

MP-IDSA *Commentary*

China's Mega Dam on the Yarlung Zangbo: India's Concerns

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S*ummary*

China's decision to build a mega dam in Medog County poses significant ecological risks.

The Chinese government granted approval on 25 December 2024 to build the largest hydroelectric dam in the world—the 60 GW dam at the Great Bend of the Medog County in the Xizang (Tibet) Autonomous Region.¹ The announcement of this latest mega project is unsurprising as it was featured in China’s 14th Five Year Plan (2021–2025) as, ‘The development of hydropower in the lower reaches of the Yarlung Zangbo River’.² Subsequently, on 26 November 2020, Yan Zhiyong, Chairman of the China Power Construction Group Co. Ltd., declared that the project will be “for national security, including water resources and domestic security” as well as cooperation between China and South Asia.³

There is unease in India that the project will reduce the flow of water in the Brahmaputra. The Ministry of External Affairs (MEA) urged the Chinese to ensure “that the interests of downstream states of the Brahmaputra are not harmed” and stated that India will continue to monitor the project to protect its interests.⁴ Chinese officials have insisted that ‘in-depth’ scientific evaluations will be carried out on the project to safeguard the ecological environment and that they “will continue to maintain communication” with the riparian states.⁵

In the above context, stakeholders, especially communities living around the basin region, need to watch prudently as several scientific studies have shown the negative impacts of hydropower projects on the ecology and indigenous communities, not to mention the effects of climate change on hydropower projects.

India–China Cooperation on Hydropower Issues

India and China signed an agreement in 1993, which exclusively focuses on the environment.⁶ Both sides agreed to the exchange of scientists, scholars, specialists and environmental management personnel to address environmental issues,

¹ [“China Approves Construction of Hydropower Projects in Lower Reaches of Yarlung Zangbo River”](#), The State Council Information Office, The People’s Republic of China, 25 December 2024.

² [“Outline of the 14th Five-Year Plan for National Economic and Social Development of the People’s Republic of China and the Long-term Objectives for 2035”](#), National Development and Reform Commission, 3 November 2020.

³ [“Breaking News: The Decision on the Development of Hydropower in the Lower Reaches of the Yarlung Zangbo River has been Finalized, with a Scale of Nearly 60 Million Kilowatts, Equivalent to ‘Rebuilding Three Gorges’”](#), *The Paper*, 28 November 2020.

⁴ [“Transcript of Weekly Media Briefing by the Official Spokesperson”](#), Ministry of External Affairs, Government of India, 3 January 2025.

⁵ [“Foreign Ministry Spokesperson Mao Ning’s Regular Press Conference”](#), Ministry of Foreign Affairs, The People’s Republic of China, 27 December 2024.

⁶ [“Agreement on Environmental Cooperation Between the Government of the Republic of India and the Government of The People’s Republic of China”](#), Ministry of External Affairs, Government of India, 7 September 1993.

including protection of biodiversity, climate change, water quality protection, environmental impact assessment procedures, wildlife conservation and environmental legislation and enforcement.

Over the years, several MoUs have been signed for enhancing research collaboration among the epistemic communities of India and China. This includes the MoU signed on 14 January 2002 between the Department of Science and Technology (DST) and the Chinese Academy of Sciences for the exchange of scientists, technical information, joint investigation and joint conferences and lectures.⁷ An MoU was signed on 23 June 2003 between the DST and China National Natural Science Foundation to undertake collaborative research in physical sciences, mathematical and biological sciences.⁸ Another MoU was signed on 7 September 2006 for setting up Joint Steering Committee for collaborative research in the fields of pharmaceutical research, renewable energy and marine resources.⁹

In the case of river water sharing of Brahmaputra, in order to optimise the use of the river’s resources, China and India had signed an MoU on 14 January 2002 under which China provides hydrological data to India from 15 May to 15 October each year. This information is critical as it supports in the management of potential flooding in downstream regions. During the 73 days military standoff at Doklam on the India–China border in 2017, China stopped releasing hydrological data “due to technical reasons”.¹⁰ The MoU was renewed in 2008, 2013 and 2018.¹¹ It expired on 5 June 2023, and negotiations for renewal are in process.¹²

In addition to the MoUs, an Expert Level Mechanism (ELM) was formed in 2006 to facilitate dialogue and cooperation regarding the management and utilisation of the

⁷ [“Memorandum of Understanding Between Department of Science and Technology of the Republic of India and the Chinese Academy of Sciences of The People’s Republic of China on Cooperation in Science and Technology”](#), Ministry of External Affairs, Government of India, 14 January 2002.

