

Transboundary Water Conflicts on the Brahmaputra: Geopolitical Risks and Regional Implications for South Asia

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ABSTRACT:

This research paper explores the transboundary water conflicts surrounding the Brahmaputra River, a major lifeline for South Asia. The river's shared course across China, India, and Bangladesh has created a complex matrix of geopolitical tensions, environmental concerns, and socio-economic dependencies. The study examines the implications of China's dam construction and hydroelectric initiatives on the Yarlung Tsangpo, which directly affect the river's downstream flow into India and Bangladesh. Employing qualitative, analytical, and field-based methodologies, the paper analyses the intersection of hydro politics and regional security, focusing on the failures of past Indian governmental approaches, the inadequacy of bilateral agreements, and the potential for cooperative frameworks. Through survey findings and field observations conducted in Assam, Arunachal Pradesh, and Bangladesh, the study identifies local perceptions of ecological and livelihood risks. The paper concludes that equitable water governance and trust-based data sharing are indispensable for transforming the Brahmaputra from a source of conflict into a platform for regional collaboration.

Keywords: Brahmaputra River, Transboundary Conflict, Hydro politics, South Asia, Water Governance, China–India Relations, Regional Security

1. Introduction and Context

The Brahmaputra River, known as the Yarlung Tsangpo in China and the Jamuna in Bangladesh, represents a colossal shared watercourse and arguably the most significant non-military geopolitical flashpoint in contemporary South

Asia. Originating high on the Tibetan Plateau, it traverses approximately 2,900 kilometres through three sovereign nations—China, India, and Bangladesh—before discharging into the Bay of Bengal. As a life-sustaining artery, the river irrigates vast agricultural lands, supports diverse

ecological habitats, and dictates the socio-economic fate of over 130 million people who reside within its basin (Rahaman 73). However, its transboundary nature, coupled with the dramatic power asymmetry between the upper-riparian state, China, and the downstream co-riparians, India and Bangladesh, has transformed it from a resource of shared heritage into an object of escalating diplomatic and security concern (Chellaney 15).

The core conflict is rooted in China's assertive, unilateral hydro-development strategy on the Tibetan side. Since the operationalisation of its first major project, the Zangmu Hydropower Project (The Hindu par. 1), and with the announcement of far larger, multi-purpose schemes, Beijing has firmly established itself as a hydro-hegemon (Wolf 243). The ultimate expression of this strategy is the proposed Great Bend Mega-dam, a project near Motuo in the Tibetan Autonomous Region, which aims for an unprecedented 60,000 megawatts of capacity (civils daily para. 5). Downstream nations view these initiatives not merely as infrastructural projects but as instruments of hydrological coercion, providing China with the unilateral ability to manipulate river flow for strategic ends, including generating floods or causing dry-season shortages (Anwar para. 3).

For India, the primary downstream state, the challenge is two-fold: confronting China's assertiveness while simultaneously addressing its own governance deficits (Dutta par. 3). India's diplomatic position is undermined by its lack of consistent regional water-sharing mechanisms, such as the long-stalled Teesta agreement with Bangladesh (The University of Manchester par. 5). The resulting trust deficit, exacerbated by the lack of transparent, real-time hydrological data sharing (Ghosh and Modak para. 4), has created an environment of permanent hydrological insecurity for communities in Assam and Arunachal Pradesh. Furthermore, the construction of mega-dams in the seismically volatile Eastern Himalayan Syntaxis introduces a risk of catastrophic dam failure, adding a critical climate-security dimension to the political dispute (Nithiyanandam para. 1).

This paper addresses the need for a holistic assessment that moves beyond state-centric geopolitical analysis. Utilising a mixed-methods approach that integrates international relations theory with empirical field data from the affected communities, the research bridges the gap between high-level diplomacy and local lived realities. The subsequent sections explore the theoretical underpinnings of hydro-hegemony, examine the failures of legal and diplomatic frameworks, detail the research methodology, present quantified findings on local perceptions of risk, and conclude with policy recommendations aimed at transitioning the Brahmaputra dispute from a zero-sum conflict to a platform for cooperative basin management.

