



Cooperation for Brahmaputra Water between India and China



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Introduction

Our 'Blue Planet' endures constant natural changes in freshwater systems across the globe, both in terms of quantity and quality. However, these changes are amplified in South Asia due to augmentation of population strain, industrialization, climatic changes, glacier melt and urbanization. In such a scenario, water is the new divide between geopolitical regions. One such region is the *Brahmaputra river basin*, which carries highest volume of water with 586 billion cubic meters (BCM) per year (Reddy, M.S. et. al. 2002). This river system has strategic importance as well, as it passes through *two* Asian giant countries, India and China, along with the other riparian state – *Bangladesh*. This paper, however, outlines the debate of Brahmaputra water sharing between India and China only due to following reasons:

Both, India and China are water-stressed nations, which would be consequently leading to increased food and water insecurity in the near future.

The downstream of the river water is being shared by India and Bangladesh for agriculture, water and livelihood and the upstream riparian of the river is owned by China, thereby, building significant *strategic benefit over the river's flow*.

The *damming and upcoming water division agenda* along the *Yarlung Zangbo* tributary (the Brahmaputra in India) by China may escalate conflict between India and China.

Lack of partnerships and hydrological information sharing between India and China is presently the bone of contention across the South Asian region, due to increased competence for river water resource.

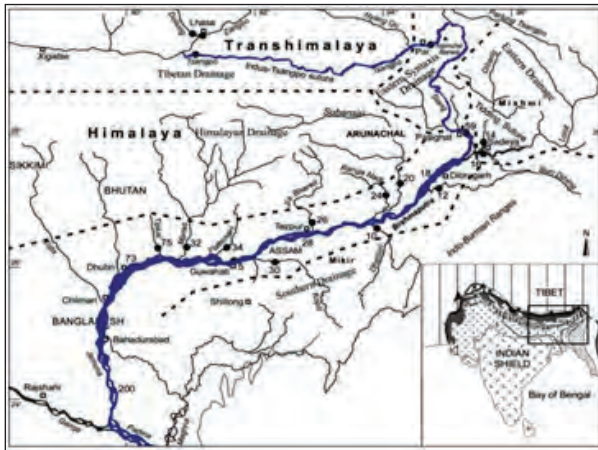
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Figure 1: Brahmaputra River flow across Trans - boundary Nations



The trans-boundary flow of Brahmaputra river, across southern Tibet to break through the Himalayas in great ravine (including the Yarlung Tsangpo Grand Canyon) into Arunachal Pradesh (India), well-known as Dihang or Siang and surges towards southwest through the Assam Valley as Brahmaputra and south through Bangladesh as the Jamuna. (Source: The Indian Express)

Figure 2 The Brahmaputra and its major tributaries



Source: <http://www.indiawaterportal.org/articles/coping-floods-and-erosion-brahmaputra-plains>

The Brahmaputra Water as *the Strategic Resource*

According to the World Bank Report 2015, there has been a brisk increase in the population of China (1.364 billion) and India (1.295 billion), which has intensified demands for food, water and energy

manifold. The drastic sprawl of urbanization and water intensive industrialization has also increased pressure on the river water.

Likewise, climatic aberrations and glacial melt in the Himalayas are also responsible for triggering detrimental effects on the regional water reserves and food security, impartially in both the Asian giant nations.

The increasing competition for constructing clean energy resources due to complex web of pollution in both geopolitical nations, is yet another field of concern. Hence, the use of hydropower technique has come into limelight. It would facilitate building green energy economies along with regional engagements.

Regional Instability

As discussed earlier in the paper, China has hydro-supremacy (i.e. upstream riparian) in the region. Its advantage lies in the fact that most of the Asia's rivers originate from this, thus unilaterally securing water supply and future needs through construction of dams and other water diversion plans such as Beijing's consideration of the Grand Western Water Diversion plan at the Great Bend to divert to China's arid north. Experts warn that if this project is successfully implemented then it would significantly decline quantity and quality of river water streaming in India. This is a major threat to aquatic life, agricultural practices and livelihoods downstream, thus, and would disastrously impact Sino-India relations.

