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Co-operation and the Brahmaputra: China and India Water Sharing

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Key Points

- China and India are water-scarce countries that will face significant challenges to food and water security in the future.
- As lower riparians, India and Bangladesh rely on the Brahmaputra River for water, agriculture and livelihoods. Upstream, China holds an important strategic advantage over the river's flow.
- Chinese dam-building and water division plans along the Yarlung Zangbo (the Brahmaputra in India) is a source of tension between the two neighbours.
- The potential for conflict over water between China and India is increased as long as the two countries do not improve communication and co-operation.

Summary

China and India are competing for resources along the Brahmaputra River, which flows through parts of Asia that have been prone to territorial disputes. South Asia is water scarce. Mass dam-building and diversion plans are a source of major tension between India and China. The potential for conflict is low between the two Asian giants; however, a combination of regional competition and water-sharing tension could still threaten regional stability. It is imperative that China, which lies upstream, does not create a situation where India believes its future water security is significantly threatened as a result of damming and other hydro-projects along the Brahmaputra.

Analysis

Geopolitics: India, China and Shared Water Sources

The Brahmaputra River – known as the Yarlung Zangbo in China – has its headwaters in Tibet, and flows 2,900 kilometres from China, through India and Bangladesh where it meets the Ganges River before draining into the Bay of Bengal. India relies heavily on Tibetan water, as it receives almost one-third of its water supply.

Due to multiple causes, both India and China are stressed for water. This water stress contributes to tensions between the two countries. Climate change, depleting aquifers, rapid population growth and urbanisation are placing pressure on scarce water resources within the two countries. Tibet has remained an underlying issue that has an impact on Sino-Indian relations. Coupled with on-going border disputes over Arunachal Pradesh, tension over water has continued to strengthen since China began constructing dams upstream.

China's dam-building agenda has created apprehension within India about the risk of flash floods and landslides affecting millions downstream. In June 2000, a dam burst in Tibet causing flash floods downstream in Arunachal Pradesh. The floods resulted in 30 casualties and seriously damaged Indian infrastructure. A lack of hydrological data exchange between the two countries meant that India was not aware of the approaching flood. Some Indian government officials believe that the flood was intentionally caused by China and suggested that it would knowingly use water as a tool to gain leverage over India. Satellite imagery later confirmed that the dam breach was, in fact, an accident. Nonetheless, India's apprehension over water-sharing with China has continued to be a characteristic of the bilateral relationship.

The Chinese Government announced in 2008 that it would commence building its Zangmu hydroelectricity dam along the middle reaches of the Yarlung Zangbo. The project was perceived by India as the start of Chinese river diversion projects that would ultimately dry up the Brahmaputra. China refused to divulge hydrological information to India on the grounds that it was deemed to be internal matters. When it eventually released information, much of it was contradictory. Speculation of an upcoming water war began to grow in India. By the end of 2015, all six power-generating units of the Zangmu Dam became operational. Despite New Delhi's wariness about Beijing's intentions, China insists that it only has plans to maintain and create further run-of-the-river dams that generate electricity and pose little danger to downstream water security. India, however, remains wary.

Food and Water Challenges Faced by India and China

According to The World Bank, China's current population sits at 1.364 billion people; marginally higher than India's population of 1.295 billion. By 2050, India's population is expected to be almost two billion. India will experience an increase in its demand for food, water and energy. Although the large Chinese population is growing at 0.5 per cent each year, India is on track to surpass China's population within the next seven years.

China's renewable water sources are twice as large as India's, despite only having a slightly larger population. Although water resources are scarcer in India, the country does not have a water supply problem, but rather poor water management practices. India will experience increased water scarcity unless it takes action to alleviate demand-side pressures and expand its water supply.

