



# China's Hydropower Project Across Brahmaputra and Balancing Regional Sustainability Goals

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## Abstract—

Nation-states often connect transboundary river systems through human-made uses of river water, such as dams and canals. This man-made use of the transboundary river system frequently ignites discussions about a set of rights, like the right to use river water, for achieving the sustainable development goals of other riparian States. The Brahmaputra river is a transboundary Himalayan river that spans four riparian nations. China, India, Bhutan, and Bangladesh. China is the upper riparian nation, and India, Bhutan, and Bangladesh are the lower riparian States. China has started constructing a hydropower dam known as the Motuo Hydropower station on the river Brahmaputra, also known as river Yarlung Tsangpo. The decision by the Chinese government to construct a hydropower dam across Brahmaputra river will certainly have implications on the downstream countries' use of Brahmaputra's water and their sustainable development goals. So far, it seems achieving consensus appears a remote possibility, as each State's interests, driven by political pressures, tend to override the shared normative principle of sovereign equality, which is a fundamental aspect of international law.

The study in this article establishes the foundation for reaching consensus among the four riparian states to achieve their goals by taking the example of Nile river basin. Additionally, the study will critically analyze the impact of China's major dam project on the Sustainable Development Goals of other riparian nations and will provide relevant suggestions.

## Keywords—

*Brahmaputra River, transboundary water, hydropower dam, riparian states, sustainable development goals*

## 1. Introduction

China's Tibet Autonomous Region holds one of the world's largest freshwater reserves outside the polar regions and provides water resources that sustain nearly one-fifth of the global population.[1]. The major river basins that arise from the confluence of the Tibetan Plateau and the Himalayas include the Ganges–Brahmaputra–Meghna, Indus, Yangtze, and Mekong basins. Except for the Yangtze, these basins are transboundary in character. Each year, an estimated 700 billion cubic meters of water flow from Tibet, Xinjiang, and Inner Mongolia into neighboring nations, with nearly 48 percent of this outflow directed toward India. [2]. More than 50 transboundary rivers enter Bangladesh, making up a significant portion of the world's second-largest river basin network. As noted by Brahma Chellaney in his 2012 book *“Water: Asia's New Battleground,”* China is poised to become “Asia's water hegemon” in the coming years, primarily due to its advantageous geopolitical location [3].

The transboundary river systems originating in China's Tibet hold immense significance for the nations they flow through. These rivers are essential water resources for

agriculture, domestic consumption, and industrial use, while also regulating climate and flood control. They support the livelihoods and economies of millions and are crucial for maintaining ecological balance and biodiversity. As water demand rises and climate change intensifies, the importance of these shared river systems is expected to increase even further. In the downstream countries, various environmental projects, irrigation dams, and barrages have been developed along the Brahmaputra River. However, the construction of a massive dam could lead to the displacement of long-settled riverine communities and force them to adjust to deteriorating living conditions. Moreover, such a large-scale project is likely to disrupt agricultural communities and significantly alter the entire ecological framework of the Brahmaputra River basin.

China has not only built the Motuo Hydropower Station on the Brahmaputra River, but, as the upper riparian state, it also exercises significant control over the river's flow. This situation poses serious concerns for the lower riparian countries because, geographically and because of its size, China's position gives it the ability to influence water availability, security, economic growth, environmental stability, and geopolitical dynamics in multiple ways. By managing the timing and volume of water released downstream, China can potentially disrupt agricultural systems dependent on regular irrigation, diminish access to drinking and industrial water supplies, and endanger ecosystems that rely on the river's natural flow patterns.

Such a one-sided approach could spark regional tension, as the lower riparian states, if relatively smaller in size, may perceive this control as a means of exerting economic or political pressure, or even as a potential threat, thereby straining diplomatic relations over shared water resources. As a result, the water security of the lower riparian states remains vulnerable and exposed to uncertainty.

These issues could have been resolved by reaching a consensus among the States. Reaching consensus for resolving issues is also a matter of international law concern. Challenges are faced by the riparian States, such as the province of Assam, Arunachal Pradesh in India and several parts of Bangladesh, are likely to face consequences because of the dam and the weather pattern across the region is likely to be disrupted because of this hydropower project[5]. There is a growing demand for water all across, due to economic and development needs, and for agricultural purposes. Additionally, the population growth, which is an over encompassing factor, is likely to increase the stress on the water resources of the region.