Agenda on dam construction has created apprehensions in India. It has led to flash floods and landslides downstream. For instance, in June 2000, the flash flood in Arunachal Pradesh impacted seriously Indian infrastructures and reportedly resulted in 30 casualties and 50,000 people homeless; owing to bursting of a dam in Tibet. Many in India believed that flood was caused deliberately by China to gain leverage over India, which could have been obviated by sharing hydrological data with lower riparian state (Yan, 2012). This has further amplified the strife between the two giants.

Besides that, China's upstream activity is not only confined to the above consequences but is leading to massive migration in South Asia region, causing many ethnic conflicts (Zhifei, 2013).

Further, the concerns related to the impact of operationalisation of Zangmu hydro power dam in 2015 (which has hydropower generation of 1,126,00GWh along the Yarlung Zangbo River by China) on the sediment flow of the river, have developed anxiety in India. A senior strategic thinker in India has expressed that the Chinese interventions on the Yarlung would be "most dangerous" for India (Chellaney, 2015). Such perceptions and statements have generated new points of contention between India-China hydro-political relations.

China has made control and manipulation of natural-river flow a fulcrum of its power and economic development. Although promoting multilateralism on the world stage, it has given cold shoulder to multilateral cooperations among basin nations (Chellaney, 2011). So, at present by creating an undulating control over trans-border flows, it is aiming to trap Asia's water and may build hydrohegemony.

Adding to further complexities, China has neither been signatory to any multilateral treaties nor has it been a part of the 1997 UN Watercourses Convention. Thus, creating an impunity for itself against legal hassles.

The Brahmaputra river in Tibet known as Xiabuqu river, tributary of Yarlung Zangbo (Brahmaputra river in China), has been dammed and diverted by China, to construct its most expensive hydro project with an investment of USD 740 million and is scheduled to get completed by 2019. Its installation would cause major concerns in India and Bangladesh, viz. migration, flash floods, reduced sediments flow, etc.

Beijing and New Delhi signed a Memorandum of Understanding (MoU), in 2013 recognizing that transboundary rivers and related natural resources are assets of immense value for the socio-economic development of all riparian states. China has agreed that cooperation on

trans-boundary river can be achieved by sharing hydrological data (viz. statistics on water level, discharge and rainfall) with India to forecast floods caused by Brahmaputra in North Eastern India, which would strengthen mutual strategic trust and communication between the II sovereign states. However, India still needs to recognize its geo-strategic location and pursue effectively the novel trans-boundary treaties while reworking on the existing ones. (Indian Express,2016)

Figure 3 China blocks tributary of Brahmaputra to build dam



Source: The Indian Express, Press Trust of India, October 1, 2016

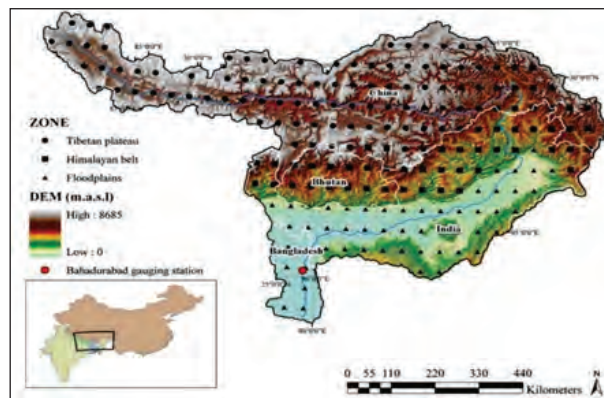
Science Diplomacy for Durable Solutions

In view of this geopolitical tension arising out of 'water grab', it is imperative for China and India to come to a mutual understanding wherein benefits from the river basin can be accrued by the both. This is significant to foster sustained regional stability, which can be achieved by the mechanisms as discussed below.

Exchange of scientific information such as transparency in sharing of details of hydrological data, satellite images, maps (as depicted in Figure 4) and statistics (as illustrated in Figure 5), undertaking joint research projects etc. are significant for fostering stronger bilateral relations. For instance, the exchange of geo-database of Orontes River between Lebanon (upstream), Syria (mid-stream) and Turkey (downstream) has enabled in formulating and building successful and inclusive trans-boundary

water resources management system and hydro-diplomacy (Ministry of Foreign Affairs and International Cooperation, 2015).

