Cross-Border Water Politics: The Sino-Indian Hydropower Competition in the Brahmaputra Basin and Its Implications for Regional Security

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ABSTRACT

This paper examines the escalating hydropower competition between China and India in the Yarlung Tsangpo river basin, analysing how infrastructure development on transboundary waters has evolved into a critical flashpoint for regional security. Through systematic analysis of China's Medog Dam project and India's counter-dam strategy, this study reveals how the absence of robust cooperative frameworks transforms water resource development into a strategic security dilemma. The research demonstrates that this competitive dynamic disproportionately impacts downstream populations and indigenous communities while undermining long-term ecological stability. Drawing on this development and empirical evidence from the transboundary river disputes, the paper argues that the current trajectory of unilateral dam construction represents an institutionally deficient approach to transboundary water governance, necessitating urgent trilateral cooperation mechanisms to prevent the transformation of shared water resources into instruments of geopolitical contestation.

Keywords: China, India, Yarlung Tsangpo, Medog Dam, Counter-dam, Security dilemma, Water governance, Geopolitical contestation.

INTRODUCTION

In February 2017, late Pope Francis articulated a concern that has gained increasing empirical validation: "I ask myself if, in this piecemeal third world war that we are living through, are we not going toward a great world war for water?" (Russia Today, 2017). This statement, initially received as prophetic rhetoric, has proven remarkably prescient. Systematic data compiled by the Pacific Institute reveals an alarming acceleration in water-related conflicts globally. Between 1990 and 2023, at least 1,473 water-related conflicts were recorded, with over 72 per cent occurring within the last decade alone (2014-2023). The trajectory is particularly concerning: incidents escalated from 49 in 2014 to 117 in 2023, representing a 2.4-fold increase within a single decade (Pacific Institute, 2023).

Geographically, Asia and Africa constitute the primary epicentres of water-related violence, accounting for nearly 80 per cent of global conflicts, with Asia alone representing 57 per cent of such disputes (Jana, 2025). These conflicts manifest across multiple dimensions, with water as a weapon, trigger, target, and victim of violence, reflecting the multifaceted security implications of water scarcity.

Projected Water Crisis and Infrastructure Response

UN projections indicate that global water demand will increase by 55 per cent within the next 15 years, while available resources will meet only 60 per cent of global needs, potentially affecting 7 billion people by 2075 (Barlow, 2017). The magnitude of this crisis is already evident in major Asian countries. China has lost over half of its rivers since 1990 (Liu, 2013), while India experienced one of its worst drought years in 2019, with more than 40 per cent of its territory facing drought-like conditions and approximately 500 million people severely affected during the summer months of that year (Gogoi, 2019). In response to intensifying scarcity, nations

increasingly resort to large-scale infrastructure projects dams, reservoirs, and water diversions, to secure domestic supplies. However, these unilateral interventions on transboundary rivers frequently exacerbate tensions along shared watercourses, creating complex upstream-downstream disputes as riparian states compete for control over finite resources (Sharma, 2025).

Transboundary Water Disputes in the Contemporary World

Contemporary Asian and African states present numerous manifestations of transboundary water conflicts. The Indus Waters Treaty continues to strain India-Pakistan relations despite being one of the world's most enduring water-sharing agreements. The Grand Ethiopian Renaissance Dam has triggered protracted diplomatic crises between Ethiopia and downstream Egypt and Sudan. Turkey's ambitious dam projects on the Euphrates-Tigris system have generated enduring friction with Syria and Iraq, while Afghanistan and Iran remain locked in disputes over the Helmand and Harirud rivers. China's construction of cascade dams along the Mekong has generated controversy among downstream nations, particularly concerning flow alterations and sediment retention (Detges, Pohl, & Schaller, 2017). Most recently, China's construction of the Medog Dam on the Yarlung Tsangpo has intensified tensions with India and Bangladesh. This river system, known as the Siang in Arunachal Pradesh, the Brahmaputra in Assam, and the Jamuna in Bangladesh, exemplifies how a single waterway can evolve into a source of multilateral dispute as it traverses political boundaries from the Tibetan Plateau to the Bay of Bengal (Manhas, 2025). These escalating conflicts reflect a fundamental shift in global water geopolitics; what were once manageable resource-sharing arrangements have evolved into potential flashpoints for regional instability, driven by the collision of growing demand, diminishing supplies, and the strategic imperative to secure water through infrastructure development.

