Case Study on the Water Management of the Yaluzangbu/Brahmaputra River

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ABSTRACT

The Yaluzangbu/Brahmaputra River is one of the major rivers of the Ganges-Brahmaputra-Meghna Basin spanning from China to Bangladesh, and is the least utilized one. While all three major riparians (China, India and Bangladesh) have pressing water needs, they lack a comprehensive sub-basin or all-basin level mechanism for dealing with water management. Recent development by China in the upper reaches of the river caused tensions between China and India, which may provide the impetus for creating a water management mechanism for the Yaluzangbu/Brahmaputra River. Although there is currently no comprehensive mechanism for dealing with the water management of the Yaluzangbu/Brahmaputra River, the core principles of the U.N. Watercourses Convention codify customary international law and have been accepted by the major riparian states of the Yaluzangbu/Brahmaputra River Basin. An analysis of the existing and potential disputes concerning dam construction, water diversion, and territorial disputes further demonstrates that the core principles of equitable and reasonable utilization, prevention of significant harm, and notification of planned measures should be applied in resolving current disputes on dam construction on the river. The optimal utilization of the Yaluzangbu/Brahmaputra River calls for a comprehensive all-basin water management cooperation mechanism based on both the core principles of the Watercourses Convention and international environmental law generally.

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The headwater of the Yaluzangbu-Brahmaputra River originates in the Tibet Autonomous Region of China, and flows east before cutting through the Yaluzangbu Grand Canyon. It then flows past India and enters the Bay of Bengal in Bangladesh. The river is called “Yaluzangbu” in China, “Brahmaputra” in India, and “Jamuna” in Bangladesh. The river’s flows are comprised of monsoon floods, Himalayan snowmelt, and ground water.\(^1\) The flows fluctuate greatly between seasons, with below 10% of the total flow occurring in the spring, 60% in summer, 25% in autumn, and 5% in winter.\(^2\) The Yaluzangbu has its greatest hydropower potential downstream in the U-shaped Great Bend area, a part of the Yaluzangbu Grand Canyon, the world’s longest and deepest canyon.

When compared to the huge hydropower potential of Yaluzangbu/Brahmaputra, current utilization has been minimal. On China’s side, despite some small

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hydropower stations and a few irrigation programs on several tributaries, the basin remains undeveloped. The capacities of the existing hydropower stations are around 50,000 kilowatts (kW), only 0.1% of the hydropower potential of the whole basin.\(^3\) The Zangmu Dam will become the biggest construction on the mainstream so far when completed in 2015,\(^4\) and at least three more dams are planned along the mainstream of the river.\(^5\)

India’s current utilization of the river is mainly in water diversion for irrigation use, and the same is true for Bangladesh. According to India’s 2012 National Water Policy, India has only 4% of the world’s renewable water resources to sustain the use of 18% of the world population.\(^6\) The precipitation in India is subject to considerable seasonal change. About 90% of the precipitation concentrates in the June-to-September annual monsoon season.\(^7\) The spatial disparity of water resources is also significant.\(^8\) As India fast-tracks development, the World Bank expects more severe water security problems.\(^9\) As the Brahmaputra is the only unexploited major river in India, the country unsurprisingly deems its rights to the Brahmaputra to be essential to its water security. Even though both India and Bangladesh have great irrigation demand for water from the Brahmaputra, only small- and medium-scale irrigation programs have been developed in both countries.\(^10\) Both downstream countries, but especially Bangladesh, suffer from severe drought during the non-monsoon season and flood during the monsoon season.\(^11\)

The hydropower construction and regulation of flow over time are the two major water management issues in the Yaluzangbu/Brahmaputra Basin, while dam construction plays a central role in both of them.\(^12\) At the current stage, there

3. Id.
8. Gov’t of India Ministry of Water Res., supra note 6, at ¶ 1.2(iii).
10. Treffner, Mioc & Wegerich, supra note 1, at 341.
12. Treffner, Mioc & Wegerich, supra note 1, at 341.
is no comprehensive water sharing treaty between any of the three riparian states. In May and October 2013, China and India signed two Memoranda of Understanding, stating that China will provide India with the hydrological information of the Yaluzangbu/Brahmaputra from mid-May to October in relevant years.\textsuperscript{13} Although Bangladesh also has substantial interest in the water resources of the river, there has not been much progress in all-basin cooperation to protect Bangladesh’s interests.