India

India receives a large amount of rainfall during its monsoon season, but it lacks the ability to store this water. India's poor water management stems from an agriculture sector that consumes the vast majority, about 90 per cent, of its available water supply. Climate change threatens to affect monsoon intensity and frequency, which would prove detrimental to agricultural production and significantly affect Indian food security. Such an event would exacerbate tensions between India and China, particularly if India believes Chinese actions upstream are aggravating the situation.

Part of India's water scarcity can be attributed to poor surface water storage capacity. Storage capacity is one-eleventh of the size of China's. Rapid population growth, urban expansion and significant industrialisation all compound India's water scarcity. By 2030, India's demand for water is expected to surpass supply by 50 per cent. By 2050, India's population is expected to reach 1.6 billion. The country must enhance its water storage capacity, particularly as rapid urbanisation is proving detrimental to India's aquifers and surface waters.

China

China is both water rich and water poor. It sources its water from glaciers, groundwater and surface water, but also has an uneven distribution of water that creates huge scarcity throughout certain regions. The agricultural sector accounts for 70 per cent of China's water use and the coal industry uses a further 20 per cent. Both industries are located in the arid north. North China only receives 20 per cent of the country's total rainfall and snow melt, making the region very water scarce.

China's increasing water scarcity is a complex web of pollution, energy, urbanisation and climate change. Nearly 60 per cent of China's groundwater is polluted. Out of 198 cities that were inspected by the Chinese Ministry of Environmental Protection in 2012, more than 57 per cent of the groundwater was rated "bad" or "extremely bad". Almost 15 per cent of water found in China's major rivers is not fit for use due to pollution and 7.4 per cent of irrigated land is irrigated with polluted water. China's food safety is threatened by pollution from rivers, farming and industrial waste.

With high rates of population growth and urban development, China has an insatiable demand for energy, food and water. Water scarcity threatens the supply of all three of these needs. Statistics on China's freshwater use for coal production are scarce; however, industry consumes the largest share of freshwater. If current trends continue to 2030, China's water

supply will no longer meet demand. Chinese water is heavily subsidised, leading to an undervaluation of the resource. Consumers have little incentive to save water and industry sees it as an expendable resource, which leads to overuse and rising water pollution.

China's population is expected to reach 1.5 billion by 2030. The more developed China becomes, with higher disposable incomes, urban dwellings and domestic water use, as well as higher meat, vegetable and fruit consumption, the more water demand will increase. Increasing rates of urbanisation mean that greater domestic water consumption will come from the transition of water use from village wells to showers and flush toilets. The Chinese Government must meet the water demands of its rapidly increasing urban population and its industrial sector without compromising agricultural production and food security.

Strategic Interests along the Brahmaputra River

Both countries are faced with increasing water demands from a rising middle class. Irrigated farming, while attempting to ensure food security, uses large amounts of water, along with the growth of water intensive industries. Climate change is also adding significant pressure to regional water and food security. Glacial melt in the Himalayas is threatening future water security not only for India and China, but for the majority of South and South-East Asia. The drying up of the Brahmaputra, due to infrequent rainfall, also threatens water supplies and will have an increasingly detrimental impact on health as it could increase the frequency of water-borne disease outbreaks.

Global competition for energy resources is driving the need for hydropower development. Hydropower is a clean alternative source of energy and will enhance economic growth in China. The technology is also said to be reducing the income gap between its eastern and western provinces. Hydropower technology is facilitating greater regional engagement, with countries like Thailand purchasing electricity from China.

Speculation surrounds Beijing's consideration of the Grand Western Water Diversion plan at the Great Bend to divert water to China's arid north. Opponents of the plan argue the proposed rerouting of the Brahmaputra at the Great Bend would significantly decrease the quantity and quality of water flowing into India. Salinity will increase, posing a threat to agriculture, aquatic life and livelihoods downstream. The Brahmaputra makes up 30 per cent of India's water supply. Experts warn that if China proceeds with the project, water flow will be reduced by 60 per cent; enough to create serious consequences downstream. Although China has dismissed its plans as economically and environmentally unfeasible, great suspicion exists within India about the project.

