

From hydro-hegemony to hydro-coercion: Politics of precarity in India–Bangladesh transboundary water conflicts

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Abstract

This article advances the concept of hydro-coercion to analyze how asymmetric power relations shape transboundary water governance between India and Bangladesh, with broader implications for political geography, environmental justice, and the geographies of state power. Focusing on the Ganges, Teesta, and Brahmaputra rivers, the article argues that India's upstream dominance enables it to exercise coercive control over shared water resources through material infrastructure, institutional stalling, and ideational narratives of water nationalism. These practices exacerbate ecological degradation and human vulnerability in downstream Bangladesh, weaponizing transboundary rivers as geopolitical leverage. Drawing on critical hydro-politics, theories of power, and empirical case studies, the article illustrates how control over rivers reconfigures hydro-social territories, deepens regional precarity, and reveals the limitations of existing treaties and institutional mechanisms. The analysis situates these dynamics within broader regional transformations, including China's upstream interventions that complicate India's dominance and the increasing impacts from accelerating climate change, all of which intensify risks for Bangladesh's deltaic socioecologies. The article posits that a fundamental rethinking of transboundary water governance is imperative, toward a transformed governance paradigm that moves beyond technocratic bilateralism toward multilateral, ecologically just, and politically accountable frameworks. By centering lived experiences of precarity in downstream regions and theorizing hydro-coercion as a mechanism of escalating spatial and geopolitical domination, I emphasize the need for decolonial, rights-based, and ecologically grounded approaches to shared water governance in an era of intensifying climate and political uncertainty.

Keywords

Hydro-hegemony, hydro-coercion, transboundary river, Bangladesh, India, water

De la hidrohegemonía a la hidrocoerción: Políticas de precariedad en los conflictos transfronterizos por el agua entre India y Bangladesh

Resumen

Este artículo avanza el concepto de hidrocoerción para analizar cómo las relaciones de poder asimétricas dan forma a la gobernanza del agua transfronteriza entre India y Bangladesh, con implicaciones más amplias para la geografía política, la justicia ambiental y las geografías del poder estatal. Centrándose en los ríos Ganges, Teesta y Brahmaputra, el documento argumenta que el dominio río arriba de la India le permite ejercer un control coercitivo sobre los recursos hídricos compartidos a través de la infraestructura material, el estancamiento institucional y las narrativas ideacionales del nacionalismo del agua. Estas prácticas exacerbaban la degradación ecológica y la vulnerabilidad humana en Bangladesh aguas abajo, convirtiendo los ríos transfronterizos en armas como palanca geopolítica. Basándose en la hidropolítica crítica, las teorías del poder y los

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estudios de casos empíricos, el artículo ilustra cómo el control sobre los ríos reconfigura los territorios hidrosociales, profundiza la precariedad regional y revela las limitaciones de los tratados y mecanismos institucionales existentes. El análisis sitúa estas dinámicas dentro de transformaciones regionales más amplias, incluidas las intervenciones ascendentes de China que complican el dominio de la India y los crecientes impactos de la aceleración del cambio climático, todo lo cual intensifica los riesgos para las socioecologías deltaicas de Bangladesh. El artículo postula que es imperativo un replanteamiento fundamental de la gobernanza del agua transfronteriza, hacia un paradigma de gobernanza transformado que vaya más allá del bilateralismo tecnocrático hacia marcos multilaterales, ecológicamente justos y políticamente responsables. Al centrar las experiencias vividas de precariedad en las regiones río abajo y teorizar la hidrocoerción como un mecanismo de creciente dominación espacial y geopolítica, enfatizo la necesidad de enfoques decoloniales, basados en los derechos y ecológicamente fundamentados para la gobernanza compartida del agua en una era de intensificación de la incertidumbre climática y política.

Palabras clave

Hidrohegemonía, Hidrocoerción, Río transfronterizo, Bangladesh, India, Agua

Introduction: Water as power and precarity

“There once was a river/stream/pond here”—This lament echoes across a delta that has undergone profound and rapid changes. In the complex geopolitical landscape of South Asia, especially with the Bengal Delta, water increasingly transcends its fundamental role as a natural resource to become a geopolitical instrument that exacerbates pervasive lived precarity. For India and Bangladesh, sharing 54 transboundary rivers critically influences their bilateral political relationships, ecological resilience, and human vulnerability, particularly given India’s upstream position encircling Bangladesh (Figure 1 shows the political map of South Asia with the Himalayan river systems of Ganges, Brahmaputra, and Teesta rivers). Situated as the downstream riparian delta where mighty Himalayan rivers of the Ganges and Brahmaputra, and their tributaries converge before emptying into the Bay of Bengal, Bangladesh is structurally disadvantaged in the absence of robust, equitable, and genuinely enforceable transboundary water governance with India. China’s upstream position on the Brahmaputra compounds this structural disadvantage, creating a cascading power hierarchy: India dominates Bangladesh while remaining vulnerable to Chinese control. This tripartite dynamic reveals scalar hydro-hegemony, wherein China’s dam construction provides India with strategic justification for maintaining coercive control downstream over flows to Bangladesh (Panda, 2024; Salman and Uprety, 2018).

The urgency of these dynamics intensified following Bangladesh’s July–August 2024 democratic uprising, which fundamentally altered the political foundations enabling India’s hydro-coercive practices. As the 1996 Ganges Treaty approaches its 2026 expiration amid Bangladesh’s recent strategic pivot toward multilateral frameworks, including its June 2025 entry to the UNECE Water Convention, the region faces an unprecedented test of whether water governance can evolve beyond coercive bilateralism or securitized unilateralism.