The current problems between China and India are twofold. First, because both countries voted against the U.N. Watercourses Convention, there is no comprehensive multilateral or bilateral treaty governing the water resources management between the two countries. The vagueness of customary international water law may have resulted in misconceptions as to the governing customary rule, and thus prompted both countries to choose a sub-optimal water utilization method. Second, specific water utilization projects have created rifts between the two countries. The hydropower dams, especially the Zangmu Dam planned by China on the mainstream, give rise to India’s concerns over whether they will cause significant detriment to Indian utilization of the waters. Because China and India have disputed territory in the region where there is the greatest water potential, India’s construction of dams in the area may also raise China’s concern over its territorial claim. Moreover, there has been widespread speculation in India and other countries that China is diverting water from the Yaluzangbu/Brahmaputra to the northern part of its country.

Chinese scholars have argued that even though China is the upper riparian of Brahmaputra, its utilization of the river will not have substantial impact on downstream countries.\textsuperscript{14} They claim that by looking at the socioeconomic factors, China’s activities take only a small portion of those of the whole basin.\textsuperscript{15} For example, they argue that because the Brahmaputra’s natural runoff in China is only 14.61\% of the river’s total,\textsuperscript{16} China’s upstream exploitation of the river is not likely to have substantial impact on downstream countries.\textsuperscript{17} On India’s side, although it does not dispute that China’s current constructions may not have a significant impact on downstream countries, it is concerned about the potential impact of future projects and whether it will be able to assess China’s claim without a bilateral treaty setting up a monitoring mechanism. Moreover, part of

\textsuperscript{13} Memorandum of Understanding Between the Ministry of Water Resources, the Republic of India and the Ministry of Water Resources, the People’s Republic of China on Strengthening Cooperation on Trans-border Rivers, India-China, Oct. 23, 2013 [hereinafter Memorandum of Understanding].

\textsuperscript{14} Sun Jing, Jia Shaofeng & Lv Aifeng (孙静, 贾绍凤 & 吕爱峰), Ximalaya Diqu Guoji Heliu Xinxi Tiqu yu Fenxi (喜马拉雅地区国际河流信息提取与分析) [Information Extraction and Analysis of the Himalayan International Rivers], in 9 South To North Water Diversion and Water Sci. & Tech. No. 3 (南水北调与水利科技) 37 (2011).

\textsuperscript{15} Id.

\textsuperscript{16} Id. at 36.

\textsuperscript{17} Id. at 37.
the Great Bend discussed earlier is located in territory disputed by India and China, and under the effective control of India, making the utilization even more challenging. Putting the problem into an all-basin picture, dam constructions without an all-basin cooperation regime may cause serious consequences considering the geographical features of the basin. For example, because the young Himalayas are a tectonically active region, the risk of construction failure is high. If all the riparian states implement their dam construction plans without basin-wide coordination, the destruction of the monsoon mountain ecosystem is highly likely.\(^\text{18}\)

Through a discussion of the United Nations Watercourse Convention and customary international law, this article argues that even though there is currently no comprehensive mechanism dealing with the water management of the Yaluzangbu/Brahmaputra, the core principles of the Convention codify customary international law, and have been practically accepted by the major riparian states of the Yaluzangbu/Brahmaputra River Basin. By going through detailed analysis of the existing and potential disputes on dam construction, water diversion and territorial disputes, the paper further argues that the Convention’s core principles of equitable and reasonable utilization, prevention of significant harm, and notification of planned measures should be applied in resolving the current existing disputes on dam construction on the river, and that the optimal utilization of the Yaluzangbu/Brahmaputra calls for a comprehensive all-basin water management cooperation mechanism based on these principles.