China claims the economic costs and environmental risks are too great for the project to go ahead. Chinese leaders claim they do not want to antagonise India, however, China's historical tendency to withhold hydrological information has created an air of mistrust between the two countries. China has the potential to use water as a political tool. From the Indian perspective, Chinese damming and potential hydro-diversion projects are an

imminent threat to water security. If activity were to escalate, the potential for conflict is likely to increase.

Ramesh Bhattacharji, a former Indian bureaucrat, told *The Diplomat* that the project is unrealistic because of its high financial and environmental costs. If the diversion project were to go ahead, India would have little reason for concern, as the Brahmaputra receives 70 per cent of its flow from rainfall within India. Ramaswamy Iyer, former Secretary of Water Resources with the Government of India, claims, however, that this water entering the Brahmaputra only occurs during monsoon season. As little as a ten per cent change to the upstream flow could have detrimental consequences for India.

In November 2014, the first unit of China's US$1.5 billion Zangmu Hydropower Station became operational. The dam is located in the middle reaches of the river and has the capacity to generate 2.5 billion kilowatt hours of electricity per year. Five other generating units of the project were completed in 2015. China has stated that it will continue to liaise with its downstream riparian, following Indian concern that the dam could disrupt downstream water supply. If this occurs, and is taken seriously by both sides, the potential for conflict would be reduced.

The Potential for Conflict

Established and planned hydropower and water diversion projects along the Brahmaputra are a security concern that has the potential to impact on Sino-Indian relations. China has not yet signed any multilateral treaties, nor did it sign the 1997 UN Watercourses Convention that set the legal framework for rules and co-operation between more than 100 nations and their relevant international watercourses. Given its control over the source of most of Asia's rivers, Beijing is in a unique position to unilaterally secure its water supply and future needs. From the Chinese perspective, India's national security fears over the perceived threat of this shared water source, is an overreaction. China claims that it is only concerned with peaceful development and "win-win" scenarios. The Chinese media has accused India of trying to gain the support of the international community and has also highlighted that India itself uses the Brahmaputra without concern for lower riparians.

India's damming of the Ganges has reduced river flow in Bangladesh. The damming has increased soil salinity and affected agriculture, forcing many Bangladeshis to relocate to north-east India. The influx of Bangladeshis has triggered ethnic conflicts in India's Assam State. If upstream damming were to have an effect on the flow of the Brahmaputra, the potential for ethnic tension in India and Bangladesh could increase. Chinese activity upstream has the potential to exacerbate water scarcity downstream, which, in turn, could lead to mass migration that will affect the entire region.

China maintains an advantageous position as the upstream riparian of the Brahmaputra. It can, theoretically, choose to withhold hydrological information and can build infrastructure to intentionally prevent water from flowing downstream. In practice, however, China is one of India's primary trading partners. India exports raw materials and imports Chinese

electronics and manufactured goods. China and India are arguably the largest powers in the region and, in China's case, a rising global power. The potential for conflict could be seen as relatively low, given their interdependence.

China's place in the international order could encourage it to use water to gain leverage over India. The development of a strategic partnership between the United States and India could be seen as a threat to China's power within the region. Chinese apprehension toward a deepening military connection between the US and India may cause China to use its upstream advantage over India in the future. Given China's desire for regional power, the improving relationship between New Delhi and Washington could increase the likelihood of China engaging in destructive upstream activity.

The potential for conflict remains low, as China is increasingly demonstrating a willingness to co-operate with downstream riparians. Its willingness to engage with transboundary water issues, however, remains susceptible to its political climate and still has the potential to be used as a tool for negotiation. Many of the major rivers originating in Tibet supply water needed for agriculture and livelihoods downstream in many Asian countries. Any plan by China to redirect the flow of this water would be provocative and risk increasing geopolitical tension. China is not party to any international agreement that it is obliged to comply with. If it appears that lower riparians will be significantly affected by its hydro-activity, China's dam-building may destabilise the region and will result in a zero-sum game.

