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India-China Relations and the Water Question

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Renewing data-sharing agreements between India and China, and addressing India's concerns over China's proposed "super dam" in Tibet are vital steps towards restoring trust and cooperation, particularly in managing shared transboundary water resources.

Can India and China reconcile their strategic rivalry with the need for deeper economic and diplomatic engagement? This question lies at the heart of one of Asia's most complex bilateral relationships.

For decades, the two countries have navigated a delicate balance between competition and cooperation, marked by a combination of border disputes, strategic mistrust, and increasing interdependence in trade and investment. Recent months have shown tentative signs of a thaw, influenced largely by external pressures such as the tariffs from the United States, which have prompted both governments to prioritise stability in their bilateral ties. High-level engagements, including Indian Prime Minister Narendra Modi's visit to China in August 2025 to attend the Shanghai Cooperation Organisation's meeting, signal a cautious improvement in bilateral relations.

> In 2023, the Pacific Institute recorded 347 violent water-related incidents worldwide. This was a high increase compared to 2022, when the number of such incidents was 231.

There are many obstacles to improved India-China relations. Some key issues include ongoing border disputes, an imbalance in trade, and strategic competition across South and Southeast Asia. The overall nature of their bilateral relationship directly impacts how India and China manage shared water resources.

According to this article, progress will depend on several important steps. First, both countries need to renew Memoranda of Understanding (MoUs) that have expired. These MoUs are crucial for sharing hydrological data. Second, China must provide a satisfactory response to India's concerns about the proposed "super dam" in the Tibet Autonomous Region. Taking these actions could help India and China move towards mending their relationship, especially on matters related to water sharing.

Water as a Flashpoint

Across the world, the expansion of hydropower projects, coupled with growing population and industrial needs, has heightened the potential for disputes over river flow, sediment patterns, and ecological impacts.

In 2023, the Pacific Institute recorded 347 water-related violent incidents worldwide. In 200, only 22 violent incidents occurred, and in 2022, the number of such incidents was 231. These incidents included attacks on water infrastructure, conflicts over access and control, and cases where water was used as a strategic tool.

One major cause of these disputes is the actions of countries located upstream on rivers. Lower riparian countries often accuse upper riparian countries of building hydro infrastructure that affects water flow. Specifically, there are complaints about upstream countries diverting or reducing water during dry seasons, and releasing too much water during rainy seasons.

This geographic reality makes upstream Chinese projects-hydropower dams, reservoirs, and river diversions-a perennial concern for New Delhi. It is estimated that around 718 billion cubic meters (BCM) of surface water flows out from the Tibet Plateau and Xinjiang and Inner Mongolia to neighbouring countries. Of this, around 48% flows directly to India.

Also, Nepali rivers originating from Tibet add to the Ganga Basin. It is estimated that Nepali rivers flowing in India contribute between 40% and 46% of the water in normal times, and the contribution rises to between 70% and 75% during the lean season.

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India fears that large-scale infrastructure could alter river flow, exacerbate seasonal floods, or disrupt sediment patterns downstream, particularly along the upper reaches of the Yarlung Zangbo/Yaluznagbo, which is known as the Brahmaputra River after entering the Indian state of Assam. On this matter, the report of the Standing Committee on Water Resources, presented to the Lok Sabha in 2022, apprehended that though "run of the river" projects undertaken by China may not divert water, " there is every possibility that water can be stored in pondages and released for running the turbines, which may lead to certain diurnal variation in downstream flow and as a consequence have an impact on water flows in Brahmaputra river and thus affect India's endeavours to tap the region's water resources". It recommended to the Indian Government to constantly monitor "the Chinese actions so as to ensure that they do not pursue any major interventions on Brahmaputra river which would adversely affect our national interests".

India's concerns about water flow in the Brahmaputra River intensified in late 2024 when Beijing approved construction of the world's largest hydropower facility-a 60-gigawatt "super dam" in Medog on the lower Yarlung Zangbo near the "Great Bend", close to the India-China border.

Valued at $137 billion, the project was first made public in 2020, and its construction began in July 2025. During an August visit to the Tibet Autonomous Region, Chinese President Xi Jinping hailed the project as part of building a "modern socialist new Tibet", framing it simultaneously as a driver of regional development and as a component of ecological conservation to protect the "roof of the world" and the "water tower of Asia".

India is concerned that the mega dam in China could reduce water flow in the Brahmaputra River by as much as 85% during the dry season. It is estimated that the dam may divert around 40 billion cubic meters (BCM) of water per year. This amount is just over one-third of all the water India receives from the river.

The Brahmaputra is a crucial river for India, especially for the north-eastern states. It provides nearly 30% of the country's freshwater resources and about 40% of its total hydropower potential.

India has urged China to be transparent about the "super dam" project. Many critics see the dam as a way for China to use water as a form of political power, describing it as an example of "hydro-hegemony". They argue that China could use the dam to increase its influence over countries downstream. However, some hydrological data contradicts these concerns. The information does not fully support the dominant Indian narrative about risks to the Brahmaputra River.

