'frozen' in time.

2 THE INDUS RIVER BASIN

The Indus River System is one of the largest river systems in South Asia, draining parts of China (Tibet), India, Afghanistan, and Pakistan before discharging into the Arabian Sea near Karachi. The system is centred on the Indus River, which is joined by several major tributaries along its course. Among its important right-bank tributaries is the Kabul River, which rises in Afghanistan and joins the Indus in Pakistan. The principal tributaries of the Indus are the Jhelum, Chenab, Ravi, Beas and the Sutlej Rivers. These rivers eventually combine to form the Panjnad River, which later joins the Indus River in Pakistan.

Under the framework of the Indus Waters Treaty, the Indus, Jhelum and Chenab are classified as the Western Rivers, while the Ravi, Beas, and Sutlej are designated as the Eastern Rivers. The Indus and the Sutlej originate in the Tibetan Plateau whereas the Jhelum, Chenab, Ravi and Beas do so in the Himalayan region within Indian territory.

3 SALAL HYDROELECTRIC PROJECT (690 MW)

The Salal Hydroelectric Project (690 MW) is a run-of-the-river hydroelectric power plant on the Chenab River in the Reasi district of Jammu and Kashmir developed by the National Hydroelectric Power Corporation Limited (NHPC), a Public Sector Undertaking (PSU) company. The Project's construction commenced in early 1970s and it was commissioned in two stages in 1987 and 1995. It was the first major hydropower project built by India on the Chenab River under the framework of the Indus Waters Treaty.

The Project has a unique combination of a 113-metre high, 487-metre long concrete gravity dam and a 118-metre high, 630-metre long rockfill dam, with 284 million cubic meter (MCM) water storage. The top elevation of the dam is 495.9 metres (1627 feet). The maximum water level of the reservoir is 494.08 metres (1621 feet) and full reservoir level

is 487.68 metres (1600 feet). Overflow spillways have been provided near to top of the dam having a crest elevation of 478.68 metres (1,570 feet). It was designed to provide electricity to the Northern Grid, including regions of Jammu and Kashmir, Punjab, Haryana, Himachal Pradesh, Delhi and Rajasthan.

Its original design also incorporated sediment-management features, including six under-sluice spillways (low-level outlets) for hydraulic flushing of sediments, in line with international practices for managing sediment in large dams.

4

OBJECTIONS FROM PAKISTAN

However, based on objections from Pakistan, even though the Treaty did not require it to do so, India agreed to plug the under-sluice gates and even lowered the height of the dam. This resulted in catastrophic consequences for this Project. When the under-sluice gates were plugged, the dam lost its ability to ‘flush’ the river's heavy silt load. Instead of water, the reservoir began filling with sediments (clay, sand and boulders). Within a few years, the ‘dead storage’ (the area below the full pond level) was almost completely filled with sediments. Restrictions were also placed on the ‘operating pool’ of the reservoir, limiting the dam’s ability to manage water levels effectively.

5

MISUSE OF PROVISIONS UNDER THE TREATY BY PAKISTAN

The Indus Waters Treaty as per Article III, Annex D, Para 8 (d) provides that “there shall be no storage below the dead storage level, unless necessary for sediment control or any other technical purpose, any such outlet shall be of minimum size, and located at the highest level, consistent with sound and economical design with satisfactory operation of the Project.”

The above-mentioned provision under the Treaty, “sound and economical design with satisfactory operation of the project”, was completely ignored while plugging the under-sluices of the Project. Plugging of the under-sluices has resulted in filling almost the entire 284 million cubic meter (MCM) storage capacity of the reservoir with sediments within a few years of its commissioning in the year 1987.

As of today, more than 97 per cent capacity of the reservoir has been filled up with sediments. Basically, this is the result of ignoring the sound and economical design with satisfactory operation of the Project as per provisions under the Treaty mentioned above. Figure 1 shows a picture of the reservoir of Salal Dam completely filled up with sediments. It can be seen that the reservoir has only sediments and vegetation and almost no water.

The sediment-filled reservoir of Salal Dam is leading to significant wear and tear to the underwater parts of the generating units in the power house of the Project. Operational and maintenance costs of the turbines have increased manifold due to plugging of the under-sluices which resulted in filling of the reservoir with sediments. Further, the project's primary purpose of providing morning and evening peak generation support to the national electricity grid has been completely lost. Pakistan’s undue objections have resulted in this hydroelectric Project failing to serve the purpose of energy transition required for climate change adaptation.



Figure 1: Salal Dam filled with sediments and vegetation but no water| Source: Pixaby

6

PROFESSIONAL 'HANDCUFF' OF ENGINEERS

Design and construction engineers of Salal Dam were professionally 'handcuffed' and prevented from using standard sediment management techniques as per provisions of the Treaty. This resulted in the reservoir silting up almost to the top of the dam within a few years of the project's commissioning.

Currently, the NHPC, the owner of this Project, has undertaken large-scale dredging operations to remove millions of tonnes of sediments. Despite significant expenditure aimed at keeping the Project operational in the long run, these efforts are unsustainable, as the recurring costs of such operations are untenable.

Sedimentation up to the full reservoir level of the dam has resulted in silt being deposited above the full reservoir level in the initial reaches. A faulty design, imposed by Pakistan's refusal to honour provisions of sound and economical design with satisfactory operation of the Project under the Treaty and compelling India to plug the under-sluices has even caused sediments to enter the fields of farmers along the riverbanks. In some cases, sediments have entered the houses of residents in the upper reaches of the reservoir, forcing them to abandon their houses and relocate.

Neutral Expert on Baglihar Dam Professor R. Lafitte, a Swiss Engineer at the Federal Institute of Technology, a Neutral Expert appointed for the Baglihar Project stated as follows:

"It appears that the Treaty is not well developed as far [as] the provisions on sediment transport. This is not a criticism. The Treaty reflects the status of the technology on reservoir sedimentation in [the] 1950s".

Interpretation of provisions of the Treaty by Pakistan has been flawed and is devoid of sound engineering perspective. On the Western rivers, namely the Indus, Jhelum and Chenab, India has been allowed to construct run-of-the-river hydroelectric projects with limited storage capacity, defined under the Treaty.

These rivers are flowing through the Himalayas with a very steep gradient and carry a very high annual sediment load. For example, the River Chenab at Salal Dam has an annual sediment load of about 32 million cubic meters. For such high sediment load in these rivers, Pakistan's objections to adopting sound design and state of the art practices for sediment management and its insistence on ungated spillway or crest gated spillways without low-level outlets clearly show that such narrow interpretation of the provisions of the Treaty are not aligned to the ground realities.

Article III (2) (d), Annex D, Para 8(e) states that "If the conditions at the site of a Plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design and satisfactory construction and operation of the works."

Keeping aside modern engineering practices for the construction of safe and sustainable dams, Pakistan has sought to restrict provisions in a manner that effectively requires the construction of a 'dead' concrete wall (dam) on the highly sediment laden Himalayan rivers. Such structures tend to get filled with sediment within a few years, thereby significantly reducing their operational efficiency and undermining the basic purpose of energy generation for which these dams of hydroelectric projects are constructed.

Pakistan is constructing a number of major hydroelectric projects like Diamer Basha (4500 MW) located on the river Indus in Pakistan-occupied Kashmir (PoK), Dasu (4320 MW) located on the Indus River in the Upper Kohistan District of Khyber Pakhtunkhwa (KP) province of Pakistan, and Mahl (640 MW) located on the river Jhelum in PoK. Patrind (147 MW) and Karot Hydroelectric Project (720 MW) both located in the PoK and the bordering districts of Pakistan, have been commissioned in the year 2022 and 2017 respectively.

All these projects provide for sediment management through hydraulic sluicing via low-level under-sluices or desander arrangements, utilising modern engineering practices. In none of these projects, technological know-how of the 1950s is being used. It is therefore unsustainable to compel India to use the technological know-how of the 1950s in sediment laden rivers of the Himalayas, as per wrong interpretation of the Treaty, by ignoring the basic principle of 'sound and economical design and satisfactory construction and operation of works.'

In the present-day environment, the author would like leave it to the judgment of the professionals, whether construction of dams without any sediment management practice

as is being compelled under the Treaty in India, on the Himalayan rivers flowing in steep gradients and carrying heavy sediment load, is being adopted anywhere else in the world. It is also a fact that no upper riparian State has been subjected to such draconian provisions regarding the construction of unsustainable dams, including numerous restrictions on their operation and maintenance.

In order to make the Salal Dam sustainable in terms of sediment management, the under-sluice gates provided in this dam should be opened. Such a practice has been adopted in many existing dams throughout the world.