This article critically interrogates the historical legacies of water control, contemporary tensions from divergent international and regional interests, and the deep-seated inequities

within regional water-sharing regimes. Employing critical water governance insights and drawing on hydro-hegemony scholarship, documentary analysis of treaties, reports, and case material, this analysis argues that India’s dominant upstream position consistently manifests as a form of increasingly coercive hydro-hegemony, exacerbating precarity in Bangladesh, undermining equitable transboundary river sharing and environmental justice, and posing significant challenges to regional stability, especially given escalating climate change impacts. I examine the dynamics of power and vulnerability of this hydro-political nexus, with critical assessment of hydro-coercion to illuminate India’s relational practices with Bangladesh. The hydro-coercion manifests through strategies including prolonged material infrastructure control, institutional stalling, and diplomatic signaling, all deployed to reinforce India’s upstream positional advantage for political, economic, and geopolitical goals—but this particular instance, it also includes elements of imperial attitudes, political subservience, and diplomatic dependencies beyond water sharing. These practices reflect not only India’s dominant riparian geography but also a deliberate use of water as a multidimensional instrument of power. With China’s growing large-scale interventions upstream in the Brahmaputra River, water politics is further complicated (Samarayake et al., 2021).

As climate change intensifies existing vulnerabilities and hydro-coercion exacerbates the impacts of climate change, a decolonial reimagination of water governance becomes essential. This entails reforming treaties and institutions while also challenging epistemologies that normalize unilateral control. To counter ongoing hydro-coercion and power relations, the article concludes that achieving true transboundary water justice necessitates centering downstream community voices and rights, ensuring ecological flows, promoting participatory basin governance, and embedding international legal norms to hold hegemonic actors accountable. Through these measures, shared rivers become connectors of resilience and justice, rather than instruments of division and control.

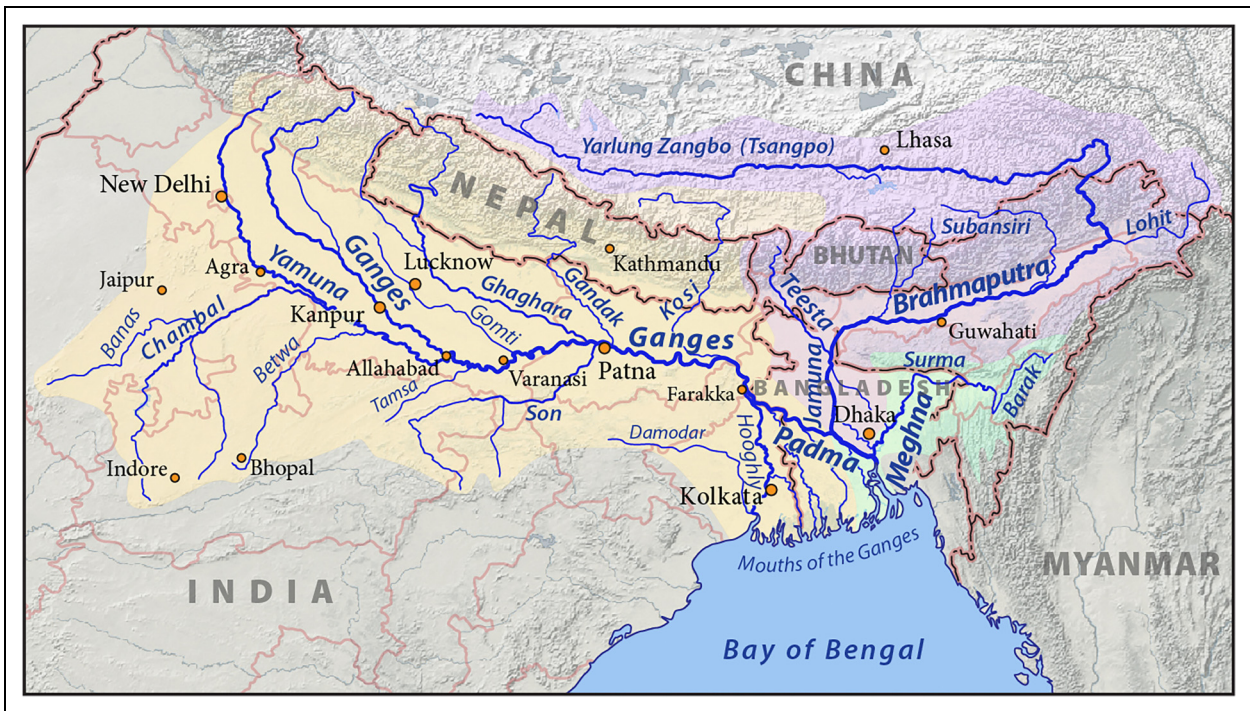


Figure 1. Ganges–Brahmaputra basin map showing India, Bangladesh, and China.

Hydro-hegemony and hydro-coercion: Frameworks for understanding power and control in transboundary rivers

The concept of hydro-hegemony has been a crucial analytical lens for understanding power dynamics in transboundary river basins, moving beyond simplistic notions of conflict and/or cooperation (Mirumachi, 2015). It posits that hegemony in river basins transcends military or economic might, operating through a dominant riparian's deployment of material, bargaining, and ideational power to secure water objectives (Zeitoun and Warner, 2006). Lukes' (2005) theory of three-dimensional power—decision-making, agenda-setting, and ideological influence—clarifies how India constructs and maintains dominance over shared waters. As elaborated by Lukes (2005), material power refers to the physical control over water resources through infrastructure like dams and barrages, as well as economic and military superiority; bargaining power relates to the capability of actors to control the rules of the game, set agendas, and influence the terms of agreements through their ability to provide incentives or manipulate negotiation parameters; and, ideational power involves the capacity to impose and legitimize particular ideas and narratives, shaping the discourse and perceptions of water allocation within its own country and neighboring riparian countries. Zeitoun et al. (2020) elaborate that these power dimensions operate through strategies of reconfiguring shared water spaces, establishing and manipulating institutional rules, and shaping discourses around water allocation. Menga (2016) further refines this, arguing that hydro-hegemony

is circular and iterative, with ideational power reinforcing infrastructural dominance to perpetuate inequity. Warner and de Man (2020) argue that such acts escalate from structural hegemony to active coercion, leveraging water infrastructure as a diplomatic weapon rather than a development tool.