⁸ [“Memorandum of Understanding Between the Department of Science and Technology, the Republic of India and the National Natural Science Foundation of China, The People’s Republic of China”](#), Ministry of External Affairs, Government of India, 23 June 2003.

⁹ [“Memorandum of Understanding on Science & Technology Between Ministry of Science & Technology, Government of the Republic of India and the Ministry of Science & Technology, Government of The People’s Republic of China”](#), Ministry of External Affairs, Government of India, 7 September 2006.

¹⁰ [“Question No. 644 Stoppage of Data Sharing by China on Parachu River”](#), Ministry of External Affairs, Government of India, 8 February 2018.

¹¹ [“India-China Cooperation”](#), Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India.

¹² [“Visit of Foreign Secretary to China”](#), Ministry of External Affairs, Government of India, 27 January 2025.

Brahmaputra river’s resources.¹³ Every year, the ELM holds meeting alternately in India and China. The 14th ELM meeting was held on 20–21 June 2023 in New Delhi, wherein hydrological data of Yarlung Zangbo-Brahmaputra River in flood season was reviewed.¹⁴

It is to be noted that apart from MoUs at the governmental level, there is limited collaboration between the epistemic communities of the two countries. In a survey on research collaboration between India and China (co-author publication), specifically in the ‘environmental sciences’ discipline from 2015 to 2018, it was ascertained that at least one author with a Chinese institutional address was present in 2,021 articles and Indian authors were represented in 537 articles. Meanwhile, in only eight articles, were the two countries both included in the authorship team.¹⁵ These could be due to linguistic and cultural differences and unresolved border disputes which tend to keep Indian and Chinese academics apart, even in international meetings.¹⁶ Maharaj Pandit, a professor of environmental studies at University of Delhi, underscored, “geopolitics and jingoism have been the bane of scientific collaboration between the two countries”.¹⁷

Some positive outcomes, though, have occurred as a result of interactions among Indian and Chinese scientific communities on the subject of the Brahmaputra river. The ‘Brahmaputra Dialogue’ was set up in 2013 by the South Asian Consortium for Interdisciplinary Water Resources Studies (SaciWATERS), Hyderabad. Briefing on the outcome of the interactions, Anamika Barua of IIT Guwahati explained that there was initially apprehension about inviting Chinese experts. However, a forum was held in 2015 where participants from Bangladesh, Bhutan, China and India were able to express views and opinions. Consequently, one major outcome of the dialogue was the signing of an MoU between IIT Guwahati and Yunnan University on 9 September 2017, to carry out data sharing, and exchange of faculty and students to conduct joint research on the Brahmaputra Basin.¹⁸ Ultimately, a basin-level project, ‘Water resources vulnerability and security assessment of the YarlungTsangpo-Brahmputra transboundary river basin’ was initiated and funded

¹³ [“Joint Declaration by the Republic of India and People’s Republic of China”](#), Ministry of External Affairs, Government of India, 21 November 2006.

¹⁴ [“India-China Cooperation”](#), no. 11.

¹⁵ Eben Goodale et al., [“Increasing Collaboration Between China and India in the Environmental Sciences to Foster Global Sustainability”](#), *Ambio: A Journal of Environment and Society*, Vol. 51, 2022, pp. 1474–1484.

¹⁶ Kamaljit S. Bawa et al., [“China, India and the Environment”](#), *Science*, Vol. 337, 2010, pp. 1457–1459.

¹⁷ Jacob Bryer and Subhra Priyadarshini, [“Borders Worth Protecting”](#), *Nature*, 30 June 2021.