One Year After: *The Indus Waters Treaty Suspension*

By PK Saxena



Indian Prime Minister Narendra Modi chairs a meeting of the Cabinet Committee on Security in New Delhi following the Pahalgam terror attack, April 2025 | Source: PMO

A year after India suspended the Indus Waters Treaty (IWT) on April 23, 2025, Pakistan continues to prosecute a coordinated media campaign portraying the suspension as an act of aggression that is devastating its agricultural economy. The article examines this narrative and finds it wanting on both legal and empirical grounds. The IWT was systematically weaponised by Pakistan to obstruct legitimate hydropower development in Jammu and Kashmir. Pakistan's claims of agricultural devastation are not supported by the facts. Its water crisis is primarily the product of domestic policy failure, and the vulnerability is self-made. The article concludes that the suspension of the Treaty is a legitimate and measured response to an inequitable and outdated arrangement.

1 BACKGROUND

It has been a year since India suspended the Indus Waters Treaty on April 23, 2025; a treaty widely celebrated in the West as a landmark achievement in international water law. What that narrative obscures, however, is a far more complex story of unequal concessions and long-term strategic weaponisation by Pakistan that impeded India's development on the Indus system of rivers. The fallout of the suspension has reshaped bilateral ties and regional water dynamics. Even as India moves to maximise its rightful water use, Pakistan has been vociferous—through a coordinated media campaign—in asserting that the suspension of the IWT is devastating its agricultural economy.

A wave of articles has emerged framing the resumption of the original IWT terms as indispensable to regional peace and stability. Leveraging the Western media in particular, Pakistan is cultivating the image of a wronged nation—a victim of Indian high-handedness—while simultaneously propagating a narrative that reinstating the IWT is the surest bulwark against water wars.

Such a narrative rests on a fundamentally flawed premise: the Indus Waters Treaty was an instrument of cooperation. In reality, it functioned more as an instrument of asymmetric division—one that imposed extensive obligations on India without imposing a comparable burden on Pakistan.

The durability of any water-sharing treaty depends, above all, on the conduct of the upper riparian state. That this treaty endured six decades of recurring conflict is a credit that belongs entirely to India, which—as a responsible and principled nation—honoured its obligations through the most turbulent periods, without any reciprocity from Pakistan. Throughout this time, Pakistan continued to wield the treaty as a political instrument to obstruct and retard development in Jammu and Kashmir.



(Left to right) Jawaharlal Nehru, Prime Minister of India and Mohammed Ayub Khan, President of Pakistan, sign the Indus Waters Treaty, on September 19, 1960 while William Illiff, Vice President of the World Bank, looks on| Source: The World Bank.

2

INDIA'S SOVEREIGN RIGHT TO SUSPEND THE TREATY

Some commentators frame India's suspension of the Indus Waters Treaty following the Pahalgam attack as an escalatory or destabilising act. This framing is both misleading and morally inverted. India is a victim state that has suffered devastating terrorist attacks on its soil for decades, carried out by actors operating from Pakistani territory and/or with the support of the Pakistani state. The Pahalgam attack was merely the proverbial last straw.

The proposition that India must continue fulfilling treaty obligations towards a state that sponsors terrorism against it defies elementary principles of international law. This includes the doctrine of rebus sic stantibus, which permits the suspension of treaty obligations when the foundational circumstances have materially changed. A treaty designed to foster cooperation cannot survive as a one-way obligation when the other party continues to undermine the bilateral relationship through proxy violence.

3 THE TREATY'S STRUCTURAL INEQUITY HAS BEEN IGNORED FOR TOO LONG

Sympathetic commentators portray the IWT as a 'stabilising force' and a model of durability, while conspicuously ignoring the magnitude of what India conceded in the name of cooperation. As the upper riparian state, India was allocated only the three eastern rivers—the Ravi, Beas, and Sutlej—comprising less than 20 per cent of the basin's total flow, much of which was already in use. Even for this diminished share, India was required to pay £62 million (approximately USD 2.45 billion in present value) as compensation for replacement works in Pakistan-occupied Kashmir. This extraordinary concession may be a result of the geopolitical pressures of the time and the limited understanding then of India's developmental needs and the basin's hydrology. Six decades later, with India's population and water demand having grown enormously, and with Jammu and Kashmir remaining chronically underdeveloped due to treaty-imposed restrictions on water use, the arrangement has become structurally untenable. The contention that any improvement in India's reservoir storage capacity poses the risk of an escalating crisis amounts to an argument that India ought to abandon its legitimate developmental aspirations altogether.

4 PAKISTAN HAS WEAPONISED THE TREATY'S DISPUTE RESOLUTION MECHANISMS

The warm portrayal of the Permanent Indus Commission and third-party processes as enabling dispute management conspicuously omits Pakistan's serial abuse of these mechanisms to obstruct entirely legitimate Indian run-of-the-river hydropower projects on the western rivers. Many of them are on the tributaries and have capacities of less than 5 MW, causing no material harm to Pakistan's water availability. Pakistan has raised objections to the Kishanganga, Baglihar and Ratle Projects, among several others, dragging India into arbitration proceedings of questionable jurisdiction and deploying treaty fora as instruments of diplomatic harassment rather than genuine dispute resolution.

While some articles, particularly in Western media, vaguely acknowledge that technical disputes have become more frequent and increasingly politicised, they nonetheless fail to assign any responsibility to Pakistan for this deterioration.

5 THE COMPARISONS TO OTHER RIVER BASINS ARE NOT APPROPRIATE

Some intellectuals draw parallels with the Aral Sea basin, the Mekong River Commission, and the Senegal River Basin to argue for cooperative governance. These examples involve

states that share broadly aligned developmental interests — a reminder that cooperation frameworks require at least a baseline of good faith to function. India, however, enjoys no such assurance. Pakistan's continued support for terrorist infrastructure targeting India renders the comparison with the Mekong Commission or the Jordan-Israel water arrangements fundamentally inapt.

Pakistan urges international actors to support 'water diplomacy' in rebuilding trust. India's position is unambiguous: all dealings with Pakistan are bilateral, and third-party mediation is firmly rejected.

Trust can only be rebuilt through verifiable, sustained action by Pakistan to dismantle its terrorist infrastructure and honour its international commitments. To ask India to treat the IWT as sacrosanct while Pakistan continues to act with impunity is not a prescription for peace but a prescription for the continued exploitation of India's restraint.

6**PAKISTAN'S OWN MISMANAGEMENT IS THE ROOT CAUSE**

Pakistan's narrative conflates a political grievance with a physical reality that the facts do not support—at least not in the manner or to the extent being claimed. A careful examination reveals that Pakistan's agricultural water crisis is, in large measure, self-inflicted.

Currently, 97 per cent of the fresh water in Pakistan is used in the agriculture sector, which makes up 18 per cent of Pakistan's GDP.²⁵ This disproportionate demand is compounded by the widespread cultivation of water-intensive crops—rice, wheat, sugarcane, and cotton—reflecting fundamentally poor crop-selection strategies. The numbers on wastage are stark: total water wasted by Pakistan through unutilised flow to the sea is as high as India's entire share under the Indus Waters Treaty.

Weak governance, inadequate regulatory mechanisms, and relentlessly rising agricultural water demand in Pakistan have led to unchecked groundwater exploitation. The four major crops (wheat, rice, sugarcane, and cotton) that represent nearly 80 per cent of all water use generate less than 5 per cent of GDP. This era of reckless overuse of groundwater in Pakistan is now nearing its end, as water tables are falling across large areas of the country.

Pakistan's water storage capacity is limited to a maximum of 30 days' supply—far below the recommended 1,000-day benchmark.

Six decades of failure to invest in storage infrastructure have left Pakistan inherently vulnerable to flow variations. This structural fragility is entirely of Pakistan's own making and cannot be attributed to India's decision of 2025.

Pakistan's claim that the IWT suspension is destroying its agriculture is an exaggeration crafted to serve a diplomatic and political purpose. The physical reality is that Pakistan's agricultural water stress is the product of its own sustained policy failures—the overconsumption of water by low-value crops, the complete absence of investment in major storage infrastructure over five decades, unregulated groundwater depletion, and systemic irrigation inefficiency. India's suspension of the treaty is a legitimate response to cross-border terrorism and a signal that an inequitable, outdated agreement cannot sustain forever. Pakistan would do well to address its governance failures at home rather than deploy water as a rhetorical weapon against India.

India cannot be expected to subordinate its sovereign interests, security imperatives and developmental needs to maintain an outdated and inequitable institutional arrangement brokered by a third party. India's measured response to Pakistani aggression—including the suspension of treaty participation—is not a threat to regional stability. It is a long-overdue signal that the terms of engagement must change.

The Politics of Hydraulic Deflection: The Myth of Upstream Deprivation in Pakistan's Indus Basin Crisis

By PK Saxena



An irrigation canal cuts through Pakistan's agricultural heartland in the Indus Basin, highlighting the vast infrastructure on which the country's water and food security depend|
Source: NASA

When Pakistan's Foreign Minister Ishaq Dar warns that suspending the Indus Waters Treaty threatens "water security," "food security," and ultimately "national security" for 250 million Pakistanis, this rhetoric is intended to convey statesmanship. However, this narrative reflects a persistent pattern in Islamabad's political discourse: invoking the river to deflect attention from ongoing governance failures, while prioritising the obstruction of India's development over domestic advancement. The central question for Pakistan's citizens is why a nation that began with comparable opportunities to India in 1947 has, by 2026, adopted terrorism as an instrument of state policy rather than prioritising development as a national objective. This divergence—one path toward institutional growth and the other toward a security apparatus focused on cross-border militancy—constitutes the precedent that merits international scrutiny, rather than the constructed narrative of treaty sanctity promoted by Dar.