**I. APPLICABLE INTERNATIONAL WATER LAW**

**A. NO EXISTING COMPREHENSIVE BILATERAL OR MULTILATERAL AGREEMENT**

Despite the importance of the water sharing of the Yaluzangbu/Brahmaputra, there is currently no existing comprehensive bilateral or multilateral agreement governing the water management of the river, either on a sub-basin or all-basin level. In October 2013, China and India signed a Memorandum of Understanding to strengthen cooperation on trans-border rivers, but it is more of an agreement on China’s specific commitment to providing hydrological information of the Yaluzangbu/Brahmaputra in monsoon season than a comprehensive bilateral mechanism.\(^\text{19}\) This is both good news and bad news for water management. On the one hand, without a water management agreement in force, scholars from both sides claim that the absolute sovereignty doctrine and the prior utilization doctrine apply under a misconception of customary international law,\(^\text{20}\) which will result in a competition to utilize the water without adequate prior assessment

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and cooperation among the countries. On the other hand, this state of affairs creates a clean slate, upon which the riparian countries may be able to build a new cooperation regime reflecting the most up-to-date international water laws without being entangled in an old malfunctioning regime. In some basins around the world, the old regimes have become substantial obstacles for states to achieve a more reasonable and equitable management mechanism. Because no comprehensive agreement currently exists, an international treaty, general international law, or customary international law will be essential to address disputes.

B. U.N. WATERCOURSES CONVENTION—EQUITABLE AND REASONABLE UTILIZATION AND OTHER CORE PRINCIPLES AS CUSTOMARY INTERNATIONAL LAW AND LEGAL FOUNDATION FOR COOPERATION

Currently, the most important international water law instrument is the 1997 U.N. Convention on the Law of the Non-Navigational Uses of International Watercourses. Although the Convention has finally entered into force, neither China nor India is a party to the Convention. Part of the Convention, however, is considered customary international law. Specifically, at least three obligations provided by the Convention are considered codification of customary international law: the principle of equitable and reasonable utilization, prevention of significant harm, and prior notification of planned measures. In addition, the Convention provides for information sharing and a general obligation to cooperate. The subsequent section will discuss these principles briefly and analyze whether China and India’s nay votes on the Convention affect their acceptance of these principles.

1. Equitable and Reasonable Utilization

It has been generally recognized that the principle of equitable utilization set out in Article 5 of the Convention is the core principle of the convention. States


22. For example, the colonial treaties governing the water allocation of Nile are highly controversial and have impeded the formation of a new, more efficient water allocation regime. See Majeed A. Rahman, The Geopolitics of Water in the Nile River Basin, GLOBAL RESEARCH (July 14, 2011), http://www.globalresearch.ca/the-geopolitics-of-water-in-the-nile-river-basin/25746.


struggle to deny the fundamental position of the principle of equitable and reasonable utilization in modern international water law because scholars widely recognize the principle, and international courts endorsed it soon after the Convention was adopted by the General Assembly. Four weeks after the General Assembly adopted the Convention, in the International Court of Justice’s decision on the Gabcikovo Nagymaros Project case between Slovakia and Hungary over the utilization of the Danube, the court specifically stated that this principle has become a requirement of international law:

The community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian States in the user of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others . . . Modern development of international law has strengthened this principle . . . as evidenced by the adoption of the . . . Convention . . . The Court considers that Czechoslovakia, by unilaterally assuming control of a shared resource, and thereby depriving Hungary of its right to an equitable and reasonable share of the natural resources of the Danube . . . failed to respect the proportionality which is required by international law.  

2. Prevention of Significant Harm

Similarly, the court has also endorsed the prevention of significant harm principle as customary international law. In the 2010 Pulp Mills case between Argentina and Uruguay, the court said that:

The Court points out that the principle of prevention, as customary rule, has its origins in the due diligence that is required of a State in its territory. It is “Every State’s obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States” . . . A State is thus obliged to use all the means at its disposal to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State. This Court has established that this obligation “is now part of the corpus of international law relating to the environment.”

Thus, the court has clearly indicated the principle of the prevention of significant harm has the status of customary law and will govern all States including India and China.

26. SUBEDI, supra note 21, at 9.
27. Id.
3. Notification of Planned Measures

Although the notification of planned measures principle has yet to be affirmed by decisions from international courts and tribunals as customary or general international law, it has been widely regarded by scholars as having achieved that status. Particularly noteworthy is the 2004 International Law Association’s Berlin Rules, a revised version of the 1966 Helsinki Rules based on forty years of development of international water law, stating that “customary international law requires that notification be prompt.” In the commentary, the authors of the Berlin Rules indicated that this article is codified in a number of international treaties, including the Convention. The frequent incorporation of the principles in these international agreements is an indication of its status as well-recognized customary international law.