China's Strategic Rationale for the Medog Dam

China's decision to construct the Medog Dam must be understood within the broader context of its national energy security strategy. The rapid industrialisation and urbanisation of China's eastern metropolitan regions have generated unprecedented energy demands that cannot be sustainably met through continued reliance on fossil fuels, particularly given China's commitment to carbon neutrality by 2060. To address this fundamental energy-geography mismatch, President Xi Jinping formulated the "Xidiandongsong" (a strategic policy framework for "sending western electricity eastwards" (Wong, 2025; Priya, 2025). This policy represents more than mere infrastructure planning; it constitutes a spatial reorganisation of China's energy system, leveraging the hydropower potential of western regions to supply coastal industrial centres. In view of this ambitious project, the Yarlung Tsangpo River presents exceptional hydropower density due to its dramatic topographical characteristics. Along the "Great Bend" section near Medog County, the river descends approximately 2,000 meters, creating one of the world's most concentrated hydropower resources (Pasricha, 2025). Recognising this potential, China announced the Medog County Dam construction under its 14th Five-Year Plan (2021-2025) in 2020 (Rahman, 2025). Following years of preparatory work, Premier Li Qiang officially declared the commencement of construction in July 2025 at Nyingchi City, located close to the Line of Actual Control in the Arunachal Pradesh sector at an unprecedented cost of 1.2 trillion yuan (approximately USD 167.1 billion), it comprises five interconnected hydropower stations expected to surpass the Three Gorges Dam upon completion (The Hindu, 2025). Once completed, the project is estimated to generate 300 billion kWh annually, sufficient to power over 300 million people. The dam is positioned as a cornerstone of China's long-term energy security architecture and its decarbonisation pathway toward carbon neutrality by 2060 (Bhaya, 2025). According to the State news agency, Xinhua claims that its output would "primarily deliver electricity for external consumption" while supporting local demand in Tibet (Xinhua, 2025).

Official Justifications and Contested Narratives

Chinese state media frame the project through a dual narrative emphasising environmental management and regional development. Officials characterise the dam as a "safe development" initiative incorporating stringent ecological safeguards aligned with national carbon reduction objectives (Pasricha, 2025). Foreign Ministry spokesperson Guo Jiakun has asserted that the project is grounded in rigorous scientific evaluation and adheres to the highest industry standards in environmental protection (The Hindu, 2025). Furthermore, official communications suggest the dam will simultaneously promote clean energy and support socioeconomic

upliftment of rural Tibetan communities (Wong, 2025). However, this narrative remains deeply contested. Tibetan rights groups and activists argue that hydropower expansion exemplifies resource extraction imposed without meaningful consultation with affected populations. They highlight the suppression of dissent, including mass detention of protesters in 2024, and warn of irreversible ecological losses in valleys known for rich biodiversity (International Campaign for Tibet, 2024). These concerns are amplified by the region's high seismic vulnerability; the Himalayas historically witnessed approximately 15 per cent of the world's major earthquakes (magnitude 8.0 and above) during the 20th century (Rajendran, 2025). Such mega projects in vulnerable and sensitive areas have further complicated and threatened the lives of millions. For instance, the January 7, 2025, earthquake (magnitude 7.1) that resulted in at least 126 deaths underscores ongoing seismic risks. Post-earthquake assessments revealed structural concerns in five of fourteen inspected hydropower dams, necessitating the emptying of three reservoirs and triggering village evacuations (Sharma, 2025). Y. Nithiyanandam of the Takshashila Institution argues, this event should function as a critical reminder that mega-dam construction in such unstable terrain entails not only engineering challenges but profound ethical and governance questions (Pasricha, 2025). Proceeding with the Medog Dam without comprehensive, transparent, and transboundary risk assessments thus reflects a technocratic approach that prioritises strategic imperatives over precautionary principles. Additionally, environmental experts note that displacement scales associated with the dam remain undisclosed, raising concerns about social upheaval and broader ecological implications of large-scale construction in fragile mountain terrain (Sharma, 2025). In doing so, it heightens the probability that natural hazards could be transformed into human-made disasters with cascading impacts across national boundaries.