1 THE RHETORIC OF SCARCITY VERSUS THE REALITY OF ENDOWMENT

Islamabad's diplomatic stance is based on the assertion that Pakistan is an existential victim of its upstream geography. However, the hydrological allocations established by the 1960 Indus Waters Treaty contradict this claim. Pakistan receives over 80 per cent of the Indus system's total flow, approximately 135 million acre-feet (MAF) annually, compared to India's allocation of 33 MAF. Given this substantial water endowment, Pakistan cannot be classified as water-poor by any hydrological standard. The country's agricultural crisis arises not from upstream deprivation, but from governance failures and insufficient measures to conserve and manage the considerable water resources already available.

2 THE ANATOMY OF WASTE

The Indus Basin Irrigation System (IBIS) in Pakistan is the world's largest contiguous canal network, serving over 16 to 19 million hectares (Mha). More than 85 per cent of Pakistan's cropland continues to rely on traditional, unlevelled basin and wild flood irrigation methods, which are highly inefficient. In regions such as Sindh and southern Punjab, deep percolation from canals and flood irrigation results in water loss to brackish, high-salinity aquifers, making it unavailable for agriculture and contributing to waterlogging and secondary soil salinisation on productive land. The system receives an average annual inflow of approximately 145 MAF, with 101 MAF allocated to agriculture, 14 MAF to municipal and industrial use, and 30 MAF flowing unutilised into the sea. Only 65 MAF of the water diverted for agriculture reaches the fields, with 36 MAF lost due to system inefficiencies. The total water wasted, including unutilized flows to the sea, amounts to 66 MAF, which is twice India's share under the Indus Waters Treaty. Therefore, Pakistan is generating its own water scarcity despite possessing one of the world's largest river endowments.

3 THE MICRO-IRRIGATION DIVIDE: A STUDY IN INSTITUTIONAL CHOICE

India has prioritised agricultural water productivity as a central component of national economic planning, whereas Pakistan has restricted modern irrigation initiatives to sporadic, externally funded pilot projects that have not achieved systemic scale. The institutional context in each country explains this divergence.

India institutionalised micro-irrigation as a national priority under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)²⁶ and its Per Drop More Crop (PDMC) component. A dedicated Micro Irrigation Fund routed through NABARD enables state governments to mobilise concessional loans to meet subsidy shares and finance regional projects. In contrast, Pakistan's equivalent efforts remain largely provincial and dependent on external donors, as seen in schemes such as the World Bank-funded Punjab Irrigated-Agriculture Productivity Improvement Project. These initiatives frequently lose momentum when donor cycles end, or provincial priorities shift.

Additionally, India has developed a domestic manufacturing sector for drip tubes, emitters, filters, and fertigation equipment that adheres to BIS standards. In contrast, Pakistan relies on imported components, resulting in higher installation costs and more complex maintenance. The disparity is further intensified by differences in delivery infrastructure. India's extensive tubewell irrigation provides smallholders with on-demand, pressurised water that integrates efficiently with drip and sprinkler systems. In contrast, Pakistan's canal-based Warabandi rotation delivers water intermittently and with high silt content, requiring farmers to construct storage ponds and settling tanks at significant expense. Indian farmers rarely face this capital barrier.

This disparity has produced a significant scale gap. India's sustained central funding has enabled micro-irrigation to expand to over 11.5 million hectares nationwide. Within the Indus basin, the Indira Gandhi Nahar Project and Haryana's pressurised networks conserve an additional 4.5 to 5 MAF annually. In contrast, Pakistan's High-Efficiency Irrigation Systems have stagnated at under 250,000 hectares nationwide, saving less than

0.8 MAF per year, which is only a fraction of the losses incurred from unlined canal seepage in a single month. Indian farmers are able to utilise saved water for additional cropping cycles.

*The fundamental asymmetry is clear:
India developed the necessary institutions, financing mechanisms, and manufacturing capacity to scale water-saving technologies nationally, whereas Pakistan did not.*

4 THE STORAGE VULNERABILITY

Reservoir storage most clearly illustrates the divergence in water management between the two countries. International engineering benchmarks recommend that river basins maintain 120 to 900 days of carryover capacity to buffer against multi-year droughts, seasonal anomalies, and climate variability, as observed in basins such as the Colorado and the Murray–Darling.

Pakistan, which relies entirely on a single river system, has developed a usable live storage capacity of about 11.5 to 13.0 million acre-feet (MAF), representing less than 10 per cent of its total water allocation. This capacity continues to decline due to sedimentation in the Tarbela and Mangla reservoirs, limiting Pakistan’s storage buffer to approximately 30 days. In contrast, India, with a significantly smaller allocation on the Eastern rivers, has established 11.8 to 12.2 MAF of live storage across the Bhakra, Pong, and Ranjit Sagar reservoirs. This infrastructure enables near-complete seasonal regulation through the Bhakra-Beas Management Board and accounts for 35 to 37 per cent of India’s water allocation, providing 120 to 150 days of carryover capacity. This is four to five times greater than Pakistan’s buffer, despite India’s smaller entitlement.

The treaty does not impose this limitation; instead, it highlights a policy failure. Pakistan’s inability to construct major downstream storage facilities arises from domestic challenges. For instance, the technically feasible Kalabagh Dam has stalled for decades because of unresolved disputes between Punjab and Sindh. Although a plan from the 1970s envisioned constructing one major dam per decade, none have been completed in the subsequent fifty years. As a result, Pakistan discharges 20–30 million acre-feet (MAF) of fresh water into the Arabian Sea during peak monsoon flows, which contributes to acute water shortages during the Rabi winter planting season.

5 EXTERNAL DEFLECTION AS A SUBSTITUTE FOR INTERNAL GOVERNANCE

During periods of agricultural water stress, Pakistan’s political and security establishment frequently attributes the issue to alleged Indian “hydro-hegemony,” asserting that upstream run-of-the-river plants such as Kishenganga, Baglihar, and Ratle pose an existential threat to the nation. However, engineering assessments do not substantiate this claim.

Run-of-the-river plants do not divert or consume water; they use the kinetic energy of flowing water to generate electricity and return the entire flow to the river channel without net volumetric loss. India has developed only a fraction of the storage it is legally

permitted to construct on the Western Rivers under the Treaty, which is currently suspended. The water scarcity experienced by Pakistani farmers primarily results from the rigid Warabandi allocation system, which concentrates water access among politically influential landholders at the head of canal reaches and leaves smallholders at the tail chronically deprived. This constitutes a domestic distributive issue unrelated to India.

This pattern of externalising domestically generated challenges extends beyond water management and has shaped Pakistan's national trajectory since 1947.

Rather than investing in institutions, infrastructure, and an economic base aligned with its water resources and colonial legacy, successive governments in Islamabad have prioritised the security sector, utilising cross-border militancy as a policy instrument. This strategy shifts focus away from the need for domestic accountability amid governance failures. Assigning blame for engineered scarcity in the Indus basin and regional instability to India serves a comparable political function, allowing Pakistan's leadership to evade responsibility for decisions within its own jurisdiction.

6

CONCLUSION: THE STRATEGIC BALANCE SHEET

Foreign Minister Dar's invocation of the treaty's sanctity and warnings of regional consequences reflect a political strategy to externalise the effects of domestic mismanagement. The principal barrier to Pakistan's water and food security has not been upstream engineering in Jammu and Kashmir. Instead, it is a governance approach that has consistently prioritised cross-border militancy and geopolitical grievances over infrastructure development, institution-building, and responsible resource management. Both India and Pakistan began in 1947 with comparable starting conditions. After eight decades, one nation has prioritised development, while the other has focused on deflection. This fundamental policy divergence, rather than the river itself, requires explanation to Pakistan's citizens.

North India's Suppressed Growth: Under the Indus Waters Treaty

By Devendra Kumar Sharma



Salal Dam built on the Chenab River| Source: NHPC

India's position on the IWT is consistent that the Treaty stands in abeyance in response to Pakistan's continued sponsorship of cross-border terrorism. Pakistan must credibly and irrevocably abjure its support for cross-border terrorism.

The Indus Waters Treaty (IWT), signed in Karachi on September 19, 1960, has proved counterproductive. Historically, the Treaty allowed more than 80 per cent of the flows of the Indus River system to Pakistan and the remaining around 19.6 per cent to India. Though the Eastern Rivers were allocated to India, the Treaty restricted India's ability to use the water of the Western Rivers (Indus, Jhelum, Chenab) optimally. The Treaty was used as a tool within the dispute-resolution mechanism to suppress the development of hydroelectric projects on the Western Rivers, thereby hampering the development of the Union Territories of Jammu and Kashmir and Ladakh.