4. Information Sharing

Compared to the three core principles above, the information sharing principle as set forth in Articles 9 and 31 of the Convention has not had as wide recognition as customary international law, although it arguably correlates to other principles’ obligations. States would probably be concerned that an obligation giving other states access to certain information may impair their core interests. However, compelling states to disclose information that could compromise their essential interests is likely inconsistent with the principle of equitable and reasonable utilization. Moreover, in some circumstances, the customary international law of the state of necessity may allow the states to argue that sharing certain information would cause “grave and imminent peril to its essential interest,” although that would require the states to meet several conditions under customary international law.

30. For examples of scholars who hold this position, see McCaffrey, supra note 24; see also SALMAN M.A. SALMAN, Misconceptions Regarding the Interpretation of the UN Watercourses Convention, in THE UN WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 33 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., Routledge 2013); DANTE A. CAPONERA, PRINCIPLES OF WATER LAW AND ADMINISTRATION, NATIONAL AND INTERNATIONAL 193 (Marcella Nanni rev., 2d ed., Taylor & Francis 2007).
32. Id. art. 57.
33. Id.
34. JOHAN LAMMERS, The Authority and Function of the UN Watercourses Convention, in THE UN WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 49, 52-53 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., Routledge 2013).
35. See Gabčíkovo-Nagymaros Project, supra note 28, ¶ 59.
36. In the Gabcikovo-Nagymaros Project case, the court specified the conditions under customary international law for “grave and imminent peril to its essential interest”: “[I]t must have been occasioned by an ‘essential interest’ of the State which is the author of the act conflicting with one of its international obligations; that interest must have been threatened by a ‘grave and imminent peril’; the act being challenged must have been the ‘only means’ of safeguarding that interest; that act must not have ‘seriously impair[ed] an essential
5. General Obligation to Cooperate

In line with the four principles discussed above, Article 8 of the Convention also promulgates a “general obligation to cooperate.” This article calls for the states to cooperate in achieving the optimal utilization and protection of international watercourses. It suggests the usage of joint mechanisms, while at the same time emphasizing the fundamental importance of sovereign equality, territorial integrity, mutual benefit, and good faith. Although it is questionable that this obligation has reached the status of customary international law, it is a necessary complementary provision that indicates possible procedural measures to operationalize the other principles.

C. CHINA AND INDIA’S VOTES AGAINST THE WATERCOURSES CONVENTION

Since customary international law is often characterized by vagueness, states’ reactions to the Convention will certainly affect how vigilant they will be in implementing those customary rules embodied therein.

1. China’s Vote Against the Convention—Implications

One hundred and three states voted in favor of the convention, but neither China nor India were among those states.37 China was one of the three countries that voted against the Convention when it was adopted by the General Assembly.38 Before voting, the Chinese delegate claimed that although the Chinese government appreciates the efforts made by the International Law Commission in laying a good foundation for the convention, the convention had obvious drawbacks in several of its key provisions. The delegate summarized the four reasons why China would vote against the convention: (1) the draft substantially failed to reflect the general agreement of all countries because many states made reservations to several of its main clauses, which reflected major disagreements among countries over some of its key provisions and called into question the uniformity of performance and enforcement; (2) the draft failed to include and affirm the principle of territorial sovereignty in the convention, or affirm that a watercourse state had indisputable territorial sovereignty to the part of the watercourse which passed through the watercourse state; (3) the draft failed to proportionally balance the interests of upstream and downstream countries, which would result in difficulties in its implementation; and (4) the compulsory fact-finding provision went against Article 33 of the U.N. Charter in that it did not

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38. Id. at 8.
allow the states to freely choose the means and procedures of settling disputes.39

These statements suggest, however, that China does not disagree with the core principles of the Convention. The statements do not dissent to equitable and reasonable utilization, prevention of significant harm, and prior notification of planned measures. The Chinese delegate specifically mentioned that China stood for settling all disputes through peaceful means and consultation, and reserved the right to solve disputes by adhering to customary law and bilateral agreements in a “fair and equitable manner,” which conforms with the Convention’s core principles. As discussed below, Chinese officials have expressly stated that China will adhere to equitable and reasonable utilization of water resources,40 the cornerstone provision of the Convention.41