Within this framework, hydro-coercion is a specific manifestation of hydro-hegemony, where the dominant riparian uses its upstream position to exert direct or indirect pressure on downstream states, forcing compliance that may be deleterious to the downstream riparian(s) and discouraging actions perceived as contrary to the hegemon's interests. This can range from explicit threats to subtle manipulation of water flows, undermining the weaker riparian's autonomy and developmental aspirations (Zeitoun and Allan, 2008). In the case of South Asian rivers, I demonstrate how India's hydro-coercion over Bangladesh is the active weaponization of water control for immediate and long-term political objectives that transcend water or economic gain amounting to a form of political colonization. Water control enabled broader political domination, not just water-related compliance but in foreign policy, domestic governance, or economic decisions through water leverage that parallel colonial power structures beyond resource extraction.

One might wonder what the role of international river laws are in this situation. Crucially, the normative frameworks provided in international water law, particularly the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses (also called the Water Convention), establishes principles of equitable and reasonable utilization, no significant harm, and prior

notification (McCaffrey, 2019). However, these legal imperatives remain largely aspirational in contexts of extreme power asymmetry. The Convention's emphasis on "equitable and reasonable utilization" fails to adequately define what constitutes equity when upstream riparians possess overwhelming material and bargaining power. Similarly, the "no significant harm" principle becomes meaningless when downstream states lack effective mechanisms to demonstrate harm or compel upstream compliance (Salman and Uprety, 2018; Warner et al., 2017). This gap fosters hydro-hegemonic practices, often leading to protracted disputes and chronic precarity for downstream nations that lack meaningful enforcement tools as political power. India's historical and ongoing relationship with Bangladesh over transboundary rivers provides a compelling case study of such hydro-coercion. In the India–Bangladesh context, international water law's inability to transcend power asymmetries reveals the fundamental gap between legal idealism and hydro-political realism, where might consistently trumps right in determining water allocation outcomes. Hydro-coercion, as framed by Warner and de Man's (2020) power palette, is strategic, not accidental. It persists through legal silences, institutional inertia, and hegemonic nationalistic discourses that obscure shared ecological vulnerability. India's hegemonic posture is often rationalized through utilitarian discourses, but its actions reflect coercive control that erodes trust and prevents multilateral mechanisms on other issues (Hanasz, 2017).

Water nationalism and the concept of hydro-social territories provide additional theoretical lenses through which to understand the coercive dimensions of India's hydro-hegemony against Bangladesh. Water nationalism helps elucidate that water is often imbued with powerful nationalistic meanings, transforming it from a natural resource into a symbol of national identity, sovereignty, and development (Allouche, 2019; Menga, 2016). This enables dominant states to justify unilateral control and resource extraction in the name of national interest, often framing downstream claims as impediments to their progress or as existential threats. In the India–Bangladesh context, India's framing of its unilateral upstream water schemes as essential for its national development and the preservation of its cultural heritage exemplifies water nationalism. This nationalistic discourse effectively legitimizes coercive actions over many decades, marginalizing Bangladesh's downstream rights and concerns as secondary to India's sovereign prerogatives over its internal waters, ignoring international laws or rights of downstream riparian countries of transboundary rivers.

Complementing this, the concept of hydro-social territories underscores how water is not just a physical substance but a vital coproduced entity shaped by intricate interactions between human society, infrastructure, and ecological processes (Boelens et al., 2016). These territories are fluid, contested spaces where power relations are enacted through the control and distribution of water. India's construction of barrages and dams on shared rivers, along with its assertion of unilateral control, effectively redraws the hydro-social territories of the entire Ganges–Brahmaputra basins. For Bangladesh, this translates into a constant struggle to maintain its own hydro-social

territory, as reduced dry season flows disrupt its agrarian practices, ecological systems, and social structures, leading to internal migration and displacement. The lived experiences of Bangladeshi communities downstream have been profound over decades. The inability to access sufficient water significantly alters Bangladesh's relationship with its rivers, transforming them from sources of life and livelihood into instruments of precarity imposed by an upstream power. This redefinition of hydro-social territories through hydro-coercive practices deepens Bangladesh's vulnerability, reinforcing the coercive nature of India's water diplomacy. While the material consequences of upstream infrastructure on downstream countries are well-noted in scholarship (Richter et al., 2010), the protracted political and geopolitical implications have wider impacts, as I detail below.

Instances of coercive hydro-hegemony

When British colonial rule ended in 1947 in South Asia, Bangladesh (then East Pakistan) was carved out in a manner that India almost fully surrounds it with the Bay of Bengal to the south. This historic geospatial rendering resulted in a smaller downstream riparian state with little control over majority of the water inflow into its territory. Bangladesh is particularly vulnerable as a low-lying delta country that depends heavily on water flowing from India, Nepal, Bhutan, and China. With over 70% of its surface water originating from outside its borders, largely through the Ganges, Brahmaputra, and Teesta rivers, any increase in upstream withdrawals or treaty violations, particularly by India, directly harms its food security, drinking water access, and ecological resilience. India's hydro-coercion emerged more forcefully after Bangladesh's independence in 1971, through a series of actions encompassing direct water manipulation, the leveraging of internal political relations, and overt diplomatic pressure, each serving distinct political, geopolitical, or economic purposes.