2. Literature Review and Theoretical Framework

There is considerable academic literature on transboundary water resources. However, it shows a continued analytical shortcoming in the use of theoretical frameworks of conflict and cooperation to the distinctive and high-altitude, and highly politicised processes of the Brahmaputra River Basin. This review brings together four related bodies of research—hydro-hegemony, international water law, water diplomacy in South Asia, and the climate-security nexus—that are of relevance to the subject. These perspectives create a theoretical framework for comprehending geopolitical and environmental issues associated with the Brahmaputra River.

2.1. The presentation will explore the theory and application of Hydro-Hegemony.

The theoretical framework of “hydro-hegemony” is most suitable to explain China's activities on the Yarlung Tsangpo. This theory, pioneered by Zeitoun and Warner, suggests that conflict over shared watercourses is not necessarily due to the actual lack of water, but rather to the imbalance of strength that gives a dominant riparian state (or hegemon) the power to control and shape the water politics of the basin.

In his landmark book, *Water: Asia's New Battleground*, Brahma Chellaney makes it clear

that the Chinese are not only pursuing a strategic agenda on the Tibetan Plateau, the 'Third Pole' region, and source of Asia's major trans-Asian rivers, but are also targeting it for this purpose (Chellaney 15). In Chellaney's view, Beijing's policy represents "hydrological coercion" – a policy to pursue the greatest possible advantage for Chinese national security interests without paying heed to the "no significant harm" principle to downstream nations (Chellaney 16). The deliberate opacity of projects such as the proposed Great Bend Mega-dam (the largest in the world) is a clear illustration of this hegemonic approach and the weaponisation of information control (data-sharing), against India (Ghosh and Modak par. 4).

The academic discussion here is over whether China was engaged in coercive or unilateral control by damming and diversion or in structural hegemony, which is the power of the upper riparian. In the Brahmaputra, the grand plan of the proposed infrastructure (Staff, CD par. 5) states that Beijing is making a concerted effort to use its structural advantage to achieve "coercive" results, making water security a regional military and diplomatic issue. 3) China can shift flows when it wants to during times of conflict, and this means it has a lot more than electricity to play with (Anwar par. 5).

2.2. International Water Law

Over the years, international water law has also undergone a process of globalisation by moving towards collective governance, but this has not yet been adopted by the main stakeholders in the Brahmaputra basin, which means that international water law is, in practice, not effective. The most important codifications of customary international law are part of the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC). The Convention outlines two principles that are not allowed to be negotiated, which are supposed to apply to shared resources.

Equitable and Reasonable Utilisation: In accord with this principle, a co-riparian state must use shared water resources fairly and

reasonably, with consideration to the legitimate needs of other basin states (Malangmei 953). The exploitation of Yarlung Tsangpo for the hydropower needs of China should be considered in the context of the water needs and requirements of India and Bangladesh for their agriculture and domestic needs, as well as for ecological health and well-being.

The principle of "Obligation not to cause significant harm": This principle requires upstream countries to make sure that their activities are not causing a significant adverse effect on the downstream co-riparian. This issue is particularly pertinent in the Brahmaputra basin, where India is concerned both about lower flows during the dry season and flooding from the release of floodwaters or possible disaster from dams (Malangmei 953). The legal dispute underscores the fact that China is not a signatory to the UNWC and can thus argue for its adherence to the absolute territorial sovereignty doctrine, which reduces the impact of international legal mechanisms on Chinese river development policies (Malangmei 953). Bangladesh's joining the Convention is a strategic advancement that takes the discussion from bilateral negotiations to multilateral norms (Mahla par. 5).

2.3. Water Diplomacy and Water Governance Deficits in the South Asian region.

Water cooperation in South Asia has a history of successes and many big failures. Rahaman (163) notes that the Indus Waters Treaty between India and Pakistan has been mentioned as an example of 'durable cooperation within a very tense political environment'; other regional agreements have not been as successful. India has been unable to conclude the water-sharing deal on the Teesta River with the neighbouring country, Bangladesh, revealing a major governance failure in the water diplomacy of the region. India, as an upper riparian and lower riparian state, is often in an inconsistent situation, demanding transparency and non-harm from China, and having difficulties in making it happen with its downstream neighbours (Islam). 5).

Moreover, most of the agreements are ad hoc, project-specific and often centralised, thereby restricting the role of state governments and local stakeholders in water governance processes (Dutta para 3). Literature indicates that these institutional weaknesses can exacerbate ongoing mistrust and can also affect the long-term prospects for basin-wide cooperation.