Figure 4 Physiographic Zones of the Brahmaputra Basin



Source: Bandyopadhyay, J., Ghosh, N. and Mahanta, C., 2016)

Figure 5 Topographic Regions of the Brahmaputra River Basin

Topographical region	Area (Sq km)	Geographical location
High Tibetan plateau	293,000	Southern Part of the Tibet province of China
High Himalayan mountains	137,050	Part of Himalayan kingdom of Bhutan and 3 states of India: Arunachal Pradesh, West Bengal and Sikkim
Brahmaputra Valley	56,200	Part of Assam State of India
Lower (Assam) Mountainous Region	37,200	Part of 3 states of India: Nagaland, Assam and Meghalaya
Plains	56,550	Part of West Bengal (India) and part of Bangladesh

These preliminary data would facilitate policy-makers to design appropriate sectoral policies for mitigating and adapting to predictions.

A water sharing treaty between the two neighbours needs to be drafted and formalized to endorse bilateral water cooperation. Defining governing principles for sharing costs and benefits of the water resource development projects in the river basin would be highly desirable for reducing conflict between the co-basin countries. This point could be referred from the Indus Water Treaty of 1960 between India and Pakistan, the 2002 Water Agreement between Syria and Lebanon (wherein hydro-diplomacy/science diplomacy played an integral role and weaker state like Lebanon got the leverage benefits in excess of initial basic expectations), and the Mackenzie River basin transboundary waters master agreement of 1997

between Alberta and the Northwest territories in the Mackenzie river basin.

Implementation of novel Information and Communication Technologies (ICT) in collaboration with the Ministry of Energy and Water, along with policy makers and water experts, could constitute an important basis for discussion to increase awareness and knowledge by sharing data and providing modeling training to plan sustainable water policies (Ministry of Foreign Affairs and International Cooperation, 2015).

For deepening the political discourse, annual dialogue at the national and sub-national levels, among different stakeholders' or institutions viz. policy makers, diplomats, research analysts etc., is the need of the hour (Observer Research Foundation, 2014). It would facilitate in finding an integrated approach towards policy-making, decision-making and cost-sharing across different sectors of the two nations, industry, agriculture, urban development, ecosystems, navigation etc., by taking into the consideration for reducing poverty. Presumably, would enable both the Asiatic giants in building positive collaboration and mutual goodwill.

In addition to the above, it would be appreciated if China changes its strategy from 'responsive diplomacy' to 'preventive diplomacy' to proactively engage with lower riparian states. This would enable in dissolving mistrust and regional tension among the nation states.

An all-basin cooperation is yet another alternative tool for amplifying optimal utilization of the water resources than sub - basin level (Huang, 2015). All-basin reports, data or maps implying to the information which is inclusive of all the tributaries of the Brahmaputra river, viz. Lohit, Kameng, Teesta, Subabsiri, Manas, Raidak, Kolong, Dibang, Jaldhaka and Dhansiri, whereas sub-basin facts are limited to some or major tributaries of the river within specific regions. The current technology makes it more achievable to obtain and gather basin-wide / all-basin evaluation reports and scientific information. By examining and exchanging geo-database, so obtained by assessing basin-wide

information pertaining to watershed management (such as drainage area, catchment area, etc.), an integrated and inclusive all-basin cooperation can be established among the co-basin countries. Thus, making it practically viable for nations as well as states to share benefits of hydrological data and sustainably mitigate existing as well as future detrimental challenges.

Further, the geodatabase so obtained would enable to procure financial assistance from international development banks in the hour of need and would facilitate in reconciling national and international water policies to avoid sensitive territorial irritants.

As Kofi Annan said, “...the water problems of our world need to be only a cause of tension; they can also be a catalyst for cooperation....If we work together, a secure and sustainable water future can be our”. The negotiations of riparian states should therefore, continue to focus on the benefit sharing and win-win option instead of water-sharing scheme (which usually results in accentuation of conflicts among the transboundary nations), so as to create and show a concrete example of positive synergies contributing to conflict prevention and regional stability.

Conclusion

As a matter of fact, water is a significant critical national asset and is the key to socio-economic development and quality of life for the human race. Forty per cent of the world’s population is living at the beginning of the 21st century in trans-boundary river basins (Phillips et al. 2006). Transboundary waters contribute to 50 percent of the world’s available water resources (Phillips et al. 2006; Earle et al. 2010) and their contribution is even greater in water-stressed areas. While flowing they offer ample opportunities for water utilization, but equally they create barriers. Their management does not take place in a vacuum but rather requires inclusive complex political and economic framework.