The theoretical insights discussed above illuminate three distinct manifestations of hydro-coercion in India–Bangladesh relations. Three major international Himalayan rivers are analyzed to interrogate how different forms of coercion and geopolitical power operate, and with the caveat that all while forms of power are at work, the sections highlight the more dominant typology in each instance and its significance.

Ganges River and material hydro-coercion

The Farakka Barrage on the Ganges River best exemplifies material hydro-coercion through infrastructure manipulation. Initially proposed in the early 1960s as a pilot diversion project, India leveraged the political vulnerability of newly independent Bangladesh in the 1970s to push for permanent commissioning (Abbas, 1982). Completed in 1975 at the border between the two countries, without meaningful consultation or consent from Bangladesh, this barrage unilaterally diverts crucial dry season flows from Bangladesh to India (Crow et al., 1995).

While the stated purpose was ostensibly to enhance the navigability of Kolkata Port, its operation has effectively served as a tool to assert India's upstream control, generating direct material coercion over Bangladesh's vital water supply, transforming what was portrayed as a technical solution into an enduring instrument of hydro-coercion. This network of physical infrastructures represent a key element of India's material hydro-hegemony, allowing it to reconfigure the hydro-social territory of the Ganges basin in a way that disadvantages downstream spaces. The environmental, economic, and social consequences for Bangladesh were swift, severe, and deeply transformative, as meticulously documented by early critical assessments. Abbas (1982) and Crow et al. (1995) highlighted the immediate onset of salinity intrusion into coastal areas, devastating agricultural lands, and compromising potable water sources. Mirza (2004) further elaborated on the long-term ecological damage, detailing significant aquifer depletion in northern districts and a precipitous collapse of river-dependent livelihoods, particularly in fishing and traditional agriculture, but also in threatening ecology of the world's largest mangrove forest (Sunderban mangrove forest). This has catalyzed environmental migration within and from Bangladesh, creating cascading social and economic pressures. Such displacement demonstrates how hegemonic conditions legitimize coercive water diversion as technical necessity rather than structural violence. India's unilateral water withdrawal from the Ganges disrupts ecological flow regimes and fundamentally undermines Bangladesh's water sovereignty (Hassan, 2019). The Farakka Barrage, therefore, stands as a potent and enduring symbol of upstream unilateralism (Zeitoun et al., 2020), embedding a narrative of hydro-insecurity deeply into Bangladesh's national consciousness and setting a precedent for hydro-coercion (Sultana, 2004).

In response to mounting international and regional pressure, which unequivocally recognized the severe human security implications of the Farakka Barrage, the 1996 Ganges Water Sharing Treaty was signed between India and Bangladesh (Hossain, 1998). This agreement committed both parties to a 30-year framework for dry-season allocation. The Bangladesh government, eager to claim diplomatic success in 1996, accepted a minimum guarantee rather than insisting on equitable sharing or ecological flows—an outcome that reflected both India's bargaining power and Bangladesh's then-ruling regime's political compulsions (Gain and Schwab, 2012). The resulting treaty thus embodies capitulation rather than cooperation, exploiting Bangladesh's urgent water security needs to extract an agreement serving primarily Indian interests while offering Bangladesh mere symbolic recognition of downstream rights.

Furthermore, as Rahman et al. (2019) incisively argue, the treaty's structure is fundamentally flawed. Its primary emphasis on fixed volumetric allocation, based on historical flow data, critically ignores crucial hydrological variability, the imperative of maintaining ecological integrity, and the necessity of minimum environmental flow requirements. This oversight renders the treaty largely static and inherently ill-equipped for dynamic river basin management in an era

of unprecedented environmental change. More critically, the treaty lacks substantive provisions for climate adaptation, explicit mechanisms for ensuring essential environmental flows for ecosystem health, or a framework for integrated basin-wide coordination that encompasses water quality and broader ecosystem services. Rahman et al. (2019) conclude that the treaty fails to ensure "meaningful cooperation" precisely because it treats water as a divisible commodity, a quantifiable resource to be allocated, rather than as a shared, interconnected ecological system demanding holistic stewardship. This commodification of water, divorced from its socio-ecological context, inherently disadvantages the downstream riparian, thereby reinforcing the very hydro-hegemony it ostensibly seeks to mitigate.

The absence of dispute resolution mechanisms that are genuinely independent and binding leaves Bangladesh with limited recourse against perceived noncompliance or to address emergent hydrological challenges (Salman and Uprety, 2002). This illustrates a classic aspect of hydro-hegemony, where the hegemon controls the bargaining space and terms of agreement, even if apparently cooperative. Such treaties, particularly the Ganges Treaty, were negotiated largely on India's terms, embedding asymmetry into formal cooperation (Mirumachi, 2015; Thomas, 2017). The approaching expiration of the 1996 Ganges Treaty has revealed India's continued reliance on temporal pressure as a coercive tool. Rather than embracing the opportunity for more equitable arrangements, preliminary negotiations indicate India's preference for shorter, updated treaty terms that would reduce long-term commitments while maximizing flexibility for upstream projects. This negotiating posture occurs precisely as Bangladesh seeks greater diplomatic autonomy, higher volumetric flow, better joint data collection and monitoring, and longer treaty terms, illustrating how treaty renewal becomes another mechanism through which water access constrains downstream foreign policy options. The timing exposes the instrumental nature of water cooperation: what appears as technical renegotiation masks continued attempts to maintain hydro-coercive control.