2.4. The Climate-Security Nexus and Data Deficiency.

The Climate-Security Nexus and Data Deficiency is not new. The recent scholarship emphasised the inseparability of the three factors of climate change, seismic vulnerability and water security in the Himalayan region. The Himalayas have higher warming rates than the world average, which has resulted in increased glacier melt, changed water conditions in the rivers and increased vulnerability to Glacial Lake Outburst Floods (GLOFs) (Islam para. 3).

The large number of mega-scale hydropower projects in one of the geologically most unstable places in the world adds to these environmental difficulties. The construction of mega dams in the Eastern Himalayan syntaxis has added to the apprehensions about seismic safety and the threat of catastrophic failure of dams (Ghosh and Modak para 7).

The issue of lack of data is a common one in the literature. Lack of hydrological information that is transparent and readily available is one of the biggest challenges to efficient transboundary cooperation (Ghosh and Modak para. 4). When there is no reliable information, it is hard to scientifically assess the situation, and mistrust in the political world grows, leading to speculative stories that abound in public discussion.

2.5. Research Gap

Although much has been made of hydro-hegemony, international water law, regional diplomacy and environmental security, existing scholarship has been largely state-centric, and literature concentrates on the state-level interactions and policy frameworks. In comparison, downstream communities' sense

and experience of the impacts of transboundary water governance have received little attention.

This study fills that void by combining geopolitical analysis and empirical data from Assam, Arunachal Pradesh and Bangladesh. The research, drawing on theoretical concepts and practical survey results, as well as on-site observations, helps to bridge this gap between the level of debate at the high offices regarding hydropower and the lived experience of the riverbank communities who rely directly on the river's sustenance.

3. Methodology and Data Sources

The study adopts a mixed technique of qualitative and quantitative approaches to understand the political, environmental, and economic dimensions contributing to the occurrence of water disputes in the Brahmaputra River Basin. A combination of statistical information and personal interaction, as well as the use of writing, can provide a full picture of the impact of water politics on the lives and worldviews of people. This combination of methods is especially useful for tackling complex governance challenges, for which quantitative data is not enough on its own and where real experiences from the community and systematic research are needed.

The study was carried out between December 2024 and March 2025 in three regions of the Brahmaputra basin in India: parts of Assam and Arunachal Pradesh. These sites were chosen because of their dependence on the river and the different effects of river modifications.

A survey was carried out with 450 individuals (150 from each area), and quantitative data were gathered. Stratified random sampling ensured that all important groups were represented, namely, small farmers, fishers, small traders, and flood-prone families. The survey focus was on perceived changes in water patterns, awareness of cross-border conflicts, trust in government actions, and the threat to daily life and the environment.

Thirty key informant interviews were conducted with leaders, civil society, environmental groups, local government and members of traditional

fishing families, to complement the survey results and provide depth. The following themes were addressed in these conversations: trust and vulnerability, readiness for disaster, environmental changes, and perceptions of water management. Anonymisation of the transcripts ensured privacy, and NVivo software was used to analyse the data and reveal key themes and narratives.

In the case of secondary data, I looked at government reports, policy documents, treaties, academic studies and institutional documents on cross-border water management in South Asia. This analysis was based on the concept of hydro-hegemony, which encapsulates power dynamics in the control and distribution of shared water resources, frequently as a political instrument.

The data was analysed using descriptive statistics and qualitative data, and themes were compared between cases to gain some insight. This blend increased the veracity of the study. The results offer important information on the perception of the community and the governance issues in the local area; however, the results are limited because they are from a specific area of the Brahmaputra basin. The results presented here should be viewed as indicators and not as a complete picture of all riparian communities. However, the use of real-world observations in conjunction with policy insights provides a solid starting point to comprehend how water management has been changing in South Asia.

3.1. Study Design and Analysis Plan.

It is based on an analytical framework derived from the concept of hydro-hegemony, which the concept of a conceptual model developed by Zeitoun and Warner explains as China's action (Wolf 243). The primary goal was to test the downstream impacts of this hegemonic power dynamic through an empirical evaluation of the downstream outcomes that were experienced by riparian communities: hydrological insecurity. Official reports by the Ministry of Jal Shakti (Ministry of Jal Shakti 12) and policy documents by the Government of India and the Government of Bangladesh were used for the

contextual background of the past diplomatic efforts and current water management plans.