Although China voted against the Convention and the country’s perception of its sovereignty over the parts of international watercourses flowing through its territory remains unclear, recent bilateral agreements and official remarks show a growing recognition in the Chinese government that its sovereignty over international watercourses is not absolute.42 In his speech at the First Summit of the Mekong River Commission in 2010, the Vice Minister of Foreign Affairs mentioned that China has used the Lancang River (the part of Mekong flowing through China) in a reasonable and sustainable way that accommodates the interests of downstream countries.43 He specifically stated that “the Chinese Government has formulated scientific and thorough plans and acted in strict compliance with internationally prevailing environmental standards,” and that some of the environmental protection actions were taken at the expense of hydropower development in response to downstream countries’ concerns.44 One may well cast doubt on the truthfulness of these statements, but they nevertheless reflect the government’s awareness of the need for cooperation and its duties to downstream countries, as well as a shift away from the absolute territorial sovereignty approach. A similar policy re-orientation can be seen in bilateral agreements on trans-boundary water management between China and its neighboring countries.45 Thus, China’s adherence to the principle of territorial sover-

39. Id. at 6-7 (explanation of vote before the vote of the General Assembly, statements by Mr. Gao Feng (China)). In addition to what is summarized in the text, the Chinese delegate also mentioned that the draft includes nine explanatory statements, with doubtful legal forces in the convention.
42. JOSEPH W. DELLAPENNA, ALISTAIR RIEU-CLARKE & FLARIA ROCHA LOURES, Possible Reasons Slowing Down the Ratification Process, in THE UN WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 24, n. 16 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., Routledge 2013).
43. See Remarks by Song Tao, supra note 40, at 2.
44. Id.
45. DELLAPENNA, RIEU-CLARKE & LOURES, supra note 42, at 24, n. 16.
eignty in its explanation demonstrates a more restrictive interpretation of the principle of equitable and reasonable utilization, but it is unlikely that China will absolutely deny the legality of the principle. With regard to the principle of no significant harm, the 2008 revised Chinese Law of Water Pollution Prevention reflects the importance China attaches to this principle.\textsuperscript{46} Even though the law is only applicable in a domestic water pollution context, it demonstrates China’s rising awareness of the legally binding nature of the principle of prevention of harm, together with equitable and reasonable utilization. However, it seems that China is reluctant to acknowledge an obligation to notify the other riparian states of its planned measures, which is shown in the Zangmu Dam building dispute.\textsuperscript{47}

2. India’s Abstention from the Convention—Implications

India was among the states that abstained from the Convention, but its stance was not softer than China’s.\textsuperscript{48} India’s delegate explained that the draft failed to achieve consensus among countries, in that it was “not balanced enough to accommodate differing interests and promote wider acceptability.” The Indian government specifically abstained from Articles 3, 5, 32, and 33, and the following explanation is of particular relevance:

(1) Article 3 (watercourse agreements) failed to “adequately reflect the principle of freedom, autonomy and right of states to conclude international agreements on international watercourses without being fettered by the convention”; and

(2) Article 5 was “not drafted in clear and unambiguous terms” because it used the term equitable and reasonable utilization and it superimposed “sustainable utilization on the principle of optimal utilization” without defining what it means to be sustainable; India also abstained to the package of Articles 5-7 (equitable and reasonable utilization and participation and obligations not to cause significant harm).\textsuperscript{49}

While India specifically abstained from Articles 5-7, which include the core principles like reasonable and equitable utilization, its explanation suggests that its reservations do not concern the spirit of these articles but rather the potential


\textsuperscript{47} See infra Part III.A. The Zangmu Dam is the first and biggest dam that China is building on the mainstream of Yaluzangbu/Brahmaputra so far. The specifics of this dispute will be discussed in Part III.A of the paper.

\textsuperscript{48} U.N. GAOR, 51st Sess., 99th plen. mtg., supra note 37, at 9 (explanation of vote before the vote of the General Assembly, statements by Mr. Shah (India)).