Teesta River and institutional hydro-coercion

A second example is the prolonged Teesta River dispute which is a clear instance of institutional hydro-coercion through deliberative procedural manipulation. Although a water-sharing agreement was nearly finalized in 2011, it was subsequently blocked by the Chief Minister of the Indian state of West Bengal, citing internal irrigation demands (Rasul, 2024). This subnational veto has effectively stalled regional diplomacy for over a decade and demonstrates using internal political structures to maintain coercive advantage while avoiding federal accountability for diplomatic failure. It left northern Bangladesh facing severe dry-season water shortages. While the stated purpose is internal political and economic gain for West Bengal, the practical effect is that India, as the upstream power, implicitly uses this unresolved

issue as leverage. The continued stalemate reflects not merely political indifference at the federal level but a deeper structural failure within India's governance to internalize and safeguard the fundamental rights and ecological well-being of downstream populations. Studies on fragmented sovereignty in water governance, such as that by Warner and Zawahri (2012), extensively explore this phenomenon, demonstrating how internal political undercurrents can profoundly impact international agreements. The Teesta River dispute highlights the inherent limitations of bilateral agreements when confronted with internal political contestations and the enduring power of subnational actors in shaping transboundary resource management outcomes. This impasse, therefore, is not merely a technical water dispute but a profound crisis of environmental justice and regional diplomacy, underscoring the necessity for robust internal mechanisms within upstream states to uphold international commitments.

The inability to secure a predictable flow of the Teesta compels Bangladesh to remain in a vulnerable position, continuously seeking India's cooperation. This has inflicted chronic economic and ecological loss for northern regions of Bangladesh, transforming the Teesta into a symbol of betrayal and manufactured scarcity (Jahan, 2025). Such a dynamic can be interpreted as a form of bargaining coercion, where India's internal political structure allows it to delay or deny agreements, thereby maintaining an advantageous negotiating position and subtly pressuring Bangladesh into broader strategic alignment. Nondecision and silence, as Vij et al. (2024) show, are forms of structural power—tools used to sustain hydro-hegemony under the guise of cooperation. The ongoing dispute also exemplifies how the contested control over the Teesta redefines the hydro-social territory for communities in northern Bangladesh, transforming a lifeline into a source of persistent insecurity, reflecting a strategy of manipulating rules and agreements (Zeitoun et al., 2020). The economic, ecological, and livelihood impacts on northern Bangladesh have been catastrophic with crop failures, groundwater depletion, and the collapse of traditional fishing communities represent just the visible manifestations of this institutionalized neglect. The continued stalemate over the Teesta must be understood not as bureaucratic inefficiency but as deliberate strategic delay, allowing India to maintain leverage over Bangladesh while avoiding the political costs of outright rejection. This pattern of indefinite postponement exemplifies how institutional structures can be weaponized to perpetuate hydro-coercive relations under the veneer of ongoing negotiations.

More overt instances of political and geopolitical coercion have also emerged recently. In 2024, reports indicated that politicians from India's ruling party suggested the 1996 Ganges Treaty could be "reconsidered" if Bangladesh's foreign policy diverged from Indian interests, following the overthrow of a dictator regime in Bangladesh that was closely allied with India (The Hindu, 2025). Such statements explicitly link water access to broader diplomatic alignment, transforming water from a

shared resource into a tool of foreign policy pressure and meddling in domestic affairs of Bangladesh. This constitutes an example of ideational coercion, where water security is framed in nationalist terms and used to signal deterrence, assert dominance, and pressure Bangladesh amid broader geopolitical considerations. This tactic also aims to prevent Bangladesh from pursuing closer ties with rival powers, such as China, by underscoring its hydrological dependency on India. It demonstrates India's willingness to deploy water as a direct diplomatic instrument to achieve its political and geopolitical objectives in the region, rather than purely economic or ecological gains for itself. The dynamic was further evidenced by reports in April 2025 of India's suspending aspects of the Indus Waters Treaty with Pakistan, illustrating a broader pattern of using vital transboundary water resources as a tool of geopolitical pressure. If India continues using water as leverage in its western river basins, it demonstrably weakens its own moral authority and negotiating leverage in the northeast, potentially giving China greater justification for unilateral actions upstream. In short, India cannot adopt a coercive water posture in one basin without simultaneously increasing its own vulnerability in another. This phenomenon aligns with the *realpolitik* of hydro-relations, where power often eclipses established legal norms.

The persistence of India's hydro-coercive practices has been enabled by Bangladesh's internal political realities, particularly the subservient posture adopted by successive governments toward Indian interests (Riaz, 2016). The recently ousted India-backed Hasina's Awami League regime, which fell to popular uprising in Bangladesh in August 2024, exemplified this pattern of political accommodation, where domestic legitimacy was traded for Indian diplomatic and economic investment. Such political subservience created a feedback loop where Bangladesh's leadership avoided confronting India's treaty violations or unilateral actions for fear of jeopardizing broader bilateral relations. The 2024 political shift was in part spurred on by decades-long resentment against India's imperial control of domestic sovereignty in Bangladesh, with water often as a tool. The shift represents not just domestic political change but a conceivable rupture in the established pattern of downstream capitulation, creating both opportunities and risks for future transboundary water governance. Thus, coercion works partly through co-optation of downstream elites.

One might argue that India's behavior reflects bureaucratic inefficiency rather than strategic coercion. However, the pattern of consistency across multiple rivers, explicit political statements linking water to other issues, demonstrates intentionality. The decade-long stalemate forces Bangladesh to maintain diplomatic deference on unrelated issues (such as energy), avoid challenging India in international forums (as seen throughout the 16 years of the Hasina regime due to patronage benefits), and refrain from seeking Chinese investment in northern water infrastructure, demonstrating how manufactured uncertainty functions as leverage beyond the water sector itself.