3.2. The strategy for primary data collection is sampling.

Sampling is the strategy used in primary data collection. Primary data was gathered by a stratified random sampling method in three different zones, each very vulnerable, in the lower and middle Brahmaputra basin:

Guwahati and Tezpur, Assam (India): Central, high population density floodplains where economic impacts and flood risk are at their peak.

Arunachal Pradesh (India): Sites of proximal concern (PPC), falling closest to the Line of Actual Control (LAC) and immediately downstream of the sites of China's proposed mega-dams (Nithiyanandam para.1).

River states such as Dhaka and Sirajganj in Bangladesh are the most downstream of the rivers and are the most dependent on the river's flow as well as the upstream actions of both Indian and Chinese states (Rahaman 169).

Between December 2024 and March 2025, 450 respondents (150 in each region) were surveyed. To understand what it is like to be hydrologically vulnerable, the respondents were chosen from households which depended on river-based livelihoods (farming, fishing, river trade).

3.3. Qualitative Data: The Perceived Risk Survey

A questionnaire with a structured format was used to measure certain perceptual and risk variables. Only three principal indicators, namely Perceived Hydrological Change, Governmental Trust Deficit, and Livelihood Risk Assessment, were considered. Specific questions assessed how the community felt about the river's wet season and dry season flow, and their trust in government transparency and reliability of data (Ghosh and Modak para 4).

3.4. Qualitative Data: Semi-Structured Interviews.

Key informants were interviewed, comprising community leaders, NGO representatives and

members of the traditional fishing community, to provide background information and context for the statistical results presented: 30 semi-structured interviews (10 per region) were conducted. The qualitative narratives were also relevant while analysing quantitatively, as they highlighted instances of perceived neglect by the government or conflicting information, following the findings of policy drift in the regional governance. 3). All interview data were transcribed, anonymised, and thematically coded using Nvivo software, which identified themes related to "trust deficit," "seismic fear", and "livelihood displacement" (Price et al. 15). Ethical clearance was granted (all participants gave informed consent).

4. Discussion

The first-hand experiences gathered from Assam, Arunachal Pradesh and Bangladesh show that the issue of transboundary water governance is not limited to the diplomatic and policy arena. Instead, they are firsthand experiences of communities residing on the river's banks and reliant on the resource for their living. The results show that perceptions of hydrological change are widespread and that there is high mistrust of government transparency, with increasing awareness of environmental and seismic hazards. These observations are a valuable indicator of local perceptions of geopolitics and the working-out of hydro-political tensions in lived insecurity throughout the basin.

The Brahmaputra conflict represents a confluence of geopolitics, ecology, and developmental aspirations. China's construction of dams and diversion projects on the Yarlung Tsangpo has generated apprehension across South Asia. India's apprehension is rooted in the potential alteration of flow regimes, which could affect agricultural and ecological stability in Assam and Arunachal Pradesh. Field visits revealed a sense of uncertainty among residents, who reported changes in seasonal flow patterns and sedimentation. Beyond hydrological concerns, the issue is embedded in the broader Sino-Indian rivalry, with water serving as a symbolic as well as strategic asset.

The failures of successive Indian governments to institutionalise water diplomacy have contributed significantly to the persistence of mistrust. Despite multiple bilateral dialogues, no comprehensive water-sharing agreement has been achieved. Earlier governments often pursued reactive policies, responding to Chinese actions rather than developing proactive strategies for basin-wide cooperation. This lack of policy continuity has weakened India's position in hydro-political negotiations. Moreover, internal coordination between India's central and northeastern state governments remains inconsistent, further undermining cohesive responses.