This paper examines China's control over water in the Tibet region, identifies potential threats to lower riparian states, and proposes long-term consensus-building measures to safeguard their water security. The consensus-building approach, as proposed, is based on Nile Basin perspectives. Further, the study concludes with a summary of findings.

## **2. About the River Brahmaputra/Yarlung Tsangpo River**

The Brahmaputra sub-basin catchment covers approximately 580,000 square kilometers, spanning Tibet (China), Bhutan, India, and Bangladesh. Of this area, around 2,93,000 square kilometers are in Tibet, 2,40,000 square kilometers in India and Bhutan, and 47,000 square kilometers in Bangladesh [6].

The Brahmaputra river, however, is significant for India because it is a transboundary river that originates in China, a large part of it flows into north-east part of India and further it continues into Bangladesh. The main part of Brahmaputra river does not flow directly through Bhutan, but the country is a crucial part of the Brahmaputra River basin, contributing significantly to the river's total discharge through its tributaries like Manas and Sankosta. These two rivers originate in Bhutan and drain into the Brahmaputra, impacting its flow and the Basin's overall hydrology [7].

China's construction of dams and possible diversion of river courses is in competition with New Delhi's desire to maintain the users' rights on the river and further India's consolidation of its existing land territory across North Eastern States, Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura, a claim that is disputed by China. Additionally, being a lower riparian State, India also has to manage i) flooding and ii) soil erosion caused in its northeastern states [8].

Considering this situation, India has initiated diplomatic discussions with both China and Bangladesh to strengthen cooperation by fully implementing existing agreements and enhancing transparency regarding its own dam construction and river-linking projects. However, considering the gradual yet significant effects of the river on India's population, industry, and agriculture, the country needs to devise innovative strategies to foster collaboration with both its upper and lower riparian neighbors [9].

### **2.1 India as the Middle Riparian Country**

India lies as the middle riparian State on the Brahmaputra river, situated between China upstream and Bangladesh downstream. The river's complex and shifting braided course across the three nations mirrors the political dynamics among them.

The river originates in Tibet, which has been a persistent point of contention between India and China since the Dalai Lama's asylum in India in 1959 [10]. China's construction of dams along the Yarlung Tsangpo, especially in its lower stretches near the Great Bend, is not only part of its broader infrastructure development strategy but also serves to consolidate China's claims over disputed areas like Arunachal Pradesh. This can be China's geopolitical policy objective, seeking to enhance China's influence in these contested regions [11]. Water-sharing negotiations are frequently intertwined with wider diplomatic dynamics, as reflected in past incidents. For example, during the 2017 Doklam standoff between India and China, Beijing suspended the exchange of hydrological data, officially attributing the move to technical issues like flood-damaged monitoring stations. Nevertheless, analysts contend that this interruption was directly linked to the escalating tensions between the two nations [12].

China considers its sovereign control over transboundary rivers that can be exploited according to its own discretion—an outlook rooted in an older theoretical concept. This approach contradicts the shared normative principle of sovereign equality, which is a fundamental aspect of international law and multilateralism. China considers international water Conventions and Treaties on transboundary rivers to be subordinate to its interests and sovereign rights. This position is reflected in its decision not to sign the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, that seeks to promote cooperation and equitable management of shared rivers among riparian nations. China's refusal to endorse this Convention has fostered mistrust in the region, and India being particularly affected [13].

Indian scholars and policy analysts that are representatives from the northeastern states of Arunachal Pradesh and Assam [14] have often expressed their concerns and assessments about China's activities—particularly the plan to construct dam and divert the course of the river [15]. The emphasis of the Indian government is on fostering evolving cooperation with China. Within India, however, civil society voices have consistently raised concerns regarding China's lack of transparency in its upper riparian undertakings. In essence, skepticism toward China is widely shared across India, even as vigorous debates continue over the nature of China's actions, its underlying motives, and their potential consequences for India.