Brahmaputra River system and ideational hydro-coercion

The third emerging frontier of hydro-geopolitics is on the Brahmaputra river system. Beyond the immediate and intensely contested Ganges or Teesta, India's burgeoning upstream activities on the mighty Brahmaputra and its significant tributaries, including the controversial Lower Subansiri Dam and the proposed Tipaimukh Dam on the Barak River, have escalated regional alarm. These massive infrastructural projects, including India's river interlinking schemes that redirect flows destined for Bangladesh, proceed with minimal, if any, transboundary consultation. They are widely feared to intensely alter critical seasonal flows, significantly reduce vital sediment loads, and disrupt the delicate floodplain ecologies essential for Bangladesh's highly productive fisheries and wetlands (Baruah et al., 2023). The cumulative impact on Bangladesh's food security, biodiversity, and traditional livelihoods could be devastating, jeopardizing a vast and ecologically sensitive deltaic system. These projects represent a continued assertion of India's ideational hydro-coercion, further reshaping the Brahmaputra's hydro-social territory in ways that impose precarity downstream. India's ability to undertake such massive river interlinking programs with little regard for upstream or downstream protestations serves as a prime example of its overwhelming coercive power (Cascão and Zeitoun, 2010).

Complicating this already precarious equation is China's own aggressive dam-building spree on the upper Brahmaputra, known as the Yarlung Tsangpo in Tibet. As a downstream country on the Brahmaputra, India has observed China's past behavior, such as blocking the Xiabuqu tributary in 2016, signaling a clear willingness to potentially retaliate hydrologically (Xie and Warner, 2022). Vij et al. (2024) highlight that while India criticizes Chinese upstream activity, its behavior on the Brahmaputra reflects similar unilateral tendencies that heighten regional insecurity. China's upstream position paradoxically empowers India's coercion over Bangladesh, where India's anxiety as downstream to China leads to more appropriation of river water. With two powerful upstream powers controlling river systems absolutely vital to Bangladesh's survival, the potential for cascading hydro-political shocks is growing exponentially. The absence of a robust, comprehensive multilateral governance framework for the entire Brahmaputra basin only magnifies the profound precarity of downstream actors like Bangladesh. The potential for resource-driven tensions, exacerbated by a lack of data sharing and cooperative mechanisms, is a significant concern for regional stability. As Zawahri et al. (2016) argue, the lack of transparency and unilateral development of transboundary water resources by dominant riparians often breeds mistrust and conflict rather than fostering cooperative regimes. Hayat et al. (2022) emphasize that information asymmetry and the lack of real-time data sharing are institutionalized strategies that perpetuate such ongoing coercive water relations.

Climate change and oncoming escalation of hydro-coercion

Climate change amplifies these coercive dynamics by intensifying hydrological variability and creating new vulnerabilities. Climate change does not merely add complexity to existing water disputes; it functions as a threat multiplier (Barnett, 2003), intensifying every existing fault line in the India–Bangladesh transboundary water conflict, and exacerbating vulnerabilities and potentially increasing the likelihood of conflict in resource-dependent regions. Climate change essentially does not just create new tensions, it drastically sharpens existing injustices. For Bangladesh, it means that every treaty breach, every dam constructed upstream, becomes not just a political issue, but a profound survival concern. In this context, transboundary cooperation becomes not just a political necessity but a climate imperative. As noted in the World Water Development Report (2025), climate-induced variability in river flows disproportionately affects deltaic countries like Bangladesh, underscoring the urgent need for adaptive governance (United Nations, 2025).

Recent studies note that while glacier retreat is significant, permafrost thaw and snowpack variability add further uncertainty to Himalayan hydrology (ICIMOD, 2023). Climate impacts on South Asian hydrology display complex, region-specific patterns rather than uniform glacial retreat (Bolch et al., 2012). However, projections consistently indicate increasing hydro-variability with both more extreme floods and intensified droughts, that considerably challenges static treaty allocations (Immerzeel et al., 2020). Thus, Himalayan glacial complexity, increasingly erratic monsoon patterns, and shifting runoff regimes have rendered South Asia's hydrology profoundly volatile. Without adaptive treaties that can respond effectively to these rapid and intense changes, and crucially, without robust real-time data sharing mechanisms, downstream Bangladesh faces disproportionately heightened risks of both catastrophic flooding in wet seasons and prolonged periods of acute scarcity in dry seasons. This climate-induced hydro-variability significantly challenges the static allocations of existing agreements, rendering them increasingly obsolete.

Yet, neither the 1996 Ganges Treaty nor the long-standing Joint Rivers Commission (JRC) adequately addresses this dire and rapidly unfolding reality. The JRC, despite being operational since 1972, remains, as Faisal (2002) and Rahaman (2009) both critically assess, an exemplification of institutional inadequacy. It meets irregularly, lacks any real enforcement power, and has demonstrably failed to mediate even the most pressing disputes, such as the decade-long Teesta stalemate. This institutional weakness enables continued coercion. Coupled with a pervasive lack of scientific cooperation and joint research on climate impacts, climate change is set to dramatically exacerbate political volatility, increase human insecurity, and deepen existing grievances. According to the 2025 World Water Development Report, Himalayan glaciers retreat and rainfall patterns become more erratic, dry season flows sustaining farming and drinking water supplies are

shrinking (United Nations, 2025). This creates a dangerous scenario where Bangladesh faces growing scarcity just as demand increases. Glacial melt in the Hindu Kush Himalayas, which feed all major South Asian rivers, is projected to decline by up to 40% by 2100 under current emission trajectories (ICIMOD, 2023). This would result in less water when it's needed most, in lean seasons, and more water when it's least manageable, during summer monsoon floods. While Nepal, Bhutan, India, and Pakistan also face serious risks, Bangladesh's position as the ultimate downstream delta of the two major transboundary river systems, coupled with its extreme dependence on external freshwater, makes it the most acutely affected. The future of transboundary water management in the region hinges not just on political will, but on a radical overhaul of governance structures to account for a rapidly changing hydrological landscape.