\textsuperscript{49} The Indian delegate also mentioned that international environmental regimes contain certain essential elements such as transfer of technology, resources and technical expertise to promote capacity building among developing countries. Because none of them is elaborated in the draft convention, Articles 5-7 are drafted in language that is too vague to be implemented. See id.
interpretations of the terms. India’s 2012 National Water Policy stressed the equitable use of water several times. Although the document pertains mainly to domestic water management policy, it highlights the Indian government’s awareness of the legal significance of this principle.

3. Importance for Both States to Correctly Understand the Governing Rule

While India and China emphasize the importance of some form of territorial sovereignty, both countries have abandoned the theory of absolute territorial sovereignty, which has little, if any, significance in modern international water management. India seems more reluctant than China to accept the core principles of the Convention because India specifically abstained from Articles 5–7 of the Convention. However, with regard to the Yaluzangbu/Brahmaputra, India will more likely than not be the one in favor of the application of equitable and reasonable utilization, considering its downstream position from China.

The importance cannot be underestimated for the decisionmakers of both countries to understand that the principle of equitable and reasonable utilization governs in customary international law. Many high-profile scholars and the media of both countries believe that the historical right based on prior utilization is the governing customary rule. This gives both governments an impression that they would have a better say in future negotiations if they utilize the river as soon as possible and establish historical rights before bilateral or multilateral negotiation starts. This misconceived competition will lead to hasty planning and construction, and may result in severe environmental and social problems and less-than-optimal utilization of the river. Although, when a hydropower project becomes a reality, it is often inequitable to require the states to restore the status quo before the construction, and it is unlikely to confer absolute water rights on the states. Because equitable and reasonable utilization is the governing rule, the states may have to remedy the situation in some way other than pulling down the projects, like paying monetary compensation. In this sense, the competition to build hydropower projects hastily in order to have a better say in

51. See Fitzmaurice & Loibl, supra note 25, at 21-22.
52. Utpal Bhaskar, Brahmaputra River: India Plans Integrated River Basin Authority for Strategic Projects-India to Set up a River Authority to Speed Up the Development of Its Strategic Subansiri Basin in Arunachal Pradesh, LIVE MINT (Nov. 25, 2013), http://www.livemint.com/Politics/HwNPVeYRDWSPcHsIM
WGO/Brahmaputra-river-India-plans-integrated-river-basin-autho.html.
future negotiations may prove to be futile, and understanding the consequence may incentivize the states to pause before initiating rushed utilization.

II. APPLYING THE LAW—EXISTING AND POTENTIAL DISPUTES OVER WATER MANAGEMENT OF THE YALUZANGBU/BRAHMAPUTRA

There are mainly three disputes concerning the water management of the Yaluzangbu/Brahmaputra between India and China: the dispute over China’s construction of the Zangmu Dam and the planning of other dams without prior notification to India and other downstream countries; the possibility that China’s South-North Water Transfer Project may affect the flow of the Yaluzangbu/Brahmaputra; and India’s lower Subansiri Project’s potential effect over territorial disputes. The sections below apply the core principles of the Convention, which have achieved the status of customary international law, to these disputes.

A. DISPUTE OVER CHINA’S CONSTRUCTION OF THE ZANGMU DAM AND PLANNING OF OTHER DAMS

The Zangmu Dam is the first major hydropower project being built on the mainstream of the Yaluzangbu/Brahmaputra River in the Tibet Autonomous Region of China. According to China, the dam is a 510-megawatt (MW) run-of-the-river hydropower project, meaning it has little or no water storage capacity. The plan was announced in 2009 and construction began in 2010. Construction of the dam is expected to be complete in 2015. The main legal problem with the project is that China started building the Zangmu Dam without notifying or consulting either India or Bangladesh, which provoked objections and concerns from both countries. China assured the downstream countries that the dam would be a run-of-the-river dam used only for hydropower generation rather than water storage or diversion, and thus it would not result in reduction of flow to downstream countries. Wang Dehua, the Director of South Asia Study Center of Shanghai International Relations Research Center, claimed that not building the dam would be a great waste of the hydropower resources of the Yaluzangbu/Brahmaputra, and building the dam may also help the downstream countries control flooding of the river. Furthermore, as stated before, Chinese scholars argue that India’s concern about the impact of China’s constructions on