In South Asia, water has become more than just a resource—it's now a powerful tool countries use to shape influence and assert control. China's position along the upper reaches of rivers gives it a strong bargaining chip when it comes to talks on other big-picture issues—like border security or trade deals. For India and Bangladesh, the Brahmaputra isn't just a river—it's a vital lifeline for ecosystems, agriculture, and livelihoods, and it also carries serious weight when it comes to river management. River management isn't just about water anymore—it's become a political issue, shaping campaign promises and even influencing how countries relate to one another in the world. People in Assam and Bangladesh are deeply aware of the risks tied to managing water across borders — they have seen firsthand how fragile that system can be. More than 68% of respondents were doubtful about how transparent the government is when it comes to water-related data. Meanwhile, 72% felt that China's activities upstream have already changed the natural flow and patterns of rivers downstream. These results really highlight how important it is to involve everyone in decisions and make sure information flows freely across the board

5. Key Findings and Empirical Results

The quantitative and qualitative data gathered from the downstream riparian zones validate the central hypothesis: that China's hydro-hegemony has translated directly into a measurable and

deeply felt sense of hydrological insecurity among affected communities in India and Bangladesh. The key findings are organised around community perception, the resultant trust deficit, and the dominant concerns regarding livelihood and catastrophic risk.

5.1. Quantified Perception of Hydrological Change

The survey results reveal a significant consensus regarding altered river behaviour, which local communities attribute directly to upstream infrastructural activities.

72 per cent of all respondents (324 out of 450) agreed or strongly agreed that China's upstream dam construction has already caused a measurable change in the Brahmaputra's annual flow regime. This perception was highest (81 per cent) among respondents in Arunachal Pradesh, the most proximal region to the Yarlung Tsangpo projects.

The primary reported change was reduced flow velocity and volume during the dry, winter months (December–March), a concern that directly threatens dry-season irrigation schemes (Ministry of Jal Shakti 12).

Conversely, 64 per cent of respondents reported increased instances of sudden, unseasonal flooding events during the shoulder seasons (pre- and post-monsoon), which they associate with unscheduled reservoir releases (The Hindu par. 1). This is critical, as it suggests communities have internalised the fear of water weaponisation, where flow is politically managed rather than naturally determined (Anwar para 5).

5.2. The Pervasive Governmental Trust Deficit

A fundamental finding of the study is the profound lack of community trust in governmental capacity and transparency regarding the Brahmaputra dispute.

68 per cent of all respondents expressed significant scepticism or active distrust concerning the government's transparency and the reliability of publicly released water data. The primary reason cited was the lack of real-time,

accessible flow data, which fuels suspicion that the extent of the Chinese impact is being downplayed (Ghosh and Modak para 4).

Qualitative interviews strongly corroborated this finding, illustrating a sense of policy drift and abandonment. The perception reinforces the argument that India's diplomatic inconsistency, notably the failure to resolve the Teesta dispute, erodes its credibility not only regionally but also domestically (Islam para 5).

5.3. Dominant Concerns: Seismic and Livelihood Risk

The threat of catastrophic seismic risk emerged as the single greatest fear among respondents closest to the border (Arunachal Pradesh).

Interviewees in Pasighat frequently cited the fear of a massive, uncontrolled water release (known as a Glacial Lake Outburst Flood or GLOF-like event) triggered by a major earthquake destabilising the upstream mega-dams (Nithyanandam para 1). This fear of engineered disaster outweighs the fear of seasonal reduction in many proximal areas.

In the lower floodplains of Assam and Bangladesh, the core concern was the threat to livelihood sustainability due to altered flow and sedimentation. Fishermen reported declining catches and changes in species migration patterns, attributing this to river bed changes and reduced sediment deposition essential for maintaining fertile fisheries (Price et al. 15). The river, traditionally seen as a source of wealth (silt, fish), is increasingly viewed as a source of risk (flood, drought, seismic event).

These empirical findings demonstrate that the Brahmaputra conflict is not merely a theoretical security dilemma but a felt insecurity demanding immediate, people-centred policy interventions and a fundamental shift towards trans-boundary data transparency (Ghosh and Modak para 8).

5.4 Geopolitics, Governance Deficits, and Lived Realities in the Brahmaputra Basin

The contemporary Brahmaputra conflict is a powerful and dangerous confluence where high-stakes geopolitics, sensitive ecology, and

fundamental developmental aspirations sharply intersect. China's status as the quintessential upper-riparian hydro-hegemon allows it significant strategic leverage, forcing downstream nations, particularly India and Bangladesh, into a state of perpetual hydrological vulnerability. This section rigorously analyses this conflict through the lenses of international relations, policy failures, and the socio-political realities on the ground, synthesising academic discourse with novel empirical findings.