India's Threat Perception and Strategic Vulnerabilities

The Medog Dam has emerged as a major security concern for India due to its unprecedented scale, particularly its storage capacity of nearly 60 billion cubic meters (Deka, 2025). This massive upstream infrastructure grants China significant hydrological control over the Yarlung Tsangpo, generating apprehensions among downstream riparian states. India and Bangladesh argue that any water diversion, manipulation, or abrupt release could create severe hydrological instability, ranging from unpredictable flooding during monsoons to acute water scarcity during dry periods (Manhas, 2025).

Indian experts, policymakers, and strategic analysts have consistently warned that the dam enhances China's capacity to influence or divert the Yarlung Tsangpo before it enters India through Arunachal Pradesh and Assam, subsequently flowing into Bangladesh (Deka, 2025). The prospect of China exercising hydrological leverage has raised fears of water being "weaponised", particularly amid political or military hostilities (Reddy & Mehta, 2025). In Parliament, opposition members have also raised the same questions on the ecological and humanitarian consequences of the Medog dam to the Indian states of Assam, Nagaland, and Meghalaya, which may potentially arise from unregulated water releases or sudden upstream blockages (Rajya Sabha, 2025). Such disruptions could threaten fragile ecosystems and densely populated riverine communities. Arunachal Pradesh Chief Minister Pema Khandu has been particularly vocal, characterising the dam as an "existential threat" to tribal communities and their livelihoods. He has suggested that China could potentially deploy the structure as a "water bomb" in extreme scenarios (The Economic Times, 2025a). Khandu further highlighted the institutional challenge that China is not a signatory to the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (1997), complicating efforts to ensure transparency and accountability. He warned that sudden water releases could devastate the Siang Valley, particularly affecting indigenous groups such as the Adi community (The Print, 2025). His remarks underscore a persistent trust deficit, stating that "China cannot be trusted... no one knows what they might do" (Priya, 2025). This transparency deficit heightens regional anxieties and raises questions about the geopolitical and ecological implications of hydropower development on the Yarlung Tsangpo-Brahmaputra River basin. Consequently, the Medog Dam has evolved into a new geopolitical flashpoint in India-China relations.

Economic and Social Dependencies in the Brahmaputra River Basin and Its Implications

India's dependence on the Brahmaputra amplifies its vulnerability to upstream interventions. The river supports approximately 130 million people and irrigates around six million hectares of farmland. Any alteration in natural flow patterns could intensify water insecurity, damage agricultural productivity, and destabilise socio-economic

systems across the northeastern region (Manhas, 2025). Strategic analysts emphasise the asymmetric power dynamics inherent in this configuration. As Saheli Chattaraj, assistant professor of Chinese studies at Jamia Millia Islamia University in New Delhi, observes, "China will have the card to use the dam as a strategic factor in its relationship with India to manipulate water flows" (Sharma, 2025). A 2020 Lowy Institute report similarly warned that China's control over rivers originating from the Tibetan Plateau could provide it with a "chokehold on India's economy" (Singh & Tembey, 2020).

The construction of the Medog Dam in one of the world's most geologically fragile regions has also generated significant environmental concerns among scientists, policy analysts, and downstream states. Indian hydrologists warn that the dam could obstruct natural sediment flows vital for maintaining soil fertility in Northeast India's agricultural plains. Reduced sediment transport may degrade farmland productivity, directly affecting communities dependent on alluvial soil cultivation (Manhas & Lad, 2024). Additionally, the Brahmaputra and Jamuna rivers support approximately 218 fish species, including high-value migratory species such as Hilsa and Mahseer (Sehgal, 1999). Such construction will disturb the migratory routes and pose substantial threats to regional fisheries, placing the livelihoods of nearly two million fishermen

Seismic Vulnerability and Structural Safety Concerns

The construction of the Medog Dam in one of the world's most seismically active regions significantly magnifies transboundary human and environmental risks. Situated along a major geological fault intersecting the Yarlung Tsangpo, the project exemplifies the dangers of large-scale hydropower development in tectonically unstable zones. Extensive scholarship indicates that mega-dams in such environments can destabilise mountain slopes, intensify landslide activity, and induce seismic events through reservoir loading and stress redistribution (He, Chen, Yang, & Xu, 2025). In a region already characterised by steep gradients, fragile geology, and extreme monsoonal variability, these risks are not hypothetical but structurally embedded.