Co-operation along the Brahmaputra: Steps to Avoid Dispute

The 1960 Indus Waters Treaty (IWT) was developed amid an adverse relationship between India and Pakistan. After the partitioning of India and the creation of Pakistan in 1947, 80 per cent of the land irrigated by the Indus was part of Pakistan. The river, however, first flows through upstream India from the Himalayas. Following years of turmoil, India and Pakistan signed the treaty which includes the division of eastern and western rivers, safeguards to ensure the flow of the river through both India and Pakistan, the exchange of hydrological data and the establishment of a permanent commission to oversee the implementation of the treaty. In the event of a dispute, India and Pakistan must both seek advice from a court of arbitration. As a result of the treaty, both countries have been able to peacefully create dam storage solutions along parts of the Indus River.

Despite frequent challenges to India-Pakistan bilateral relations, the treaty was designed to manage conflict over a shared water source. A water-sharing treaty between the two neighbours shows that bilateral water co-operation in hostile circumstances is achievable. While the treaty was possible between India and Pakistan, the situation is different between India and China. Both countries are rising powers in the region, with India's growth expected to surpass China's in the near future. Competition between the two powers creates a different relationship for water sharing; one that is different from that of India and Pakistan under the IWT.

Beijing and New Delhi signed a Memorandum of Understanding (MoU) in 2013, recognising that trans-boundary rivers are an important asset to the development of all riparians. Both countries agreed to strengthen communication and strategic trust. China agreed to provide more hydrological information to India at the start of the flood season. Despite the most recent MoU (there have been earlier ones) information sharing must improve further if Indian apprehension over Chinese activity on the Brahmaputra is to be reduced. India and Bangladesh may find strength by jointly acting to achieve multilateral co-operation with China, however, China's preference for bilateral agreements does not lend much support to this strategy.

Despite China's claim that it is not wilfully antagonising India, conflict may still escalate if either country falsely believes it is under threat from the other. Fear has been created in India because of previous tendencies where the Chinese Government has been unwilling to provide details of its hydro-projects, and when it did, gave contradictory information. There is a need for both countries to develop mutual goodwill. Undertaking joint research projects in the region and sharing water data more extensively could foster stronger bilateral relations. Developing an understanding of shared water resource challenges will, therefore, help limit the potential for conflict.

Implementing efficient water management policies will further reduce the severity of future food and water crises and reduce the risk of conflict. Poor water management and underdeveloped infrastructure undermine Indian food and water security. Water must be conceptualized as a scarce and strategic resource. For China, pollution and unequal natural water allocations threaten this security. Efficient water management is essential to food security, economic growth, population health and social stability. Managing water as a scarce resource with holistic ramifications is essential to reducing the potential for future water wars.

China's role as a water hegemon must involve soft power as the primary use of negotiation and diplomatic actions if it is to avoid destabilising the region. Communication with India, as well as lower riparians, to reach agreements favourable to all parties will dramatically reduce the potential for water disputes. Chinese communication is essential to reassure riparians of its hydro-intentions and reduce the potential for conflict caused by mistrust. In the interest of regional stability, it is crucial that no country feel it is under threat of acute water insecurity as a result of upstream damming or diversion projects. China must change its strategy from "responsive diplomacy" to "preventive diplomacy", where it must be responsible for proactively engaging with riparians so as to prevent disputes.

Only a combination of bilateral co-operation and strong leadership with demand- and supply-side management can influence the future and reduce the potential for a Sino-Indian water conflict. A lack of communication and consultation between China and India has fuelled Indian concerns about Chinese dam-building. The absence of an international treaty between China and India does not mean that conflict is inevitable. A treaty would, however, help to reduce the potential for conflict. Although subject to greater volatility and political willingness, genuine communication and administrative agreements can better ensure

peaceful water relations. Such an outcome would benefit all of the Brahmaputra's riparian states.

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