On April 22nd 2025, terrorists, rogue elements and groups supported by Pakistan segregated and killed 26 people in Pahalgam, Kashmir, based on their religion. This direct action by Pakistan, with credible evidence of acting against India's supreme national security interests, forced India to hold the Treaty in abeyance.

1 THE RIVERS OF THE INDUS BASIN

As per the Indus Waters Treaty (IWT), three rivers, the Indus, Jhelum and Chenab, are classified as the 'Western Rivers', whereas the other three rivers, the Ravi, Beas, and Satluj, are designated as the 'Eastern Rivers'. This Indus system ultimately discharges into the Arabian Sea south of Karachi.

The Indus River originates in Tibet (Mansarovar) near Demchok. It enters India upstream of Nimoo and exits at Batalik in Kargil district, near Skardu, into Pakistan-occupied Kashmir (PoK). The Satluj is another river that originates in Tibet from Mansarovar near Rakas Lake (Tal). It enters India at Shipkila and leaves India downstream of the Ferozepur Headworks.

The primary tributaries of the Indus System in India include the Jhelum, Satluj, Chenab, Ravi, Beas and Ghaggar rivers. While the Indus and Satluj rivers originate in Tibet, the remaining four major rivers originate within Indian territory. The River Jhelum leaves India near Chakothi on the Indian side and Muzaffarabad in PoK. The River Chenab and the River Ravi leave India near Akhnoor in Jammu district and at Goina/Kakarmani village of Amritsar district, respectively.

2 IMBALANCE IN WATER DISTRIBUTION IN THE INDUS WATERS TREATY

After the signing of the Indus Waters Treaty (IWT), India was allowed exclusive use of the waters of the Eastern rivers, which were estimated at 40.7 BCM (billion cubic metres) or 33 MAF (million acres). Pakistan was allowed to utilise the full flow of the Western rivers, estimated at 168 to 170 BCM, or around 135 to 140 MAF. Ironically, India is allotted only around 19.6 per cent of the water share of the River Indus system through the Eastern rivers, even though it has almost double the catchment area for this share. On the other hand, Pakistan receives around 81 per cent of the water share of the Indus system, with around half of the catchment area for this share falling within Pakistan.

After the Partition, of the 143 canals in the undivided Punjab, only 12 came to East Punjab (India) and 131 to West Punjab (Pakistan). With partition, the Indus plains that came to India were much less developed than those that went to Pakistan.

According to the 1941 census, the population dependent on the waters of the Indus System was 25 million (54 per cent) in Pakistan and 21 million (46 per cent) in India. 46 per cent of the population on the Indian side received only 19.6 per cent of the water, whereas 54 per cent of the population in Pakistan received around 80 per cent of the water. Out of 26 million acres of irrigated land by the Indus canals, 21 million acres went to Pakistan, and only 5 million acres came to India. The newly imposed political environment after partition not only disrupted the food supply line but also severed the hydrological unity of the Indus system. It posed a serious threat to the development of several million acres of highly arid but otherwise fertile land in the Indian part of the Indus Basin.

Under the Treaty, Pakistan received a disproportionate and excessive allocation of water relative to its catchment area. This asymmetrical distribution stands in stark contrast to the Indian side, where the states of Punjab, Haryana, and Rajasthan, along with the National Capital Region of Delhi, face both chronic and acute water scarcity.

The confluence of the Jhanskar and Indus rivers in Ladakh is shown in Figure 1. The typical catchment of the Indus River in Ladakh is shown in Figure 2.



Figure 1: Confluence of the Jhanskar and Indus rivers near Nimoo, Ladakh. | Author.



Figure 2: Typical catchment of the Indus River in Ladakh. | Author.

Confluence of the Jhanskar and Indus rivers, Ladakh

3

WATER CRISIS IN INDIAN STATES: PUNJAB, HARYANA, RAJASTHAN AND DELHI

In the Indian state of Punjab, net dynamic ground water resources are 21.44 MCM (million cubic metres), whereas net draft (pumping of ground water) is 31.16 MCM, leading to a ground water deficit of 9.72 MCM each year. Thus, the stage of groundwater development for the Punjab state in India as a whole is 145 per cent, and the State falls under the “over-exploited” category. The groundwater table in most parts of Punjab is between 200 and 300 metres below the surface. Out of the State’s area of about five million hectares (Mha), 4.32 Mha have severe groundwater levels. Similarly, the Indian State of Haryana (carved out of Punjab in 1966), with an area of 4.42 Mha, is suffering badly and is under severe water stress. The state of Rajasthan receives only 83 millimetres of annual rainfall in its Jaisalmer district.

Haryana pumps out far more water than nature puts back. The Central Ground Water Board classifies numerous blocks in the state as “over-exploited”. The water table in some districts of Haryana has fallen to as low as 200-300 feet.

Similarly, large stretches of land in Rajasthan, a state with many communities affected by high temperatures exceeding 50 degrees Celsius, are covered by desert dunes. Water availability for the survival of the State’s growing population is under severe strain.

Indian states with interstate water conflicts plague the Indus Basin. Numerous court cases between these States over water disputes are pending before the Supreme Court of India. In addition, the region is characterised by a growing population and declining per capita water availability. The Indus Basin has a strong strategic role in the country’s overall food security and socio-economic development. The states of Punjab and Haryana, accounting for four per cent of India’s total population, produce 25 per cent of the country’s total wheat production. The state of Punjab, known as the breadbasket of India, is facing a water crisis.

Post-Independence plans to divert water from the Chenab River into the Ravi and Beas basins could have prevented the acute water shortages these states are currently facing. Between 1949 and 1950, surveys and investigations were conducted in collaboration with foreign experts to construct a diversion dam near Marhu village in the Pangi sub-division of Chamba district in Himachal Pradesh. While designed to divert water from the Chenab River into the Ravi River basin, the project was ultimately shelved following the negotiations and subsequent signing of the Indus Waters Treaty. Had the dam been constructed, it would have minimised water scarcity and regional disputes between the North Indian states of Punjab, Haryana, Rajasthan and Delhi, fostering long-term economic prosperity across these states.

4

LOSSES SUFFERED BY JAMMU AND KASHMIR

A study carried out by an International Consulting Company in April 2019 indicated that Jammu and Kashmir (J&K) and Ladakh have suffered significant financial losses due to the signing of the IWT. Basically, IWT is viewed as a major bottleneck for the economic and infrastructural growth of the Union Territories of Jammu and Kashmir and Ladakh. The Treaty imposes severe restrictions on the development of water resources and hydropower projects on the Western Rivers (the Indus, Jhelum, and Chenab) that flow directly through these Union Territories.

Union Territories (UTs) of Jammu and Kashmir and Ladakh are rich in water resources. These UTs, however, face chronic power shortages during the winter. They have to buy power from short-term market arrangements or import from other States. Development of hydropower projects has suffered due to restrictions and a long-drawn dispute resolution mechanism under IWT. Pakistan has objected to all small and big water resources projects in these Union Territories.

The development of the agricultural sector in both of these UTs has been severely impacted by IWT. Total cultivated land, including wasteland, in the Union Territories

(UTs) of Jammu and Kashmir and Ladakh is 17,591 square kilometres. Out of this, only 6,318 square kilometres are under irrigation so far. The area yet to be irrigated, including the wasteland area of 2,633 square kilometres, amounts to 11,273 square kilometres.

Under the Indus Waters Treaty (IWT), the permissible storage capacity allocated to India on the Western rivers is limited to 3.6 MAF. Consequently, major run-of-the-river hydroelectric projects such as Salal, Baglihar, and Kishanganga have suffered severe siltation in their small reservoirs. This rapid accumulation of sediment in these reservoirs is driven by Treaty-imposed design restrictions that prohibit the construction of low-level sluice gates, preventing India from conducting necessary sediment flushing and sluicing operations.

For sustainable sediment management of Himalayan rivers with steep gradients, there is no alternative to installing low-level sluice gates to carry out sediment sluicing. Provisions under IWT for installing floodgates near the top of the dam are unsustainable, as has been experienced at the Salal and Baglihar Dams.

Similarly, Pakistan objected to the construction of the Tulbul Navigation Project in March 1985. In a goodwill gesture to foster productive dialogue, India suspended work in September 1987 for an initial three-month period. Following two rounds of Secretary-level talks, India agreed to an additional three-month delay, followed by two subsequent one-month extensions that stretched the suspension to June 2, 1988. After five rounds of high-level negotiations, India acceded to Pakistan's request for an indefinite suspension of the project pending an amicable settlement. Further discussions without reaching any conclusion were held from November 1998 to March 2012, serving as a fair indication of Pakistan's intent to drag out the issue to ensure the work remains permanently suspended.

It is pertinent to mention that regulating the water of Wular Lake on the Jhelum River in the Kashmir valley through a Navigation Lock, in addition to improving navigation on the Jhelum River, would have immensely benefited Pakistan as well.