According to a 2011 report from the Food and Agriculture Organization (FAO), the Brahmaputra river basin sends 165.40 cubic kilometers of water each year from China to India, and 78 cubic kilometers from Bhutan to India. Of the total Brahmaputra waters, about 537.24 cubic kilometers flow from India into Bangladesh.

However, a Parliament report from 2012, cited in an article by Mark Giordano and Anya Wahal, gives slightly different figures for water flowing into India from China. For the Brahmaputra (specifically the Siang River), the inflow is 78 billion cubic meters (BCM); for the Lohit River, it is 31 BCM; and for the Subansiri River, 18 BCM. These totals do not include the small Drangema tributary. Combined, these rivers bring 126 BCM of water from China into India-which is about 75% of the FAO's number.

> After China decided to move forward with the Medog Hydropower Station, India accelerated its push for the Upper Siang Multipurpose Project on the Siang River in Arunachal Pradesh.

Overall, the Tibet Autonomous Region contributes only between 7% and 30% of the Brahmaputra's total annual flow. The lower figure, 7%, includes only water generated in China and entering the Yarlung Tsangpo within China. Much of the Brahmaputra basin in the Tibet Autonomous Region is located in a rain-shadow, which means it gets little rainfall. In contrast, upstream regions in India, Bangladesh, and Bhutan receive heavy monsoon rains, resulting in much higher river flows.

During peak times, river flows reach roughly 40,000 cubic metres per second at Guwahati in India, and 50,000 cubic metres per second (cumsec) at Bhadurabad in Bangladesh. These figures are much higher than the 5,000-10,000 cumsec recorded at upstream Tibetan stations during the dry season. In the lean season, the flow at Nuxia (upstream in Tibet) is around 300-500 cumsec, while the flow at Guwahati is about 4,000 cumsec, and at Bhadurabad is about 5,000 cumsec.

Nevertheless, even with these figures, large-scale engineering in a seismically active region carries considerable risk. The devastating 7.7-magnitude Tibetan earthquake of January 2025, which claimed more than 100 lives, highlighted the potential for catastrophic downstream consequences should the dam or its reservoirs be compromised. Hydropower projects in such zones not only pose local

environmental risks but also carry strategic implications by regulating the flow of water in the lower riparian region.

India has responded by proposing its own series of "defensive dams" in Arunachal Pradesh. These projects are part of a wider strategy to reduce the risks posed by the Chinese dam.

India has planned 12 hydropower stations in Arunachal Pradesh. After China decided to move forward with the Medog Hydropower Station, India accelerated its push for the Upper Siang Multipurpose Project (USMP) on the Siang River. In Arunachal Pradesh, the river is called the Yarlong Zangbo. The USMP is located in Siang district and is expected to have a reservoir that can hold nine billion cubic meters of water.

This large reservoir could help India in two important ways. First, it could absorb extra water in case China suddenly releases water from its dam, protecting downstream areas from flooding. Second, the reservoir could release water to maintain river flow if China restricts water during dry seasons.

However, there are serious social concerns. It is feared that the USMP will submerge at least 20 villages, and partially flood another two dozen villages. This could displace thousands of people. Local residents have protested against the USMP since 2024. They accuse the government of launching the project without consulting them and of sending paramilitary forces and police to suppress their objections.

Data and Dialogue

From Beijing's perspective, sharing comprehensive hydrological data or agreeing to any binding transboundary water-sharing treaty is seen as a restriction on the territorial sovereignty of a riparian nation, and its right to independently manage its own natural resources. Despite this, India and China have established several forms of cooperation.

> In addition to MoUs, India and China have formalised their collaboration on transboundary rivers through Implementation Plans. For the Brahmaputra, the latest Implementation Plan was signed on 13 June 2019.

These include memoranda of understanding (MoUs) that allow for the sharing of flood-season data on the Sutlej and Brahmaputra rivers. The most recent MoU for the Sutlej River expired in 2020, and the MoU for the Brahmaputra expired in June 2023. Both agreements are still awaiting renewal.

In addition to MoUs, India and China have formalised their collaboration on transboundary rivers through Implementation Plans (IPs). For the Brahmaputra, the latest Implementation Plan was signed on 13 June 2019, during the 12th meeting of the Expert Level Mechanism in Ahmedabad. The last Implementation Plan for the Sutlej River was signed on 13 April 2016.

Apart from these Implementation Plans, the two countries signed an MoU on Strengthening Cooperation on Trans-Border Rivers in 2013. This agreement extended the period for hydrological data sharing from three stations on the Brahmaputra-Yangcun, Nugesha, and Nuxia.

Previously, the data sharing window was from 1 June to 15 October, but it was expanded to cover 15 May to 15 October. Importantly, this MoU does not have a set expiry date, which highlights both countries' commitment to long-term information exchange.