Referring above approaches, Brahmaputra river water can, therefore, become a source of cooperation and goodwill among co-basin

nations, India and China, by building desired reliable relations needed to setup joint scientific research projects and more extensive hydrodata and information sharing norms (Tenzin, 2015). The tectonic and ecological fragility of the region, thereafter, calls for holistic approaches to accomplish sustainability in utilizing river water.

Finally, a more informed and integrated water management regime that would understand the critical ecosystem services of water in terms of providing food, shelter, clean water and sanitation, sustenance of aquatic ecosystems in the region, can help in the long run to achieve Sustainable Development Goals (SDGs).

References

- Bandyopadhyay, J., Ghosh, N. and Mahanta, C. (2016). IRBM for Brahmaputra Sub-basin – Water Governance, Environmental Security and Human Well-being. New Delhi: Observer Research Foundation, p.11.
- Chellaney, B. (2011). *Water: Asia’s New Battle Ground*. Georgetown University Press, Washington, D.C.
- Chellaney, B. (2015). India must treat water as strategic resource, fight China’s throttlehold. *Hindustan Times*. Available at: <http://www.hindustantimes.com/analysis/this-cannot-be-watered-down/story-nc9Uvq2ek3hhenVSnu3HLO.html> [Accessed 21st February, 2017].
- Chellaney, B. (2013). China’s Hydro – Hegemony. *The New York Times*. Available at: <http://www.nytimes.com/2013/02/08/opinion/global/chinas-hydro-hegemony.html> [Accessed 19th January, 2017].
- Earle A., Jägerskog A. and Ojendal J. (2010). *Transboundary Water Management: Principles and Practice*, 1st ed. Taylor & Francis.
- Huang, Z. (2015). Case Study on the Water Management of the Yaluzangbu / Brahmaputra River, [online] Volume 27:229, p.229. Available at: <https://gielr.files.wordpress.com/2015/04/huang-final-pdf-27-2.pdf> [Accessed 02nd February, 2017].
- Ministry of Foreign Affairs and International Cooperation, (2015). Science diplomacy and transboundary water management - The Orontes River case. France: UNESCO, p.29-214.
- Observer Research Foundation, (2014, July). India, China need to institutionalize water resources sharing: Jairam Ramesh. [online] Kolkata: Observer Research Foundation. Available at: <http://www.orfonline>.

org/research/india-china-need-to-institutionalize-water-resources-sharing-jairam-ramesh/ [Accessed 22nd February, 2017].

- Phillips D.J.H., Daoudy M., Öjendal J., Turton A. and McCaffrey S. (2006). Transboundary Water Cooperation as a Tool for Conflict Prevention and for Broader Benefit-sharing Ministry for Foreign Affairs, Stockholm, Sweden.
- Press Trust of India. (2016). China Blocks tributary of Brahmaputra in Tibet to build dam. The Indian Express. Available at: <http://indianexpress.com/article/india/india-news-india/china-blocks-tributary-of-brahmaputra-in-tibet-to-build-dam-impact-on-india-3059242/> [Accessed 18th January, 2017].
- Reddy, M.S.; N.V.V. Char; Mukherjee, S.; Afzal, N.; Qutab, S.A.; Basnyat, D.; Karmacharya, J.; Miah, M.M.; Nickum, J.E.; Rahman, K.; and Rasheed, K.B.S. (2002). Water supply - demand gaps in South Asia, and approaches to closing the gaps. A draft report

prepared for the project on 'Water and Security in South Asia'. Johns Hopkins University, Washington D.C. and Global Environment and Energy in the 21st Century (GEE - 21), Hawaii.

- Sasi, Anil. (2015). As clearances turn into hurdles, Brahmaputra edge lost to China. The Indian Express. Available at: <http://indianexpress.com/article/india/india-news-india/as-clearances-turn-into-hurdles-brahmaputra-edge-lost-to-china/> [Accessed 19th January, 2017].
- Tenzin, P. (2015). China, India and Water across the Himalayas. The National Interest, July 29.
- Yan, Wang. (2012). The River Wild. News China. Available at: <http://www.newschinamag.com/magazine/the-river-wild> [Accessed 20th February, 2017].
- Zhifei, Li. (2013). Water Security Issues in Sino-Indian Territorial Disputes, South Asian Studies Quarterly 4: 29-34.