5.5. Sino-Indian Hydro-Hegemony: The Weaponisation of Water

The geopolitical essence of the Brahmaputra dispute is China's perceived hydro-hegemony, a deliberate strategy of utilising water control as a non-military, strategic instrument of power projection (Chellaney 15). China's massive infrastructural push along the Yarlung Tsangpo is framed domestically as a clean energy and poverty alleviation initiative, yet it is viewed regionally as a direct challenge to the riparian security of South Asia. The true geopolitical flashpoint lies in the proposed Great Bend Mega-dam, located near Motuo, projected to generate an unparalleled 60,000 megawatts of electricity—a capacity three times that of the Three Gorges Dam (Staff, CD para 5). By constructing such a gargantuan structure, Beijing gains the unilateral capacity to manipulate the river's flow, which is multifaceted:

Coercive Diplomacy: China could suspend the provision of essential hydrological data, demonstrated by the withholding of data in 2017 (Rethinking Transboundary Water Governance para 12).

i Water Weaponisation: The ultimate fear is the weaponisation of water, where China could cause flash floods by suddenly releasing massive volumes or, conversely, significantly reduce flow during the dry winter season (Anwar par. 3).

ii Territorialisation: The dam projects reinforce China's claim over the region by solidifying physical infrastructure and projecting state control into contested borderlands.

5.6. The Void of International Water Law and Governance Deficits

The severity of the Brahmaputra dispute is exacerbated by the fundamental absence of a comprehensive, legally binding multilateral water management framework. Crucially, neither China nor India are signatories to the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC) (Malangmei 953). China's preference tends toward unilateral development, asserting the right to use waters within its territory without considering downstream effects (Malangmei 953).

Furthermore, India's failure to ratify and implement key agreements with its own downstream neighbour, Bangladesh, undermines its diplomatic credibility. The perennial impasse over the Teesta River water-sharing deal has severely strained Indo-Bangladesh relations (Islam par. 5). This failure allows China to deepen its influence in South Asia by offering loans for water infrastructure projects. The hydropolitical landscape was fundamentally altered by Bangladesh's decision to join the UN Water Convention (Mahla P.K para 4). This move marks a strategic shift from reliance on India's problematic bilateralism towards seeking greater legal and international protection against both Indian and Chinese upstream activities.

5.7. Internal Governance Deficits and the Data Crisis

Beyond international politics, the conflict is critically compounded by internal governance deficits within India and the pervasive issue of data deficiency. Successive Indian administrations have been criticised for maintaining a reactive policy posture rather than formulating a cohesive, long-term national water strategy (Ghosh and Modak par. 2). This policy drift is exacerbated by poor internal governance structures where state governments in the vulnerable northeastern region often feel sidelined (Rethinking Transboundary Water Governance para 12).

The core of the diplomatic impasse is the critical void of hard, reliable data (Ghosh and Modak par. 4). All riparian nations closely guard hydrological data, hindering constructive,

science-driven dialogue. The absence of publicly accessible, real-time data from the Yarlung Tsangpo makes rigorous scientific evaluation of China's dam impacts impossible. The reliance on conjecture fuels what is sometimes referred to as the 'Brahma Hypothesis', which suggests China could dry out Northeast India by diverting the river (Ghosh and Modak para 5). This lack of transparency ensures water remains a geopolitical asset, not a shared resource.

5.8. Ecological Fragility, Climate Risks, and Seismic Vulnerability

The geopolitical manoeuvring takes place in the highly unstable environment of the Eastern Himalayan Syntaxis, one of the most geologically and seismically active regions globally. The primary threat posed by China's mega-dams is the potential for dam failure (Ghosh and Modak para 7). The proposed Great Bend dam site is situated on a tectonic plate boundary, prone to frequent and significant earthquakes (Nithiyanandam para 1). A major seismic event could trigger a massive, uncontrolled release of water known as a Glacial Lake Outburst Flood (GLOF). The construction of large dams invariably traps essential sediment. While the total volume of sediment carried by the river dramatically increases once it enters India, its effect on the timing and quality of the sediment flow remains a valid ecological concern, impacting biodiversity and crucial fisheries.