Concerns articulated by Indian and Bangladeshi experts further underscore the downstream implications of such geophysical instability. Y. Nithiyanandam of the Takshashila Institution highlights that any alteration in flow regimes or structural failure at Medog could have catastrophic consequences for densely populated downstream areas in India and Bangladesh, where warning times would be minimal and adaptive capacity uneven (Ramachandran, 2025). The asymmetry of risk is stark while strategic and energy benefits accrue upstream; on the other hand, it poses a potential loss as human casualties, ecological collapse, and infrastructure damage would be disproportionately borne downstream.

Chinese Assurances and Sovereignty Claims

China has consistently refuted claims raised by downstream states, especially India and Bangladesh. Foreign Ministry spokesperson Guo Jiakun stated that China has cooperated with India and Bangladesh through hydrological data sharing and mechanisms for flood control and disaster mitigation, asserting that communication channels remain open and China intends to continue strengthening cooperation (The Hindu, 2025). Similarly, Chinese Ambassador to Bangladesh Yao Wen assured Dhaka that the Medog project is exclusively for power generation and will not divert or diminish water flows, emphasising that "China will not withdraw or use any water from the project" (BSS News, 2025). However, these assurances do not coexist with official statements of the Chinese, asserting that dam construction falls within China's sovereign rights over its territory and water resources (The Hindu, 2025). This stance has amplified concerns regarding Beijing's unilateral decision-making on transboundary river issues. Indian scholars have questioned the implications of such unilateral actions. Srikanth Kondapalli, professor of Chinese Studies at Jawaharlal Nehru University, notes that, unlike India's water treaties with Pakistan, China does not engage in comparable cooperative frameworks with neighbours regarding shared rivers. He questions the rationale for constructing a megastructure in an ecologically fragile and geopolitically contested region, emphasising that such decisions raise both environmental and strategic challenges (Pasricha, 2025). So, the Medog Dam presents a complex nexus of environmental risks, geopolitical tensions, and governance challenges. Its construction in a highly sensitive ecological zone, combined with the absence of binding water-sharing agreements, deepens uncertainty for downstream states relying heavily on the Brahmaputra basin for ecological stability, food security, and livelihoods.

The Security Dilemma: Water Weaponisation and Trust Deficits

Despite repeated assurances from Beijing, Indian policymakers and strategic analysts increasingly fear the potential weaponisation of water resources during geopolitical tensions. As B. R. Deepak, professor of Chinese Studies at Jawaharlal Nehru University, argues, "Lower riparian states like Bangladesh and India will always fear that China may weaponise water, especially in the event of hostilities, because of the dam's large reservoir" (Sharma, 2025). This concern is amplified by China's upstream advantage and the absence of binding legal frameworks governing transboundary rivers between the two countries. Although India and China have maintained a memorandum of understanding (MoU) since 2002 for exchanging hydrological data on the Brahmaputra during flood seasons, past experiences have eroded trust. Following the 2017 Doklam standoff, India reported that China temporarily suspended sharing crucial hydrological data (Singh & Tembey, 2020). That same year, northeastern India experienced severe flooding, resulting in more than 70 deaths and the displacement of over 400,000 people in Assam (Sharma, 2025). Reflecting on this episode, Deepak notes, "It is a problematic scenario... when the relationship deteriorates or becomes malevolent, like in 2017, China immediately stopped sharing the data" (Yashraj Sharma, 2025). As a result, the downstream states of Northeast India faced the consequences.