The longer-term ecological impacts of India's hydro-coercive practices on river systems shared with Bangladesh are severe and compounding, leading to profound environmental degradation and heightened vulnerability. The drastic reduction of dry season flows in rivers like the Ganges due to a series of upstream dams in India has already directly led to increased salinity intrusion in Bangladesh's southwest coastal areas, threatening agriculture, drinking water supplies, and the delicate ecosystem of the Sundarbans mangrove forest (Crow et al., 1995; Mirza, 2004). These will only worsen with escalating climate impacts. The flow alterations also exacerbate surface and groundwater depletion in northern Bangladesh, disrupting natural hydrological cycles and stressing aquifer systems (Mirza, 2004). Concurrently, reduced sediment loads, a consequence of upstream damming on rivers like the Brahmaputra, destabilize downstream deltaic morphology, impacting floodplains, fisheries, and fertile agricultural lands crucial for Bangladesh's food security (Baruah et al., 2023). These practices, by prioritizing upstream control and resource extraction, disrupt the intrinsic ecological integrity of shared river basins, fundamentally compromising the resilience of downstream ecosystems and the livelihoods dependent upon them. Unequal diversion of water intensifies water stress, drinking water shortages, and affects public health. When combined with the accelerating effects of climate change, which introduces increased hydro-variability, these existing ecological damages are further amplified, pushing the fragile deltaic environment of Bangladesh toward critical thresholds (Gamble et al., 2024). This cumulative ecological stress undermines long-term sustainability and contributes to socio-economic instability in Bangladesh, crippling its abilities to adapt to climate change.

Reimagining transboundary water justice: Toward a cooperative future

Addressing entrenched hydro-coercion demands fundamental transformation in regional water governance. With the pivotal

1996 Ganges Treaty scheduled to expire in 2026, and no substantive resolution in sight for the critical Teesta dispute or the emerging challenges posed by upstream Brahmaputra developments, South Asia's hydro-political future hangs precariously in the balance. The expiration of the Ganges Water Sharing Treaty could present a strategic inflection point for South Asian transboundary river governance. Originally hailed as a landmark bilateral achievement, the treaty's limitations have become increasingly pronounced under contemporary climatic, ecological, and political realities. As Rahman et al. (2019) and Zeitoun et al. (2020) demonstrate, the treaty lacks mechanisms to address climate variability, enforce minimum environmental flows, or guarantee equitable water quality management. Bangladesh, whose very existence is intricately intertwined with these vital river systems, cannot afford to passively await upstream goodwill while its rivers dwindle and its communities face ecological and economic collapse. Nor can regional peace and stability be genuinely sustained if water is continually weaponized as a tool of leverage and political coercion.

The opportunity to renegotiate a more comprehensive Ganges Water Sharing Treaty in 2026 may exist, but the expiration of the existing treaty presents a significant source of tension for Bangladesh. The treaty has proven no longer fit for purpose in an era of climate uncertainty, upstream unilateralism, and widespread ecological degradation. India's upstream control, systematically exerted through unilateral dam construction and riverlinking projects, continues to divert water from the river before it reaches the Bangladesh border. India's practices must be seen not only through material dominance but also as ideational and bargaining tools that structure regional hydro-politics. This represents what Warner and de Man (2020) term "powering"—the coercive application of asymmetrical power relations—as opposed to technocratic "puzzling," which dominates diplomatic narratives. Thus, water treaties that appear cooperative on paper often entrench hegemonic relations in practice, marginalizing downstream needs and rendering political resistance difficult. With the Teesta River agreement unresolved for decades and domestic politics in India continually blocking progress, the Ganges treaty's impending expiration risks a severe worsening of already-strained India–Bangladesh relations, especially unless a modern, climate-responsive, and genuinely equitable treaty is negotiated. From Bangladesh's perspective, a treaty that does not guarantee timely and sufficient water flows is not a treaty of cooperation, it is essentially another mechanism of control.

Countering hydro-coercion requires a form of transformative water governance—a paradigm moving beyond institutional reform to achieve epistemic decolonization that challenges the colonial logics which continue to legitimate upstream riparian advantage. This transformation reframes rivers as ecological commons requiring collective stewardship rather than national resources for competitive extraction (Ahmed, 2021). The transformed governance paradigm proposed here centers on three foundational shifts: scalar expansion from bilateral to multilateral basin-wide governance, temporal adaptation through

climate-responsive institutional mechanisms, and epistemic decolonization that challenges technocratic framings of water as commodity. Unlike conventional governance reforms that merely adjust existing institutional arrangements, this transformation demands fundamental reorganization of power relations, centering downstream rights and ecological integrity as nonnegotiable principles rather than negotiable concessions.