5.9. Empirical Realities: Local Vulnerability and the Trust Deficit

The study's primary field data highlights the acute vulnerabilities and the palpable trust deficit among local communities. The survey findings collected from Assam and Bangladesh provide tangible evidence of perceived hydrological insecurity:

72 per cent of respondents across the basin regions firmly believed that China's upstream activities have already measurably altered the hydrological behaviour of the river downstream (The Hindu para 1).

The profound lack of trust in governmental communication is quantified by the over 68 per cent of respondents who expressed significant

scepticism concerning government transparency and the reliability of information related to water data (Ghosh and Modak para 4).

These figures illustrate that water insecurity is perceived as a direct result of political rivalries and governmental non-transparency, rather than simply environmental limitation (Price et al. 15). The path towards genuine regional stability must include a shift towards people-centred, risk-informed water governance (Tiss. n.d.), including mandatory inclusion of state-level officials, academic experts, and civil society representatives.

6. Policy Recommendations

The Brahmaputra River Basin stands as a crucial exemplar of a 21st-century hydrological conflict, where the intersection of environmental fragility, geopolitical assertiveness, and local vulnerability creates an unprecedented security challenge for South Asia. This research has demonstrated that China's sustained pursuit of hydro-hegemony on the Yarlung Tsangpo, manifested through opaque, large-scale infrastructural projects, has directly translated into a measurable hydrological insecurity among downstream communities in India and Bangladesh. The empirical data quantified this risk, revealing that over 72 per cent of local inhabitants perceive a negative shift in river flow patterns, and a staggering 68 per cent express profound distrust in their governments' ability and willingness to manage the resulting crisis (Ghosh and Modak para 4).

The core thesis—that the conflict is driven by power asymmetry, exacerbated by a lack of institutionalised cooperation and internal governance deficits—is robustly affirmed. The current reliance on weak bilateral mechanisms and the absence of key signatories to the UN Water Convention (Malangmei 953) leave the region dangerously exposed. The dominant fear is no longer solely about resource scarcity but about the weaponisation of water and the catastrophic risks associated with seismic dam failure (Nithiyanandam para 1).

To transform the Brahmaputra from a source of geopolitical friction into a platform for regional

stability, the following policy shifts are imperative:

Embrace Multilateralism and Consistent Regional Diplomacy: India must resolve its internal contradiction by immediately finalising and implementing pending water-sharing agreements with its downstream neighbours, such as the long-stalled Teesta accord (Islam par. 5). India should consider acceding to the UNWC, joining Bangladesh to multilateralise the dispute and push for adherence to the "obligation not to cause significant harm" principle (Malangmei 954).

Mandatory and Transparent Data-Sharing Regime: The current informational void is the single greatest impediment to rational policy-making and the primary source of community distrust (Ghosh and Modak par. 8). China must be pressured to establish a real-time, mandatory, and publicly accessible data-sharing system for the Yarlung Tsangpo, covering flow, volume, and sediment load.

Integrate Sub-National Actors and Risk-Informed Governance: New Delhi's policy must move beyond central government bureaucracy by formally incorporating state-level officials (Assam, Arunachal Pradesh) and local civil society into all diplomatic and technical working groups. Future infrastructure planning must be demonstrably risk-informed, prioritising seismic resilience and ecological sustainability over sheer capacity (Ministry of Jal Shakti 12), ensuring the livelihood security of the millions who depend on the Brahmaputra's predictable flow (Price et al. 15).

7. Conclusion

The Brahmaputra River illustrates the complexities of managing shared water resources

in South Asia, amidst political disputes, environmental concerns, and regional stability. India and Bangladesh are increasingly alarmed by China's hydropower projects on the Yarlung Tsangpo River, fearing disruptions to flow and a lack of transparency. This situation breeds mistrust and uncertainty for downstream nations, exacerbated by water scarcity and poor management. Climate change is heightening concerns in Assam and Arunachal, with issues like melting glaciers and extreme weather events. However, studies indicate that cooperative approaches to water management can lead to more positive outcomes. This requires open data sharing, honest dialogue, and community engagement. The future of the Brahmaputra basin hinges on recognising water as a resource for peace and collaboration. Additionally, the dispute underscores a broader challenge in South Asia: balancing national ambitions with regional ecological needs. Hydrological insecurity arises from both physical interventions and institutional weaknesses. The study emphasises the need for riparian states to transition from competitive resource politics to cooperative frameworks that address environmental and human security challenges.

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