Recent sour developments in Indo-China relations have further heightened the concerns over the construction of the Medog dam. According to information disclosed by India's Ministry of Jal Shakti in response to a Right to Information (RTI) query, China has not shared hydrological data with India since 2022. The ministry confirmed that "no information on hydrological data or hydro structures has been shared by China with India since 2022" (Upadhyay, 2025). The MoUs on the Brahmaputra and Sutlej, intended to facilitate data exchange, were not renewed after their expiry in June 2023 and November 2020, respectively. When asked why the MoUs lapsed, the ministry declined to comment, citing Section 10(1) of the RTI Act, 2005, concerning national security (Upadhyay, 2025). Compounding this complex situation, neither India nor China is party to the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, limiting scope for mediation or dispute resolution on international platforms (Walker, 2014). On the other hand, the Minister of State for External Affairs, Kirti Vardhan Singh, informed the Parliament contrary to the prevailing situations that transboundary river issues continue to be discussed under the Expert Level Mechanism established in 2006, as well as through diplomatic channels (Rajya Sabha, 2025). However, state leaders from affected regions have voiced more urgent apprehensions. Arunachal Pradesh Chief Minister Pema Khandu stated that India "cannot simply protest and sit idle…..Who will make China understand? Since we cannot make China see reason, it is better that we focus on our own defence mechanisms and preparations." (The Print, 2025). His statement accentuates the trust deficit and frustrated relationship between India and China, which further heightened the tension. While national security discourse often emphasises China's hydrological leverage, Assam Chief Minister Dr Himanta Biswa Sarma offers a contrasting view, arguing that the Brahmaputra largely "grows in India." He maintains that only about 30–35 per cent of the river's discharge originates from the Tibetan Plateau, while 65-70 per cent is generated within India through monsoon rainfall and major tributaries such as the Subansiri, Lohit, Manas, and others, along with inflows from the Khasi, Garo, and Jaintia Hills (The Assam Tribune, 2025). Sarma further contends that even a reduction in upstream flow due to Chinese dams could help mitigate Assam's recurring floods. This perspective challenges prevailing assumptions about China's capacity to control downstream flows and underlines the importance of basin-wide hydrological dynamics over geopolitical anxieties alone. Despite Sarma's contention on the effect of downstream states, environmentalists, strategic analysts, government officials and affected states remain cautious, seems Sarma's claims a political rhetoric statement. India's concerns over the Medog Dam reflect not merely hydrological risks but broader geopolitical tensions, ecological uncertainties, and structural imbalances inherent in transboundary river management with China. The project carries far-reaching implications for regional security, environmental sustainability, and the long-term stability of South Asia's riverine ecosystems.

India's Counter-Dam Strategy and Escalatory Dynamics

Amid growing concerns about China's upstream dam, the Government of India has initiated countermeasures aimed at safeguarding strategic and hydrological interests. While responding to the construction of Medog Dam, the Minister of State for External Affairs, Kirti Vardhan Singh, informed Parliament that the Indian government

has "carefully monitors all developments relating to the Brahmaputra river, including plans by China to develop hydropower projects, and takes necessary measures to protect our interests, including preventive and corrective steps to safeguard life and livelihood in downstream areas" (Rajya Sabha, 2025). Indian foreign ministry spokesperson Randhir Jaiswal also accentuated New Delhi's vigilance, stating that "We will continue to monitor and take necessary measures to protect our interests" (The Times of India, 2025). This framing situates upstream water control not merely as an environmental issue but as a matter of national security. Central to India's response, India has proposed the USD 13.2 billion Siang Upper Multipurpose Project (SUMP), envisioned as the country's most powerful hydroelectric installation. The project, capable of storing nine billion cubic meters of water and generating 11,000 megawatts of electricity, is designed not only for power generation but also to regulate downstream flows disrupted by China's mega dam (The Print, 2024). The Indian government maintains that the Siang dam's massive reservoir capacity would counterbalance any fluctuations in water flow caused by the Medog Dam, serving as a safeguard against both flash floods and water scarcity (The Economic Times, 2025 b). Supporting this view, Arunachal Pradesh Chief Minister Pema Khandu asserted that it is "not just a hydro dam," emphasising that its "real objective is to save the Siang River" and "maintain the natural flow of the river all year round and mitigate risks of flooding if China released excess water." (The Hindu, 2024). His deputy further described the project as India's strategic response, noting, "This is a matter of national security" (Pasricha, 2025). The statements from India have taken into line how hydropower development has become securitised, transforming river management into a strategic tool within the broader context of Sino-Indian rivalry.

Local Resistance and Indigenous Rights Concerns

India's proposed counter-dam strategy has generated intense local opposition, rooted in anticipated environmental degradation and profound social dislocation. Despite escalating public resistance, the BJP-led state government has reportedly deployed paramilitary forces to suppress protests and offered substantial financial incentives to pacify dissenting communities, raising serious concerns about coercion and democratic accountability (Chakravartty, 2025). Such measures have reinforced local perceptions that development decisions are being imposed rather than negotiated.