During the pre-Independence era, approximately 70 per cent of the total cargo in the Kashmir Valley was transported by large traditional wooden boats, locally known as 'khachus', with a carrying capacity of up to 15 tonnes and historically operated by Hanji (local boatmen). Tulbul Navigation Lock, through regulated releases, would have restored year-round navigation on the Jhelum River up to Baramulla. It would also have improved tourism activities in the Kashmir valley.

Similarly, if the IWT were not in place, part of the floodwaters in the Jhelum River would have been diverted into a natural drainage system upstream of Srinagar, thereby preventing severe floods like the one that devastated Srinagar city in 2014.

According to a detailed study, the annual losses suffered by the Union Territories (UTs) of Jammu and Kashmir and Ladakh due to the restrictive provisions of the IWT were estimated at USD 386 million at the 2019 price level. Adjusted to today's price levels, these annual losses amount to approximately USD 506 million (about ₹4,830 crore). Given these figures, the cumulative loss suffered by these UTs over nearly 65 years from 1960 to 2025

is staggering. Himachal Pradesh, having huge hydroelectric power potential in the River Chandra Bhaga, would have suffered similar losses.

5 CONCLUSION

The asymmetric provisions of the IWT have severely constrained the northern Indian states of Punjab, Haryana, Himachal Pradesh, Rajasthan, and Delhi, as well as the Union Territories of Jammu and Kashmir and Ladakh. The Treaty's restrictive framework has heavily hindered irrigation development and hydroelectric generation across these regions. Furthermore, technical issues surrounding sediment management, operation, and maintenance have frequently been leveraged by Pakistan through the Treaty's dispute resolution mechanisms to delay the construction of most hydroelectric projects.

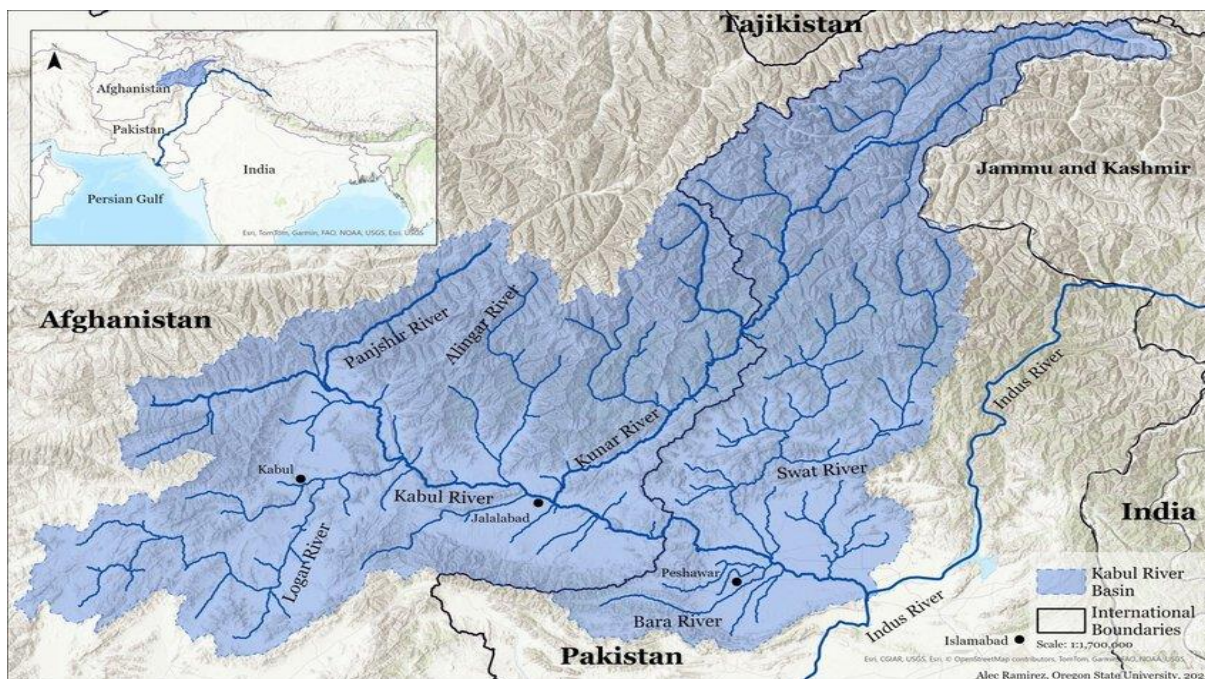
While the economic ramifications for Jammu and Kashmir and Ladakh have been quantified, the financial losses incurred by Himachal Pradesh remain unassessed. This is particularly impactful for the huge potential of hydroelectric power projects along the Chandra Bhaga (Chenab) River, which originates in Himachal Pradesh before crossing into Jammu and Kashmir at Sansari Nallah in the Pangi sub-division. As a result, even Himachal Pradesh continues to endure substantial unquantified annual losses directly tied to the Treaty's limitations.

The Indus Basin has thus become a unique global anomaly, where an upper riparian state is deprived of its natural right to utilise its own rivers. Furthermore, it is restricted from employing modern engineering techniques to construct dams on rivers flowing through its territory to meet the basic water demands and energy requirements of its population.

The Kabul River:

The River of Sorrow between Afghanistan and Pakistan

By PK Saxena



The Kabul River System | Source: Alec Ramirez, Oregon State University

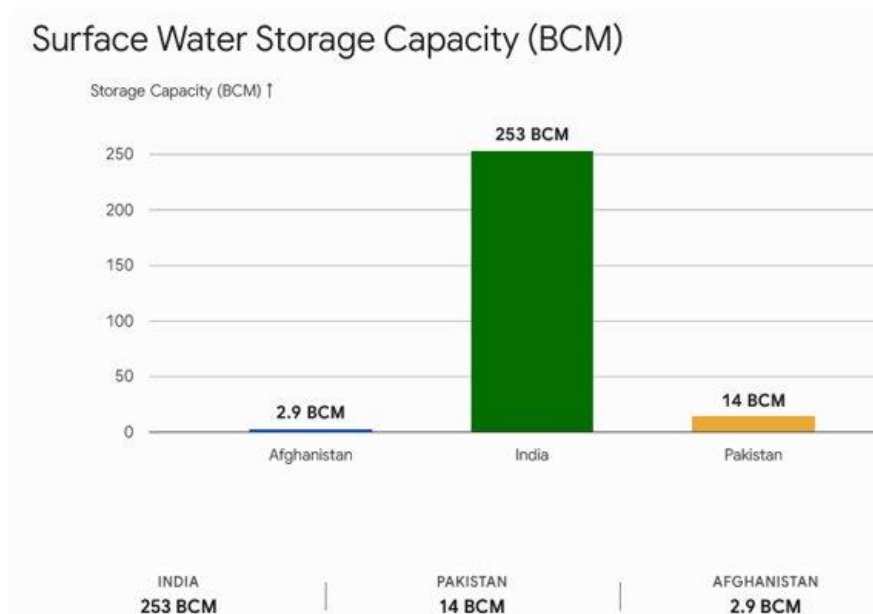
India has traditionally been a friend to Afghanistan, and that relationship carries a responsibility as much as an opportunity. Helping Afghanistan build the storage, irrigation and hydropower capacity it has been denied for so long — through resumed work on Shahtoot, support for the twelve identified storage sites on the Kabul system, and continued investment in transmission and irrigation networks — would do more than address a humanitarian and developmental need. Furthermore, such support would give Afghanistan the negotiating footing it currently lacks to eventually reach a fair, data-based water-sharing arrangement with Pakistan, rather than one dictated entirely by the notion of ‘who built first’. India should come forward, as a good neighbour and a long-standing partner, and lend its expertise and resources to help Afghanistan finally develop the water resources that have, for a century, flowed past it unutilised.

1

INTRODUCTION- THE PARADOX OF AFGHANISTAN

Few paradoxes in South Asia’s water geography are as striking as that of Afghanistan. The country sits astride five major river systems — the Amu Darya, the Kabul, the Helmand, the Harirud-Murghab and the Panj-Amu — and draws roughly four-fifths of its water from snow and glacier melt in the Hindu Kush and the wider Himalayan arc. On paper, this should make Afghanistan water secure. In practice, decades of conflict have left the country without the dams, barrages and canal networks needed to capture and utilise what nature provides, even as it stands on the threshold of water stress. Only about 6.5 per cent of its agricultural land is irrigated, against 52.7 per cent in neighbouring Pakistan. The country stores less than 3 BCM of surface water against 14 BCM of Pakistan and 253

BCM of India. For a nation still climbing out of poverty and conflict, this gap between endowment and infrastructure is the single largest constraint on food security and rural livelihoods.



Central Water Commission (India), Water and Power Development Authority (Pakistan) and Ministry of Energy and Water (MEW), Afghanistan. Slight variation expected between different sources.