### 3. The Legal Background

The earlier legal theories relied on conventional features depicting the rights of the States through which that river flow, i) including absolute territorial sovereignty, ii) absolute territorial integrity, and iii) prior use. Absolute territorial sovereignty and integrity are based on the "arbitrary" consideration of the States, while determining their rights in the use of the river. These features are advantageous to the upper riparian State. Prior use is premised on the notion that first in time is first in right. However, these three aspects have become critical with the international community, as in contemporary times, the transboundary use of rivers has increased. The earlier notions on the use of river water were primarily focused on the effect of the river use in only one State, and mainly the upper riparian State, disregarding injurious effects to other co-riparians. In 1954, the International Law Association turned its focus to issues concerning internationally shared water resources. Its first river Committee unanimously formulated a set of principles embodying customary international law, which came to be known as the Helsinki Rules of 1966, on the uses of the waters of International Rivers. The ILA rules were widely accepted across the world as non-binding rules of International Water Law [16].

One of the key principles of International Law, as included in the Helsinki Rules, reflects that every basin State has the right to reasonable use of the river basin water. Basically, it discards the unlimited sovereign position of the upper riparian State, which gave unqualified rights to use the river water. Following the Helsinki Rules, further work by the International Law Commission on a framework Convention was devised by UN, and was accepted by the General Assembly in 1997. The 1997 UN IWC (International Water Convention) has broad concepts and encompasses many aspects associated with water use. Some of the relevant articles of the Convention dealing with equitable use of basin water are Article 5 [17], Article 6 [18], Article 7 [19] & Article 8 [20], UNWC [21].

### 4. Objective of this Study

The initial response to conflicting claims of the riparian States was to resort to the theory of no substantial harm to any States and its related principles. The increased interaction and conflicting interests of the riparian nations necessitate international river law, to be more responsive to the conflicting interests of co-riparians.

The study is proposed based on the objectives to examine i) the transboundary nature of Brahmaputra river and the geopolitical strategies among the four riparian States, China, India, Bhutan and Bangladesh,

ii) to highlight the effect of China's construction of the Motuo Hydropower Station on the downstream riparian State,

iii) further to highlight the impact of China's dam project on Sustainable Development goals of other riparian States,

and finally iv) proposing for consensus among the riparian State, based on the model as set by Nile river basin.

The objectives include making efforts to evolve principles for equitable utilization and optimal use. Equitable utilization gets compounded with optimal use, suggesting that the fair distribution and utilization of river resources are intertwined for maximizing their efficiency and benefits. The analysis is based on a comparative study of other riparian States, and their impact on sustainable development goals.

### 5. Upper Riparian Nations and Lower Riparian Nations, An Example of Nile River Initiative

It is the general tendency of Upstream countries to assert *absolute territorial sovereignty* or, claiming full authority to use the waters as they wish, regardless of the impact on downstream States. However, the downstream nations typically assert the

principle of *absolute river integrity*, insisting that upstream States must not alter the flow or quality of water in any way.[22] Since these positions differ, they can be resolved through rapprochement. The common resolution to this conflict lies in the principle of equitable utilization. This rule, which treats an international drainage basin as a single legal and management unit, reflects the idea of limited sovereignty—recognizing that each riparian nation has both the right to use the shared waters and the duty to avoid unreasonable interference with the rights of others riparian States.

Water is often allocated according to this principle, and international water law provides a framework for nations to share river basins peacefully. The UN Convention UNWC (United Nations Convention on the Law of Non-Navigational Uses of International Watercourses) reinforces these principles and is expected to guide the future management of international watercourses and the settlement of related disputes [23].

Nile River Basin Initiative is an example of cooperation among the riparian States and these States are, Tanzania, Burundi, Rwanda, the Democratic Republic of Congo, Kenya, Uganda, South Sudan, Ethiopia, Egypt, Eritrea and Chad. The cooperation initiative was taken by UNDP and the World Bank, by providing Aid and Development fund. The key objective of the Nile Basin initiative were;

i) building trust among the river basin States

ii) realizing the relevance of co-operation

iii) achieving the objective of Sustainable Development Goal for all the riparian States. This initiative worked as a significant step to maintain cooperation among the Nile river basin States.[24] Further in this line CFA was signed by the parties. CFA (Cooperative Framework Agreement ) is a framework agreement signed by the parties with the objective to govern the relationship between Nile Basin countries. The objective basically covers the water usage, sustainable development, harmonious utilization and river conservation goals. The signing of the CFA has proved to be a significant development in the relationship between riparian States [ 25].