Empirical studies and local reports indicate that at least 27 villages face complete submergence under the SUMP, potentially displacing lakhs of indigenous residents, particularly from the Adi community (The Arunachal Times, 2025a). Beyond physical displacement, community representatives emphasise the existential threat posed to indigenous languages, customary land tenure systems, forest-based livelihoods, spiritual relationships with the river, and collective identity. In Parong village, Jijong, President of the Siang Indigenous Farmers' Forum (SIFF), has emerged as a central figure in mobilising resistance, asserting that opposition will persist regardless of age or physical capacity, underscoring the depth of community attachment to the river and its surrounding landscapes (Sharma, 2025). Local opposition is framed not merely as environmental activism but as a struggle for indigenous rights and constitutional protection. Community members argue that the project represents the conversion of their ancestral homeland and sacred river Ane Siang into an industrial asset without their consent. SIFF legal adviser Bhanu Tatak and advocate Ebo Mili contend that project implementation has proceeded in violation of the principle of free, prior, and informed consent, potentially contravening both international human rights obligations and constitutional safeguards intended to protect indigenous populations (The Arunachal Times, 2025b). They further allege that the deployment of central armed forces reflects a broader pattern of militarisation aimed at silencing dissent. In response, the state government has dismissed these claims, with the Chief Minister accusing activists of misleading local communities about the project's objectives. Protesters, however, counter this narrative by pointing to a 2022 Gauhati High Court ruling that cancelled all 44 proposed dam projects on the Siang River due to procedural deficiencies and environmental concerns. They argue that despite assurances given to the court that the projects had been withdrawn, the state government and power developers have continued to advance the initiative, thereby undermining judicial authority and public trust (The Times of India, 2024). These developments reveal a deep governance paradox: a project justified in the language of national security and strategic necessity is simultaneously experienced at the local level as dispossession, cultural erasure, and democratic exclusion. This tension underscores the need to critically reassess the legitimacy and sustainability of infrastructure development in indigenous and ecologically fragile regions.

Escalatory Logic and Environmental Implications

Beyond immediate social consequences, experts warn that the escalating dam war between China and India could inflict long-term ecological harm. The construction of such mega-dams in a geologically fragile Himalayan region prone to earthquakes and extreme flooding poses severe threats not only to upstream indigenous communities but also to millions of downstream residents (Menon, 2024). Climate specialists caution that militarisation and politicisation of Himalayan water resources amplify environmental vulnerabilities and exacerbate regional instability. Reflecting this concern, B.R. Deepak argues that India's decision to construct a counter-dam "adds fuel to the fire." "Till China keeps damming these rivers, fears and anxieties will continue and stoke strong responses from lower riparian countries." (South Asia Times, 2025). The dam war in the Himalayan region has escalated strategic tensions rather than addressing the root causes of hydrological insecurity. These hydro-political development highlights a fundamental paradox: while the counter-dam strategy aims to enhance India's strategic position, it simultaneously perpetuates the very competitive dynamic that generates insecurity for all riparian states, including India itself.

Implications for Bangladesh: The Downstream Dilemma

The construction of China's Medog Dam, alongside India's proposed countermeasure in the form of the SUMP, has generated acute concern in Bangladesh, the lowest riparian state in the Brahmaputra basin (Kumari, 2025). As a downstream country with minimal control over upstream interventions, Bangladesh faces disproportionate exposure to hydrological, ecological, and socio-economic risks arising from unilateral dam-building by upstream states. Malik Fida Khan, Executive Director of the Center for Environmental and Geographic Information Services (CEGIS), warns that any obstruction or manipulation of river flow could induce water scarcity, disrupt the transport of nutrient-rich sediments, intensify riverbank erosion, and destabilise fragile floodplain ecosystems, effects that would disproportionately impact marginal and river-dependent communities (Pasricha, 2025). These concerns highlight a stark asymmetry in basin politics. While India and China frame dam construction as strategic and defensive measures, experts caution that Bangladesh may bear the most severe consequences of altered flow regimes. Although only about 8 per cent of the Brahmaputra basin's total area lies within Bangladesh, the river system supplies more than 65 per cent of the country's annual water needs, making it central to agriculture, fisheries, transportation, and livelihoods (Sharma, 2025). Consequently, the Brahmaputra is widely regarded as the "lifeline of Bangladesh," a characterisation that underscores the country's structural dependence on upstream decisions over which it has little influence. Malik Fida Khan, further cautions that India's construction of the Siang dam, intended as a strategic counter to China, "could be particularly damaging to the part of the basin in Bangladesh," emphasising that "you cannot counter a dam with another dam... It will have a huge and fatal impact on millions of us living downstream" (Sharma, 2025). This dynamic exposes a critical governance gap in transboundary river management. The absence of a binding, basin-wide institutional framework leaves downstream states like Bangladesh vulnerable to ecological degradation and livelihood insecurity driven by upstream strategic competition. This development has accentuated a fundamental flaw in the prevailing security-driven approach to transboundary river management. Unilateral or retaliatory dam construction may serve short-term strategic objectives for upstream states, but it systematically externalises environmental and humanitarian costs onto downstream populations.