2 THE KABUL RIVER SYSTEM

The Kabul River System is one of Afghanistan's five rivers that cross an international border. Originating in the Sanglakh range, it is fed along the way by the Logar, Panjshir, Alingar, and most significantly the Kunar River, which alone contributes more than seventy per cent of the system's flow. The Kabul travels some 700 kilometres (km), with 560 km in Afghanistan and 140 km in Pakistan, before merging with the Indus near Attock, roughly 25 km inside Pakistan from the Durand Line. The river exhibits pronounced seasonal variation: nearly eighty per cent of its annual flow, measured at the Attock gauge, occurs between April and September, peaking in August as the Hindu Kush snowpack melts. This seasonal surge also feeds directly into the Indus and enhances its flow when it matters. It means that Pakistan draws the real benefit from a river it does not control at source.

3 A LOPSIDED BASIN: PAKISTAN BUILT, AFGHANISTAN WAITED

The sole water-sharing arrangement ever concluded on the Kabul River was a modest 1921 understanding between the Afghan government and British colonial authorities, which allowed limited Afghan withdrawals near Torkham in exchange for British navigation and irrigation rights downstream. Conceived as an interim measure, this agreement lapsed with the end of British rule in August 1947 and was never renewed.

In the absence of a formal arrangement, Pakistan has utilised the vacuum to its considerable advantage in subsequent decades. Infrastructure such as the Warsak Dam (1960), the Nowshera Barrage and an extensive network of feeder canals now allow Pakistan to draw on an estimated 21 BCM of Kabul-basin water annually, supporting irrigation in a sizeable command in Khyber Pakhtunkhwa and Punjab and generating 240 MW of electricity. Estimates indicate that Pakistan today captures around 70 per cent of the basin's transboundary flow, leaving Afghanistan, the upstream riparian, with less than 30 per cent of the water originating on its own territory. Only 12 per cent of Afghanistan's potentially irrigable land in the eastern river basins has been developed, against 67 per cent on the Pakistani side of the shared watershed.

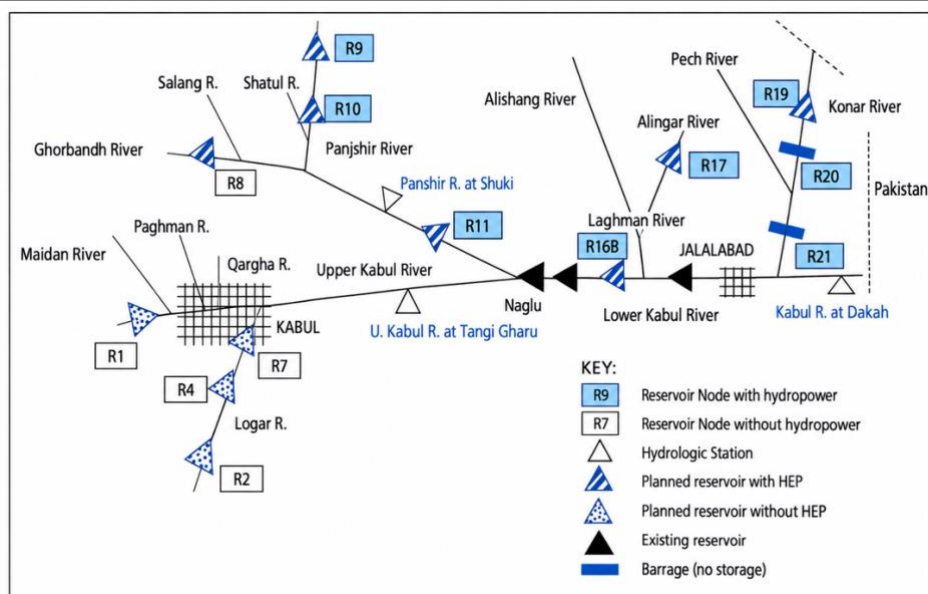
According to Khaama Press, the monetary value of this uncompensated flow into Pakistan is roughly USD 12 billion, based on international water-pricing norms. The precision of this figure may be debatable but not the underlying asymmetry: an upstream state with abundant water but insufficient infrastructure has effectively subsidised a downstream neighbour equipped to capture these resources.

4 HYDROPOWER POTENTIAL AND DEMAND

Afghanistan's hydropower potential also remains largely unrealised. The total potential is estimated at 23,000 MW, with approximately 20,000 MW lying in the northeast on the Amu Darya, Panj and Kokcha river systems. An additional 1,900 MW sits east of Kabul, with over half of it on the Kunar River near the Pakistan border. In contrast, with current domestic generation of only about 600 MW, and the projected peak demand approaching 3,500–4,300 MW by 2032, the gap is stark. A handful of mid-twentieth-century projects—Sarobi, Naghlu, Darunta, and Mahipar—built with German and Soviet assistance, along with the more recent 42 MW Salma Dam, inaugurated jointly by India and Afghanistan in 2016 on the Harirud—show the potential that external partnerships can achieve. However, these projects remain isolated successes rather than a coherent build-out.

5 SIGNS OF CHANGE: AFGHANISTAN'S OWN DAM-BUILDING PLANS

Afghanistan, with the assistance of the World Bank, has identified thirteen storage sites on the Kabul River and its tributaries with a combined capacity of about 4.7 million acre-feet (Figure and Table below), and five smaller dams — Chak, Mahipar, Sarobi, Naghlu and Darunta — are already operational. India's 2021 Memorandum of Understanding to help build the Shahtoot dam near Kabul, before work stalled with the change of government later that year, was a step toward realising this potential.



Characteristics of Potential New Storage Sites in the Kabul River Basin								
		Dam height	Gross storage	Live storage	Installed capacity	Annual cost	Capital cost	Annual unit cost of live storage
		(m)	(Mm ³)	(Mm ³)	MW	(MU\$)	(MU\$)	(\$/m ³)
Panjshir subbasin								
Totumdara	R8	135	410	340	na	33.2	332	0.098
Barak	R9	155	530	390	100	117.4	1,174	0.301
Panjshir 1	R10	180	1,300	1,130	100	107.8	1,078	0.095
Baghdara	R11	40	400	330	210	60.7	607	0.184
Logar-Upper Kabul subbasin								
Haijan4	R12	50	220	200	na	7.2	72	0.036
Kajab	R2	85	400	365	na	20.7	207	0.057
Tangi Wardag	R4	65	350	300	na	35.6	356	0.119
Gat	R7	20	500	440	na	5.1	51	0.012
Lower Kabul subbasin								
Sarobi II (ROR)	R16B	200	na	na	210	44.2	442	na
Laghman A	R17	nd	405	288	44	1,251	125.1	0.434
Konar A	R19	nd	1,212	1,010	366	94.8	948	0.094
Konar B (ROR)	R20	nd	na	na	81	23.2	232	na
Kama (ROR)	R21	nd	na	na	60	115	115	na
Notes: Costs are for full development of the site; ROR: run-of-river; na: not applicable; nd: no data; a: near the Shatoot site, which is currently under study. Sources: Montreal Engineering Company 1978, Vol. 1, chapter 4; Toosab and RCUWM 2006; and mission estimates.								

6

HOW AFGHAN DEVELOPMENT COULD UNSETTLE PAKISTAN'S WATER SECURITY

Pakistani analysts have calculated that if the thirteen planned dams on the Kabul River were completed, Pakistan's water supply from the river could fall by sixteen to seventeen per cent. Such a reduction would have direct consequences for the three most agriculturally productive districts of Khyber Pakhtunkhwa, including Peshawar, Nowshera and Charsadda. The Kabul River irrigates roughly 32,000 hectares in Khyber Pakhtunkhwa through four major canals and about a thousand smaller channels, while also recharging aquifers that provide drinking water to millions in Mohmand, Khyber, Peshawar, Charsadda, Nowshera and Mardan. A meaningful drop in flow would show up as reduced irrigation, stressed aquifers and lower agricultural output in some of

Pakistan's most productive farmland. This challenge arises when Punjab and Sindh downstream are already contending with strains on the Indus system.

7

THE TREATY QUESTION: FROM WATER SECURITY TO STRATEGIC LEVERAGE

Islamabad's unease is compounded by the absence of any binding treaty with Kabul. Pakistan has repeatedly sought one such agreement through bilateral channels, the World Bank and other international forums between 2001 and 2014. Afghanistan, however, has consistently deferred negotiations, citing an incomplete national water policy and insufficient hydrological data. The deeper reason is more structural: since Pakistan has already built extensive infrastructure on the Kabul basin, any treaty modelled after the Indus Waters Treaty would tend to lock in Pakistan's existing advantage, much as the 1997 UN Watercourses Convention's emphasis on "existing and potential uses" implicitly favours whichever party developed first. For example, during the initial negotiations of the Indus Waters Treaty, Pakistan was utilising about 66 million acre-feet (MAF) of waters compared to only about 9 MAF in India. This was one of the many factors for the asymmetric allocation against India in the Indus Waters Treaty.

