China’s New Brahmaputra Dam: Fresh Worries for India Amidst Rapprochement

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China Approves World’s Largest Hydropower Project on Brahmaputra

On December 25, China approved the construction of what will be the world’s largest hydropower dam, on the Brahmaputra River, situated on the eastern rim of the Tibetan plateau. The river drops 2,000 meters over a span of just 50 kilometers, making the site ideal for harnessing hydropower. The project aims to produce 300 billion kilowatt-hours of electricity annually. This is more than thrice the capacity of China’s Three Gorges dam, currently the largest hydropower facility in the world. While Beijing has not officially disclosed the project’s cost, Chongyi Water Resources Bureau estimates it at USD 127 billion. Partially acknowledging concerns of India and Bangladesh, spokesperson Mao Ning said, “the project will not negatively affect the lower reaches” and that China “will continue to maintain communication with countries at the lower

reaches through existing channels and step up cooperation on disaster prevention and relief for the benefit of the people by the river".

The dam project on the Brahmaputra River, which originates in Tibet and flows into the lower riparian regions of India's Arunachal Pradesh and Assam, as well as Bangladesh, has understandably caused tensions in both Delhi and Dhaka. Delhi has previously expressed concerns that such activities may "slow or reduce" the water flow to India. Additionally, there are national concerns about changes to river courses, as well as the potential harm and displacement of downstream ecosystems and communities, similar to the impact of Beijing's previous dam projects. However, Chinese officials, on a number occasions, have conveyed to India that hydropower projects on the Brahmaputra do not involve storage or diversion of the waters, while downplayingany negative environmental and downstream impact. As India "carefully monitors" the dam projects on the Brahmaputra, the river—home to Asia's largest untapped water reserves and a steep descent—has been especially attractive to China, which has built several dams on the Brahmaputra since 2010. Reportedly, Beijing has planned additional upstream projects on the river, which could create a challenging situation for India, even if the ongoing rapprochement continues.

Strategic and Environmental Implications For India

India's long-standing concerns about China's dam constructions and the sharing of hydrological data on shared transboundary rivers can be categorized into three types: intentional, unintentional, and potential.

China, being the upper riparian state, could leverage its location and affect the quantity of Brahmaputra's water flow available to India (a lower riparian country). Indeed, no country is more vulnerable to China's re-engineering of transboundary river flows than India. Over 50% of the Brahmaputra's water is controlled by China, a river accounting for nearly 30% of India's freshwater resources and 44% of its total hydropower potential. Furthermore, India receives nearly half of the waters from rivers originating in regions controlled by China. Consequently, India faces the risk of reduced water flow during dry seasons and flooding during monsoons if excess water is released, potentially leading to loss of lives and property in states like Assam.

Some scholars have suggested that China's control over the rivers in the Tibetan Plateau gives it a "chokehold on India's economy", which is already one of the most water-stressed globally. China could potentially divert the Brahmaputra's

water north (to itself), before it enters Arunachal Pradesh, by using directional blasting techniques at the river's U-bend. Indian anxieties over China's weaponization of waters might not be entirely misplaced given China's Shou-tian Concept. The notion, propagated by the noted Chinese hydrologist Guo Kai, posits reversing the flow of Tibetan water from the South to the North to provide water for its arid North-eastern regions. More importantly, Delhi's experience during the Doklam episode, when Beijing withheld crucial hydrological data needed for flood forecasting and violated the bilateral data-sharing agreement, points to the potential for more malicious intentions. In the same year, the Brahmaputra River turned black and lab reports indicated a level of turbidity that was 250 times the safe level. Amidst widespread concern in the states of Assam and Arunachal Pradesh, China attributed the development to an earthquake that had occurred in November. However, OSINT analysis suggested that such an explanation was untenable and that the most likely cause of the toxicity was a dam construction on the Chinese side.

In terms of unintentional aspects, there is a realistic possibility of natural disasters like earthquakes and floods. Experts like Brahma Chellaney have even deemed the recent project as the "world's riskiest", with the dam planned in a seismically active area. The seismic vulnerability of the eastern Tibetan Plateau, due to its location on the geological fault line where the Indian and Eurasian plates collide, is further exacerbated by the massive scale of the project. This potentially makes the dam a "ticking water bomb" for downstream communities in India and Bangladesh. The 2008 Sichuan earthquake, along the Tibetan Plateau's eastern rim, is revealing of the impact of dam construction on earthquakes. Some Chinese and American scientists drew a link between the earthquake and Sichuan's Zipingpu Dam, which turned operational two years earlier. They suggested that the weight of several hundred million cubic meters of water stored in the

dam's reservoir induced severe tectonic stresses. Even without an earthquake, the new dam could be a threat to downstream communities if torrential monsoon rains trigger flash floods in the U-bend of the Brahmaputra. The fact that the average discharge of the Brahmaputra River—about 19,300 cubic meters per second (CMS)—can be increased fivefold to over 100,000 CMS during floods highlights the grave flooding risks and potential damages India faces. It is notable that during a public event last year, Defense Minister Rajnath Singh pointed to the roleof "inimical forces" behind recent floods in states bordering China.

While there is no conclusive evidence, Singh suggested that China's weather modification capabilities might be contributing to the increased floods in India's northern states. In tandem to South Block's suspicions over Beijing's rattling intentions, the National Security Council Secretariat (NSCS) has reportedly taken up a weather weaponization project to study China's geoengineering vision and capacity for shaping the weather. While China has previously demonstrated its ability to use cloud seeding to induce heavy rains and floods, the NSCS project serves as a reminder of Delhi's heightened sensitivity to the issue.

Diplomatic Challenges and Limited Options

China's recent categorical announcement is likely to revive India's long-standing ecological, humanitarian and strategic concerns as a lower riparian state. The development has come as a reminder to Delhi that the ongoing thaw in bilateral relations does not necessarily ease India's acute security concerns vis-à-vis China, and in this case in a non-traditional security domain. In recent years, India has sought to mitigate the threat by building multiple dams downstream in Arunachal Pradesh. However, this has increasingly become a source of contention, with protests erupting against these projects. Moreover, it remains unclear how these new dams will address the concerns raised by the mega-dam.

Theoretically, India may seek to utilize the ongoing rapprochement in order to draw Beijing’s attention and acknowledgment towards its concerns. India also has the option of cooperating with Bangladesh. However, given the present state of relations with Dhaka, as well as the latter’s own longstanding water-related grievances with Delhi, such a prospect does not appear imminent or very likely. Without a stronger diplomatic approach, Delhi will likely have to accept this growing vulnerability and even cooperate with China in terms of risk mitigation and disaster prevention.