Given that the Brahmaputra traverses China, India, and Bangladesh, Bangladeshi civil society leaders emphasise the necessity of a basin-wide governance framework rather than fragmented bilateral arrangements. As Sheikh Rokon argues, deliberations over the Brahmaputra "should not be a mere bilateral discussion between Bangladesh and India, or India and China; it should be a basin-wide discussion" (Sharma, 2025). Echoing this position, Brigadier Arun Sahgal of the Delhi Policy Group notes that when a river flows through multiple sovereign states, joint assessment and collective decision-making become essential for its sustainable management (Pasricha, 2025). These perspectives converge on the view that unilateral or bilateral approaches are structurally inadequate for addressing the cumulative impacts of large-scale interventions along transboundary rivers. Such concerns are reinforced by global assessments linking water insecurity to economic decline and forced migration. The World Bank warns that declining freshwater availability and deteriorating water quality could reduce GDP by up to 6 per cent in some regions by 2050, while simultaneously intensifying climate-induced displacement (World Bank, 2016). These projections are particularly salient for Bangladesh,

where approximately 65 per cent of national water resources depend on the Brahmaputra basin. Significant disruption of river flows or sediment regimes due to upstream mega-dams could therefore undermine livelihoods on a massive scale, increasing the likelihood of large-scale displacement in Bangladesh. Such development has an adverse impact on India's Northeast. Bangladesh being surrounded on three sides by India, climate-induced migration from Bangladesh would likely be directed toward India's Northeast. Such population movements could have far-reaching consequences in a region already marked by historical anxieties over migration, identity, and land alienation. A substantial influx of displaced populations could exacerbate demographic pressures, strain fragile ecosystems and local resources, and potentially rekindle social and political tensions. Consequently, the ecological and hydrological impacts of upstream dam construction extend well beyond environmental degradation, carrying significant geopolitical and security implications for the entire Brahmaputra basin.

CONCLUSION

The competitive dam construction between India and China reflects a classic security dilemma. Each country interprets the other's hydropower projects as potential strategic threats, prompting defensive responses that inadvertently intensify mutual insecurity. Inadequate communication and data-sharing on water flows along the Yarlung Tsangpo–Brahmaputra system have already contributed to downstream disasters and diplomatic tensions. Rather than enhancing water security, this competitive and unilateral approach exacerbates uncertainty over future water availability, heightens ecological vulnerability, and entrenches political mistrust. Hydropower development along transboundary rivers has thus evolved into a zero-sum contest with destabilising consequences. Additionally, the ongoing "dam war" also reveals fundamental asymmetries in how costs and benefits of large-scale hydropower development are distributed. While national governments stand to benefit from hydropower production and strategic advantages, affected populations, particularly indigenous communities, frequently receive inadequate compensation, insufficient resettlement support, and limited participation in decision-making processes. Their protests highlight the democratic deficit in large-scale infrastructure planning. This pattern reflects broader dynamics in resource extraction where local populations bear disproportionate costs, including displacement, livelihood disruption, and cultural impacts, while benefits accrue primarily to distant urban centres and political elites. The suppression of dissent through the deployment of paramilitary forces, as observed in both Tibet and Arunachal Pradesh, underscores how national security narratives are deployed to silence legitimate concerns about environmental justice and indigenous rights. Addressing trans-riparian water disputes in the Brahmaputra basin, therefore, necessitates a paradigmatic shift from competitive to cooperative water governance. Enhanced transparency, institutionalised data-sharing, adherence to principles of sustainable development, and sustained multilateral dialogue among China, India, and Bangladesh are critical for equitable and ecologically sound river management. The creation of a formal trilateral framework or basin-level institution could facilitate conflict resolution, strengthen early-warning mechanisms, and promote joint environmental monitoring and disaster preparedness. In the absence of such cooperative arrangements, continued retaliatory dam-building risks intensifying regional tensions while imperilling the ecological integrity of the basin and the livelihoods of millions who depend upon it.

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