Taking their lesson, Afghan officials have candidly observed that international law governing transboundary rivers tends to reward early movers. Consequently, for Kabul, building out its own storage and irrigation capacity before formalising any water-sharing framework is not simply a development goal but a negotiating necessity. It is the only way that can ensure a future treaty that reflects Afghanistan's own needs rather than ratifying a status quo written entirely on Pakistan's terms.

This situation inescapably reflects a live regional fault line. Pakistan has floated the option of diverting a substantial share of the Chitral river, which is known as the Kunar once it crosses into Afghanistan. Since the Kunar/Chitral supplies the majority of the Kabul system's water, such a diversion would directly undermine Afghanistan's own plans. A full Pakistani diversion could, over time, turn productive Afghan farmland barren and dry out aquifers, which might lead to displacement and migration pressures along the border. These outcomes would ultimately destabilise the same Pakistani border districts the diversion was meant to protect. Water security in Kabul, in other words, is not a zero-sum contest; unilateral actions by either side increase the likelihood of reciprocal measures, with ordinary farming at the district-level losing on both sides rather than planners in Islamabad or Kabul.

8

INDIA'S OPPORTUNITY

India's engagement with Afghan water infrastructure is not new. The Salma Dam on the Harirud — inaugurated jointly by the two countries' leaders in 2016 and known locally as the Afghan-India Friendship Dam — added 42 MW of generation capacity and stabilised or extended irrigation across some 75,000 hectares. The 2021 MoU on the Shahtoot dam near Kabul, though interrupted, showed New Delhi's readiness to go further, including on the more contentious Kabul basin itself.

Pakistan has, predictably, viewed this cooperation with suspicion, reading Indian assistance on the Kabul River as strategically motivated rather than developmental. That reaction should not be allowed to define India's choices. Afghanistan's need for dams, canals and hydropower is genuine and long-standing, rooted in decades of conflict rather than in any design against a third country; addressing it is squarely in keeping with the long history of India-Afghanistan cooperation and with India's own experience — as both an upper and a lower riparian on various rivers — of what well-planned water infrastructure can do for food security, rural incomes and energy access.

India has traditionally been a friend to Afghanistan, and that relationship carries a responsibility as much as an opportunity. Helping Afghanistan build the storage, irrigation and hydropower capacity it has been denied for so long — through resumed work on Shahtoot, support for the twelve identified storage sites on the Kabul system, and continued investment in transmission and irrigation networks — would do more than address a humanitarian and developmental need.

Furthermore, India's support would give Afghanistan the negotiating footing it currently lacks to eventually reach a fair, data-based water-sharing arrangement with Pakistan, rather than one dictated entirely by the notion of 'who built first'. India should come forward, as a good neighbour and a long-standing partner, and lend its expertise and resources to help Afghanistan finally develop the water resources that have, for a century, flowed past it unutilised.

After Abeyance: ***Indus Basin and the New Water Politics***

By Uttam Kumar Sinha



Aerial view of the Indus River System | Source: Pixaby

1

INTRODUCTION

The Indus Waters Treaty (IWT) entered a new phase following India's announcement in April 2025 to place the Treaty in abeyance. For over six decades, the IWT served as a rare constant amid the otherwise volatile history of India-Pakistan relations. Its longevity was based on the institutional premise that cooperation over the Indus basin could be separated from broader political and security dynamics between the two states. This foundational assumption has now been set aside.

Pakistan's response has adhered to established patterns, though with heightened intensity. The government has invoked international law, underscored the sanctity of treaties, sought international attention, continued to employ the Treaty's dispute-settlement mechanisms, mobilised domestic political opinion, and increasingly framed water as a national security concern. In April 2025, Pakistan's National Security Committee warned that any attempt to stop or divert waters allocated to Pakistan would be treated as an "Act of War." By July 2026, Pakistan's military leadership publicly reaffirmed its commitment to take "all measures necessary" to secure the country's water share.

The post-abeyance phase has positioned Indus Basin management at the intersection of water infrastructure, legal frameworks, diplomacy, and security. The central issue is whether the IWT can remain a viable framework for India-Pakistan water relations.

2 A TREATY BORN IN PARTITION

A comprehensive understanding of Pakistan's current response necessitates a review of the specific outcomes established by the IWT.

A prevalent perception holds that India and Pakistan agreed to share the waters of six rivers, with India receiving less than 20 per cent of the Indus Basin's total water volume. However, Indian civil engineers involved in the negotiations interpreted the arrangement differently. Faced with the challenge of establishing an equitable volumetric sharing formula, they adopted a hydrologically rational approach by apportioning the basin. The Treaty's logic prioritised creating predictable spheres of utilisation rather than the annual division of water flows.

Consequently, the Indus Basin was divided into two groups of three rivers each: the Western Rivers (Indus, Jhelum, and Chenab) and the Eastern Rivers (Ravi, Beas, and Sutlej). India vigorously pursued complete and exclusive rights over the waters of the Eastern Rivers. The Eastern Rivers were allocated for India's "unrestricted use," while Pakistan "shall receive for unrestricted use" the water of the Western Rivers.

At the time, the Western Rivers had an average annual flow of approximately 135.6 million acre-feet (MAF), while the Eastern Rivers averaged only about 32.6 MAF, or roughly one-fourth of the Western Rivers' flow. Consequently, about four-fifths of the basin's average annual flow was allocated to Pakistan. This arrangement was a source of discontent in India. During the Lok Sabha debate on November 30, 1960, several parliamentarians contended that, given the extent of the Indus Basin's catchment area within Indian territory, India was entitled to approximately 40 per cent of the basin's waters.

Some observers characterised the division as a "second Partition," invoking the territorial and political trauma associated with 1947.

Indian negotiators were fully aware of the water volumes at stake, but prioritised securing absolute and exclusive control over the Eastern Rivers. As negotiations progressed, India agreed to pay £62.06 million (Rs 83 crore) to ensure that none of these waters would flow to Pakistan. This financial commitment became politically contentious. During the November parliamentary debate, Prime Minister Jawaharlal Nehru faced criticism from members who considered the settlement overly generous and accused him of being "fiscally irresponsible."

Exclusive access to the Eastern Rivers was considered essential for India's agricultural and developmental objectives. For instance, East Punjab required irrigation for nearly 1.5 million acres of agricultural land, and India was simultaneously implementing major

irrigation and hydroelectric projects such as the Bhakra project and the Rajasthan Canal. The economic and strategic advantages of securing exclusive rights to the Eastern Rivers were therefore deemed to outweigh the settlement's financial costs. Furthermore, the £62.06 million payment was scheduled in ten instalments between 1961 and 1970, which mitigated India's immediate financial burden.

The Treaty was negotiated in the 1950s, a period characterised by smaller basin populations, limited infrastructure, and minimal policy attention to climate change or glacier retreat. Its institutional strength lay in the assumption that technical cooperation could persist despite strained political relations. The Permanent Indus Commission was established to embody this principle.

The Treaty's longevity did not depend on continuous political cooperation between India and Pakistan. Rather, it endured because both parties valued predictable rules, established procedures, and institutional continuity, even during periods of acute political hostility. In this regard, the Treaty was intentionally narrower than the broader bilateral relationship, focusing specifically on water management rather than political disputes. However, this insulation was never absolute, and evolving strategic, environmental, and demographic factors have increasingly exposed its limitations.

3 **PAKISTAN'S DIPLOMATIC PLAYBOOK**

Pakistan's concerns regarding India's actions in the Indus Basin are longstanding and form part of a broader strategy to portray India as the aggressor and Pakistan as the vulnerable downstream state. In 1952, Pakistan's first foreign minister, Zafrullah Khan, brought the canal-water dispute before the United Nations Security Council, characterising India's regulation of water as a humanitarian injury to Pakistani farmers and depicting the upper riparian as having the power to deprive the lower riparian of its livelihood. This framing attracted significant international attention.

Five years later, Zulfikar Ali Bhutto took the argument further. In the United Nations, he described depriving a lower riparian of its river rights as a form of "economic aggression" and warned that interference with irrigation supplies could threaten. Asif Iftikhar Ahmad, Pakistan's UN ambassador, has more recently framed the issue as a test of the international system and treaty sanctity. In January 2026, Pakistan used an Arria-formula meeting of the Security Council to argue that India's action was not merely a bilateral matter but raised broader questions about the reliability of international agreements. An Arria-formula meeting is an informal format that allows members of the UN Security Council to engage privately with external actors, non-state groups, or experts outside the formal procedures of official Council meetings.

For decades, Pakistan has recognised that its primary diplomatic advantage does not reside in prevailing over India on technical details of dams or reservoirs, but in reframing bilateral engineering disputes as broader moral and legal issues. This strategy is effective because, as a downstream state, Pakistan can present itself as vulnerable and water-dependent. India must recognise the narrative and strategic significance attached to water in this context.

The announcement of the Treaty's abeyance following the Pahalgam terror attack has fundamentally altered its political and strategic context. The abeyance grants India greater policy flexibility to develop and utilise the waters allocated under the Treaty. However, this development is often misinterpreted as giving India the capacity to manipulate or significantly alter river flows, particularly in the Western Rivers.