¹⁸ Anamika Barua, [“Taking with the Chinese on the Brahmaputra”](#), *Dialogue Earth*, 19 April 2018.

by China National Natural Science Foundation and the International Centre for Integrated Mountain Development.¹⁹

These partnerships need to be strengthened and meaningful dialogues have to take place not just between governments but also between members of the civil society and each other’s epistemic communities. The Yarlung Canyon and its surrounding areas and the Dibang valley in Arunachal Pradesh, for instance, are an ideal region for a trans-boundary conservation area, as it hosts several important species of flora and fauna. Researchers from the Wildlife Institute of India have discovered the presence of *Panthera tigris* in the Dibang valley of Arunachal Pradesh.²⁰ Similarly, researchers from Kunming Institute of Zoology, China were able to ascertain the presence of Asia’s largest apex predator, tiger (*Panther tigris*) in the Medog region.²¹ In recent years, a group of Chinese academicians has urged the Chinese government to declare Yarlung Tsangpo as a national park to fulfil China’s commitment to the Convention on Biological Diversity.²² Peng Kui, Manager of the Beijing-based Global Environment Institute, has urged the Chinese government and scientists for research collaboration on nature reserves located in South Tibet and Myanmar.²³

Conclusion

The United Nations Secretary General, António Guterres has pointed out that humanity continues to wage “war on nature” as a result of which biodiversity is facing an existential threat.²⁴ China’s decision to build a mega dam in Medog County, indeed, poses ecological risks as the proposed site is considered to be a seismically active zone. The threat of a Glacial Lake Outburst Flood is significant as scientific studies have shown that the Eastern Himalayan region is at the

¹⁹ Anamika Barua et al., “[Re-interpreting Cooperation in Transboundary Waters: Bringing Experiences from the Brahmaputra Basin](#)”, *Water*, Vol. 11, No. 12, 2019, pp. 1–22.

²⁰ Aisho Sharma Adhikarimayum and G.V. Gopi, “[First Photographic Record of Tiger Presence at Higher Elevations of the Mishmi Hills in the Eastern Himalayan Biodiversity Hotspot, Arunachal Pradesh, India](#)”, *Journal of Threatened Taxa*, Vol. 10, No. 13, 2018, pp. 12833–12836.

²¹ Xue-You Li et al., “[Tiger Reappearance in Medog Highlights the Conservation Values of the Region for this Apex Predator](#)”, *Zoological Research*, Vol. 44, No. 4, 2023, pp. 747–749.

²² Fang Wang et al., “[Add Himalaya’s Grand Canyon to China First National Parks](#)”, *Nature*, 13 April 2021.

²³ Peng Kui, “[As COP15 Moves to Canada, China Must Become an Active President](#)”, *Dialogue Earth*, 19 July 2022.

²⁴ “[Secretary-General’s Address at Columbia University ‘the State of the Planet’](#)”, United Nations, 2 December 2020.

greatest risk.²⁵ Large dams alter sediment transport, leading to riverbed degradation and a decline in fish population, not to mention the destruction of livelihood where communities living in downstream depend on rivers and the surrounding environment.²⁶

The Yarlung Tsangpo Grand Canyon is home to ethnic minorities of Tibetan, Monpa, Lhonba and Deng people and downstream of the Dibang valley in Arunachal Pradesh, the Mishmi and the Adi tribal communities reside. China is a signatory to the United Nations Declarations on the Rights of Indigenous People 2007 and the Kunming-Montreal Global Biodiversity Framework 2022.

There is absence of comprehensive bilateral treaty to govern transboundary water resources between India and China. An invigorated ELM that can discuss outstanding issues pertaining to water sharing is vital to address concerns and reduce geopolitical tensions fuelled by water resources. To substantiate mutual trust and prevent conflict, indeed, Indian and Chinese epistemic communities have also the potential to play an important part in fostering conversation and collaboration. Public policy on river basin management should be driven by ‘informed science’ and real data.

²⁵ Georg Veh et al., “[Hazard from Himalayan Glacier Lake Outburst Floods](#)”, *Proceeding of National Academy of Science*, Vol. 117, No. 2, 2019, pp. 907–912.

²⁶ Qiuwen Chen et al., “[River Damming Impacts on Fish Habitat and Associated Conservation Measures](#)”, *Reviews of Geophysics*, Vol. 61, No. 4, 2023, pp. 1–64.

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