Transformative governance requires four foundational elements: enforceable environmental flow regimes (Smakhtin et al., 2004), real-time data sharing, basin-wide cooperation, and the recognition of access to water as a fundamental human right (Sultana and Loftus, 2020). Such a model would reframe rivers as hydro-social commons, not geopolitical battlegrounds, demanding a shift from water securitization to water justice (Allouche, 2020; Lukes, 2005). Bangladesh could enhance its bargaining power in transboundary water negotiations by strategically diversifying its diplomatic approach and building stronger coalitions. Beyond traditional bilateral discussions with India, Bangladesh could proactively seek multilateral engagement through regional platforms to foster broader discourse and build a regional consensus for cooperative water management, even if these bodies historically have limited mandates on water. In 2025, Bangladesh became the first South Asian country to accede to the UNECE Water Convention. This is evidence of strategic pivot and geopolitical realignment, moving from bilateral vulnerability toward multilateral legal frameworks. Leveraging international forums and legal frameworks such as the Water Convention, could also provide Bangladesh with a normative basis to challenge unilateral actions and assert its downstream rights, although the effectiveness of such instruments against powerful riparians remains a challenge (Woodhouse and Zeitoun, 2008). Furthermore, investing in robust domestic water governance, improving data collection and scientific research on transboundary river flows and climate impacts, and publicly disseminating this information could strengthen Bangladesh's evidence-based arguments and build international support for its position. Engaging nonstate actors, including civil society organizations and academic institutions, in advocacy and public awareness campaigns, both domestically and internationally, could further exert additional pressure for equitable water sharing (Warner and Zawahri, 2012). Diversifying diplomatic alliances, potentially involving countries outside the immediate basin that have stakes in regional stability, could also create additional leverage for Bangladesh.

A just and sustainable water future for the region, therefore, demands more than merely renegotiating existing treaties piecemeal; it necessitates a fundamental structural transformation in how transboundary water is conceptualized and governed. This transformation must encompass several key shifts. Firstly, moving beyond narrow bilateralism toward comprehensive, multilateral basin-level governance structures that genuinely involve all riparian states is essential. This fosters genuine collaboration on planning, development, and environmental management, enabling a more holistic and adaptive approach to water resources. Mechanisms for regular, transparent dialogue and joint decision-making are crucial

for building trust and effectively managing shared risks (Uitto and Duda, 2002). Secondly, future agreements must explicitly embed enforceable ecological safeguards and minimum environmental flows, recognizing water's intrinsic value beyond mere human consumption. This requires scientifically robust assessments of ecological needs and legally binding commitments, moving beyond purely utilitarian considerations (Smakhtin et al., 2004). Thirdly, establishing robust, mandatory mechanisms for transparent and real-time sharing of hydrological, meteorological, and climate data across all riparian states is foundational. This is critical for effective collaborative management, early warning systems for floods and droughts, and building the mutual trust necessary for cooperative adaptive management in a climate-stressed future. Fourthly, there must be a rigorous paradigm shift to recognize that access to adequate water for basic needs, livelihoods, and ecological sustenance in downstream regions is a fundamental human right, not merely a concession from the upstream power. This would ground future negotiations in principles of justice and equity, challenging the colonial logics of extraction and control that continue to dominate current water governance frameworks (Sultana, 2020). Finally, establishing impartial, binding, and accessible independent dispute resolution mechanisms is crucial, offering genuine recourse to downstream nations when agreements are allegedly violated or when new challenges emerge. This reduces the reliance on power politics and ensures a more just application of international water law principles (Salman and Uprety, 2002).

Even from a purely strategic perspective, hydro-coercion is self-defeating for India because climate variability makes rigid control impossible, Bangladesh's political shift shows coercion breeds instability, and China's upstream position means India needs cooperative precedents. But what would force India to accept multilateral frameworks—whether international pressure, economic incentives, Chinese threat making cooperation necessary, climate crisis making unilateral control impossible—are implementation challenges that remain.

Conclusion: The imperative of decolonizing water governance

The core argument of this article is that protracted transboundary water conflicts between India and Bangladesh are not merely technical disputes over resource allocation, but deeply embedded manifestations of hydro-coercive practices that display disregard for the downstream neighbor and its riparian rights. India's upstream dominance, exemplified by the Farakka Barrage and the unresolved Teesta dispute, leverages material, bargaining, and ideational power to maintain control over shared rivers, thereby imposing chronic precarity on downstream Bangladesh. Growing friction over the Brahmaputra River between China, India, and Bangladesh will further strain fragile geopolitical landscapes in the current moment. This dynamic, reinforced by the deployment of

water nationalism and the reshaping of hydro-social territories, fundamentally undermines international water law principles, highlighting a significant gap between legal norms and the realities of power asymmetries in practice. These hydro-coercive practices are embedded within postcolonial and neoliberal frameworks that continue to sideline the voices of the marginalized communities in environmental governance. The escalating impacts of climate change serve as a critical threat multiplier, intensifying existing vulnerabilities and making equitable water governance an even more urgent imperative for regional stability and human security.

Ultimately, addressing the enduring conflicts demands a radical reimagining of water governance in South Asia that extends beyond institutional reform to challenge colonial logics that legitimate upstream leverage. It requires a transformative shift away from a hegemonic, commodified approach to water towards one grounded in joint basin stewardship, ecological justice, data transparency, and the recognition of downstream water access as a fundamental human right and integral to intersectional justice. This requires epistemological rupture, centering Indigenous knowledge and ecological relationships rather than treating water as strategic commodity for national accumulation. Only through such systemic change can the region move toward a future where shared rivers foster genuine cooperation and resilience, rather than remaining potent symbols of power imbalance and perennial conflict.

The broader implications are worth considering. There are regional stability implications—if Bangladesh faces existential water crisis, concerns arise of migration, state fragility, and potential for conflict. There are global implications, as this serves as a test case for transboundary water governance under climate change. There are theoretical implications since this case reveals limits of international law, the nature of contemporary neo-imperialism, and the contours of complex coercive hydro-hegemony.

The approaching expiration of the 1996 Ganges Treaty represents a critical juncture where either genuine hydro-cooperation can emerge or coercive relations will intensify. Recent political transformations in Bangladesh have exposed the extent to which supposedly cooperative frameworks were embedded within structures of dependency, while climate acceleration makes such arrangements increasingly untenable. This moment demands recognition that sustainable water governance cannot rest upon the political subordination of downstream populations.

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