## 6. Conventions on Equitable and Reasonable Use

Equitable utilization is one of the key principles of international water law, asserting that every State sharing an international river basin possesses a legal right to use its waters and an entitlement to benefit from the basin's resources under general international law.

It requires that countries consider the interests of other countries when using water resources within their borders. It is embedded within various international conventions, agreements, and non-binding legal instruments. The objectives of Helsinki Rules, UNWC and Article 4, CFA [26], (Cooperative Framework Agreement were reemphasized in Berlin Rules on Water Resources 2004. Article 12 of Berlin Rules (ILA's Berlin Rules on Water Resources, 2004) [27] states that Basin States shall have regard to the fact, that other riparian States' rights of usage of water are not affected, and shall manage water of the international drainage basin equitably.

Specifically, every State is entitled to an equitable and reasonable portion of the benefits derived from the waters of the concerned drainage basin. The rights of each basin State are equal in nature and inherently interdependent with those of the other co-basin States. Equitable utilization can be interpreted as acknowledging the legitimate rights and interests of the concerned riparian States sharing the water resources. Equitable utilisation sets the perspective that international water bodies should be governed through collective regulation instead of unilateral control by any one State.

Whether the equitable utilization principle in allocating water resources is applied or not, cannot be determined solely by the actions of a single State. Rather, a State's equitable use is assessed in relation to the use of the same water resource by other States.

The extent of a State's right to equitable utilization depends on the specific facts and context of each situation and involves balancing various factors such as hydropower development, navigation, agriculture, and importantly, the rights of indigenous communities residing near the river basin.

### **6.1 International Environmental Law and Water Resources**

International environmental law, which seeks to safeguard freshwater resources from pollution and overexploitation, has historically evolved in a fragmented manner—emerging gradually through specific rules addressing individual rivers, lakes, and freshwater ecosystems. As early as 1929, the Permanent Court of International Justice acknowledged that the use and flow of rivers must be governed by principles of international law [28].

The issues that have emerged because of the dam construction by China on river Brahmaputra do create impediments for achieving the Sustainable Development Goals and require analysis from an International law perspective. The equitable use of basin water by China can offset these impediments. International law offers multiple mechanisms for resolving water-related disputes, such as negotiation, judicial proceedings, arbitration, and adjudication by the International Court of Justice. Over the passage of time, water law has evolved to embody the principles of equity, responsible management, and cooperative governance of shared water resources.

The proposed 17 Sustainable Development Goals (SDGs) by the United Nations can be accomplished by local-level collaboration and also require cross-border collaborative efforts for sharing responsibilities between the nations. The principle of equitable and reasonable use of water and water resources by the upper riparian State can enable the co-riparian States to achieve Sustainable Development Goals.

## **7. Conclusion and Suggestions**

One of India's most contentious issues is China's construction of dams and the potential diversion of the river to supply its densely populated northern and western regions. The discourse in India surrounding China's role in the Brahmaputra's management reveals a divide between environmental concern and context in international relations or politics. From an environmental standpoint, however, it is evident that both China and India must share responsibility for the river's stewardship.

Experts generally regard the dam-building and related initiatives of China on the Brahmaputra as the issues of contention. In this study after analysing and for peaceful resolution, it is suggested, to draw a consensus among the riparian States referring the example of Nile River Basin. Since construction of the dam on river Brahmaputra puts India in a vulnerable position, consensus should be drawn between the parties for exchanging the relevant data on regular basis. Since, the dam creates impediments for achieving U.N evolved Sustainable Development Goals, the opinion of the Member States of the UN should be attained for guiding the future pathways.

Indian political analysts primarily highlight the aspects of China's actions that pose challenges for India. This focus is understandable; however, within India's often intense and multifaceted discourse, the divide between technical and political perspectives further complicates the government's policy response to the Brahmaputra River.

India presently adopts a bilateral strategy in managing issues related to the Brahmaputra River for several reasons. Firstly, India generally prefers bilateral diplomacy with its neighbors, particularly on sensitive matters. Secondly, its primary counterpart and challenge concerning the Brahmaputra—China—also prioritizes bilateral engagement. Thirdly, as a middle riparian State, India faces distinct concerns and interests in relation to both the upper riparian China and the lower riparian Bangladesh, which are more effectively managed through separate bilateral discussions with each country.

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