The Expert Level Mechanism was established in 2006. It provides an official platform for India and China to discuss flood-season hydrological data, emergency management, and other concerns linked to transboundary rivers. Each year, meetings are held alternately in India and China. This regular schedule ensures a structured forum for ongoing dialogue and technical cooperation.

The 16th Expert Level Mechanism meeting took place in New Delhi in April 2025. At this meeting, both countries reaffirmed the importance of using this mechanism to maintain communication on flood management and other hydrological issues. This shows that, even when broader political relations are tense, technical cooperation on shared water resources continues and serves as a stabilising factor in India-China relations.

However, the Expert Level Mechanism is mainly a discussion platform. It does not include any legally binding commitments or standardised procedures for verifying data. As a result, there are significant gaps in India's ability to plan for extreme hydrological events.

> Institutional mechanisms have become especially important as water tensions rise in the Himalayan region. High-level diplomatic engagement between India and China has focused on renewing hydrological data-sharing agreements.

Political developments between India and China have affected how these institutional mechanisms work. For example, during the 73-day military stand-off at Doklam in 2017, China stopped sharing hydrological data with India, citing technical problems. However, China continued to provide data to Bangladesh under a separate 2008 agreement. India and China resumed data sharing only in March 2018, after diplomatic relations improved.

In 2018, China supplied India with flood-related information that helped Indian authorities manage risks in Arunachal Pradesh. In 2019, China shared satellite images that enabled officials in Arunachal Pradesh to take advance precautions and reduce flood damage. These examples show that technical data sharing between India and China is closely tied to the wider diplomatic and strategic relationship.

Institutional mechanisms have become especially important as water tensions rise in the Himalayan region. High-level diplomatic engagement between India and China has focused on the issue of renewing hydrological data-sharing agreements. After Modi and Xi met on the sidelines of the BRICS meeting in 2024, both countries agreed to renew MoUs for water data sharing soon.

India's National Security Advisor, Ajit Doval, visited China for the 23rd round of border talks between the Special Representatives (SRs) from both countries. During these discussions, the two sides exchanged views on data sharing for trans-border rivers.

Following this, Indian Foreign Secretary Vikram Misri visited China. During his visit, India and China agreed to hold an early meeting of the India-China Expert Level Mechanism. The goal was to discuss the resumption of hydrological data sharing and explore other forms of cooperation related to trans-border rivers.

More recently, during Chinese foreign minister Wang Yi's visit to India, the two countries agreed to "give full play to the role of India-China Expert Level Mechanism on Transborder Rivers and keep communication on renewal of the relevant MoUs". China agreed to share information during an emergency situation. The water issue did not find space during the Modi-Xi meeting.

Conclusions

Diplomatic gestures and occasional discussions between India and China signal that both countries are willing to cooperate. However, deep-rooted structural and strategic barriers still limit their relationship. Without steps that directly address both countries' political and security worries-and without genuine confidence-building-progress between them is likely to be slow and uneven.

In this setting, managing transboundary water resources provides a practical way to build mutual trust. Renewing the MoUs on hydrological data sharing, along with clear information from China about major projects like the "super dam", could be strong goodwill gestures. Such steps would show a commitment to sharing resources responsibly and reducing risks for countries downstream.

> To move forward, cooperation over shared water resources could act as a practical confidence-building measure that benefits wider diplomatic relations.

India's concerns about China's construction of dams upstream on the Brahmaputra are real. These worries reflect the dangers of seasonal flooding, environmental disruption, and the risks that come with building in an earthquake-prone region. Yet, many of these concerns are shaped by larger geopolitical issues. The Central Electricity Authority in a report released in October 2025 proposed a $77 billion plan for 208 large hydro projects in the north-east with 64.9 gigawatts of hydroelectric capacity and 11.1 gigawatts from pumped storage .

India's decision to suspend the Indus Waters Treaty-a move that affects Pakistan, China's close ally-may reduce New Delhi's leverage in its water negotiations with China. On the other hand, China is likely to view India's worries through the lens of its own regional alliances, strategic interests, and overall policies toward countries downstream.

China is also expected to prioritise its own water security and hydropower needs. The outdated Harmon Doctrine-which claims that upstream countries have full rights over international rivers-is again affecting efforts to cooperate over shared waters. This complex mix of domestic water needs and strategic goals means that water cooperation cannot be viewed in isolation. Technical, ecological, and humanitarian factors are closely linked with broader security and geopolitical concerns.

To move forward, cooperation over shared water resources could act as a practical confidence-building measure that benefits wider diplomatic relations. Renewing expired MoUs on hydrological data sharing would be a sensible and achievable first step. These agreements have faced criticism and have certain limits, but their renewal would help restore trust and allow India and China to move towards better relations.

For China, as the country upstream, sharing accurate and timely water data is both a technical responsibility and a signal of political goodwill. For India, access to reliable data is vital not just for managing floods, but also for planning irrigation, water use, and protecting the environment.

Beyond their direct usefulness, these agreements create regular opportunities for dialogue. They help both governments address problems before they become crises, and link water management to broader efforts to stabilise their diplomatic relationship.

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