Existing projects such as Salal, Baglihar, Dulhasti, Kishenganga, and Nimoo Bazgo, together with newer projects such as Pakal Dul, Ratle, Kiru, and Kwar, form an important network of upstream infrastructure. Their significance lies in their combined potential to increase India's capacity to store, regulate, and utilise water, and to generate run-of-the-river hydropower projects on the Western Rivers.

These developments have heightened Pakistan's concerns and help explain the intensity of its response. In June 2026, Pakistan's Foreign Office asserted that it had not been consulted regarding Indian projects, characterising them as attempts to "weaponise water" and warning that Pakistan retained all options to protect its water rights. The primary concern extends beyond current water volumes to India's potential to substantially increase its upstream regulatory capacity and influence the timing and management of future flows.

The abeyance of the Treaty has not ended its legal machinery. It has shifted the dispute towards questions of interpretation, jurisdiction and the legitimacy of the processes through which the Treaty is being interpreted. The dispute predates the announcement of abeyance. India and Pakistan had already disagreed over the Kishenganga and Ratle hydroelectric projects. Pakistan sought adjudication through a Court of Arbitration, while India requested the appointment of a Neutral Expert. The World Bank eventually allowed both processes to proceed, despite concerns over the practical difficulties created by parallel proceedings. The Treaty itself envisages different mechanisms for different categories of issues: the Permanent Indus Commission for a "disagreement", followed by a Neutral Expert for a "difference" and, in specified circumstances, a Court of Arbitration for a "dispute." This disagreement acquired greater significance after April 2025. The Court of Arbitration continued its proceedings despite India's refusal to participate. It issued an award on the interpretation of the Treaty in August 2025 and subsequently issued a decision on Pakistan's request for clarification. In May 2026, it issued a further award concerning maximum pondage at Indian hydroelectric projects.

India has rejected the legitimacy of this process, arguing that the Court was constituted contrary to the Treaty's dispute-settlement framework and that the issues should first be addressed through the Neutral Expert mechanism. Pakistan, by contrast, has maintained that the arbitration remains valid and that the Treaty's dispute-settlement provisions continue to bind India.

This has produced an unusual institutional situation:

India considers the Treaty to be in abeyance, while Pakistan continues to invoke its legal mechanisms. Both sides operate from fundamentally different interpretations of the Treaty's current status. Pakistan is incentivised to maintain the proceedings, as they provide a forum to sustain its legal claims and reinforce the position that the Treaty remains operative. Conversely, India is motivated to contest the proceedings, since allowing arbitration to proceed uncontested could strengthen an interpretation of the Treaty that New Delhi no longer accepts.

The legal contest is therefore unlikely to dissipate solely because of the suspension of formal treaty cooperation. Instead, the dispute has shifted from interpreting individual project provisions to broader questions of jurisdiction, procedure, and the Treaty's continuing legal status.

6 FROM DIPLOMACY TO SECURITISATION

Perhaps the most consequential shift in Pakistan's response has been to frame water as a matter of national security. Pakistan's National Security Committee made this explicit in April 2025 by describing water as a "Vital National Interest" and warning that any attempt to stop or divert Pakistan's flows would be regarded as an "act of war". This framing has since extended beyond civilian political discourse. In July 2026, the Corps Commanders' Conference, chaired by Field Marshal Asim Munir, reaffirmed the military's commitment to "taking all necessary measures to safeguard Pakistan's water rights".

This shift obscures the distinction between water management and national security. Pakistan's reliance on the Indus system for agriculture, irrigation, energy, and food security has long rendered water central to its national resilience. When upstream infrastructure is viewed through a security lens, technical issues related to dams, storage, and hydropower acquire strategic and potentially military significance. This dynamic creates a classic security dilemma: India may perceive expanded infrastructure on the Western Rivers as an enhancement of its water entitlements, while Pakistan may interpret the same developments as an increasing capacity for coercion. The risk is that water management, rather than serving as a domain for managing bilateral differences, becomes another arena for broader strategic rivalry.

7 THE INTERNATIONALISATION STRATEGY

Pakistan is likely to intensify its efforts to internationalise the dispute. A bilateral contest favours India's position as the upper riparian, whereas an international framing enables Pakistan to invoke broader principles of treaty law, downstream interests, and international security. The objective is not necessarily to secure an external mechanism capable of compelling India to release water, but rather to impose greater political and reputational constraints on India's exercise of its upstream rights. This dynamic helps explain Pakistan's continued engagement with the United Nations, the World Bank, arbitration mechanisms, and international diplomatic forums.

This approach is consistent with historical precedent. As previously noted, Pakistan has repeatedly sought to frame Indus Basin disputes in broader international terms, with

rhetoric evolving from accusations of “callous” conduct in 1952, to “economic aggression” in 1957, and more recently to concerns regarding the sanctity of international agreements. India’s response must therefore address the international legal dimension, rather than treating the dispute solely as a bilateral political issue.

A particularly important aspect of India’s response is to distinguish territorial sovereignty from treaty-based rights of water utilisation. Article IV (15) expressly preserves existing territorial rights over the rivers, their beds, and banks, while the Treaty establishes rules governing the use of their waters. It does not transfer sovereignty over the rivers to Pakistan. India should also consistently argue that Pakistan’s cross-border terrorism seriously undermines the conditions necessary for fulfilling the Treaty’s objectives, particularly the “cooperative spirit” of “goodwill and friendship” referenced in its Preamble. Articulating these distinctions would enable India to frame its position not as a rejection of treaty obligations or international law, but as an assertion that treaty-based water rights function within, rather than supersede, the broader framework of sovereign rights, state interests, and the conditions of cooperation envisaged by the Treaty itself.

8

PAKISTAN’S DOMESTIC WATER CHALLENGE

The implications of the post-abeyance situation raise a more fundamental question of domestic water governance in Pakistan. The IWT provided Pakistan with a relatively predictable allocation of the Western Rivers, but predictability of supply does not necessarily translate into efficient or sustainable water management. Pakistan faces structural pressures, including population growth, groundwater depletion, climate variability, ageing irrigation infrastructure, low irrigation efficiency, and persistent inter-provincial competition for water. The inter-provincial dialogue convened by Pakistan’s Ministry of Water Resources in February 2026 is instructive in this regard. Federal and provincial representatives discussed both short- and long-term water availability following India’s decision to place the Treaty in abeyance, indicating that the implications were being assessed not only as an external security challenge but also in terms of Pakistan’s internal water management.

This underscores a critical distinction: securing access to water and ensuring water availability are not synonymous. Even if Pakistan successfully defends its position on the Treaty at the international level, broader water-security challenges will persist. While the Treaty provides a framework for river water allocation, it cannot address issues such as declining groundwater, inefficient irrigation, inadequate storage, shifting cropping patterns, or weak water governance.

Pakistan therefore faces two interconnected but distinct challenges: first, protecting its access to the Western Rivers, and second, improving the efficiency and sustainability of domestic water management. The former is politically visible and easily framed as an external threat, while the latter requires complex reforms involving irrigation practices, groundwater extraction, water pricing, crop choices, storage, inter-provincial allocation, and institutional capacity. Over time, the greater threat to Pakistan’s water security may originate internally. Persistent water stress, weak governance, and inter-provincial competition could become significant sources of political and social instability.

9 WHAT DOES IT MEAN FOR INDIA?

India should exercise strategic restraint. The value of abeyance does not reside in issuing dramatic threats, but rather in the time and policy space it provides for India to gradually expand its capacity to store, regulate, and utilise its legitimate share of Indus waters. Accordingly, India should accelerate the development of viable infrastructure, strengthen hydropower and storage capacity, and optimise seasonal flows without making commitments beyond hydrological realities. In this context, abeyance offers India an open-ended timeframe to build the capacity it has historically lacked.

The broader implications for South Asia are also significant. As an upper riparian relative to Pakistan and Bangladesh and a lower riparian relative to China, the precedent India sets in the Indus Basin will be closely scrutinised. A sustainable strategy requires capacity, credibility, and restraint. India should prioritise building the capacity to utilise its water resources, defending its position through a clear legal and diplomatic narrative, and avoiding actions that could be construed as weaponising water.

10 CONCLUSION

The abeyance of the IWT signifies more than a rupture in a six-decade-old water arrangement. Water has become more explicitly integrated into the strategic relationship between India and Pakistan, and the Treaty itself is now subject to competing legal, diplomatic, and political interpretations.

The central issue is what kind of institutional framework can govern the Indus Basin when the political conditions that sustained the Treaty have fundamentally changed. Although a return to the previous equilibrium appears increasingly unlikely, this does not necessitate the absence of rules or institutional arrangements. Geographic and hydrological imperatives will continue to bind the two riparian states, irrespective of political differences. The challenge is to negotiate a new equilibrium that reconciles sovereign interests and legitimate water-security concerns with the evolving hydrological, environmental, and strategic realities of the Indus Basin.

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