54. BRAHMA CHELLANEY, WATER, ASIA’S NEW BATTLEFIELD 160 (2011).
55. ZHONGGUO ZHENGFU WANG, supra note 4.
downstream countries is unnecessary, considering the river’s limited runoff in China.\footnote{Sun, Jia & Lv, supra note 14, at 5.}

However, even if these statements are true, they do not necessarily release China from its international obligations. The statement on runoff seems to compare the countries without comparing the effects of different uses, and it probably does not take into account the impact on timing of the natural flows. Even though China’s natural runoff only takes a small percentage of the total natural runoff, such runoff may be crucial to downstream countries’ irrigation in dry season. It seems to be particularly problematic considering that India has around fifteen times the population and thirty times the cropland of China in the river basin.\footnote{Id.}

In spite of the substantive concerns, downstream countries have focused on the procedural aspects of the Zangmu Dam project. Instead of claiming extant harm, India’s concern focuses on creating bilateral mechanisms to handle potential water sharing issues in the future.\footnote{India Stresses on Bilateral Mechanism to Deal with Water Issues with China, HINDU BUSINESSLINE (Feb. 10, 2013), http://www.thehindubusinessline.com/economy/india-stresses-on-bilateral-mechanism-to-deal-with-water-issues-with-china/article4399969.ece?ref=relatedNews.} The former Water Resources Secretary of India specifically said that India’s larger concern is the lack of a water-sharing treaty with China that gives India access to assess China’s claims for the projects. He specifically mentioned the Indus River Treaty, which obliges India to maintain a certain flow.\footnote{Ananth Krishnan, China Begins Damming Brahmaputra River for Hydropower Project, HINDU (Nov. 16, 2010), http://www.thehindu.com/news/international/china-begins-damming-brahmaputra-river-for-hydropower-project/article888387.ece.} However, the Indian government did not claim that the notification of planned measures is customary international law, but rather expressed concern over the lack of a bilateral mechanism for notification and information sharing. India’s Water Resources Secretary at the time expressed frustration at China’s unwillingness to share information on the project, and stated that India would not be able to verify China’s statements without a bilateral mechanism enabling India to access the specific information regarding the “quantum of possible diversion and the impact it would have on the flows to India.”\footnote{Id.} The Minister also stressed that he was speaking about dam constructions generally, as he did not have specific details with regard to the particular Zangmu Project.\footnote{Id.} Scholars are concerned that the Zangmu Dam might be just the beginning of a cascade of dams that China is going to build on the upper reach of Yaluzangbu/Brahmaputra.\footnote{Id.} They are worried that the next phase will be near the Great Bend of the Yaluzangbu/Brahmaputra and may have the capacity to
store water and adjust flows.\textsuperscript{65} China has indeed announced three more hydropower projects to be built on the Yaluzangbu in its “Twelfth Five-Year Plan for Hydropower Development” (2011-15), without giving specific details about the projects.\textsuperscript{66} However, the Inter-Ministerial Expert Group on the Brahmaputra formed by the Indian Ministry of Foreign Affairs concluded that the dams to be built in the Great Bend area are to be a series of cascading run-of-the-river projects, while they called for further monitoring concurrently.\textsuperscript{67}

As a result, China’s construction and planning of the dams likely violates the procedural requirements of customary international law, but not necessarily its substantive requirements. China’s construction of the Zangmu Dam and the current plans of other dams probably meet the requirements of the principle of equitable and reasonable utilization, considering the limited runoff of the Yaluzangbu/Brahmaputra in China and also the run-of-the-river nature of the dams. However, China’s construction of the Zangmu Dam without prior notification to downstream countries violates the customary rule of notification for planned measures that \textit{may} cause significant adverse effects upon other watercourse states, as this procedural obligation is not predicated on actual harm. Thus, China should take measures to properly address downstream countries’ concerns, at least by notifying India and Bangladesh about its future planned projects on the mainstream and providing reasonable access to information regarding existing projects. While there is still no bilateral or multilateral agreement setting forth the obligation of prior notification, some information sharing is underway.\textsuperscript{68}

\section*{B. CHINA’S SOUTH-NORTH WATER TRANSFER PROJECT

1. Not Likely Involving the Yaluzangbu/Brahmaputra River

There is wide speculation in India that China is going to transfer water from the upper reach of the Yaluzangbu/Brahmaputra to the northern part of the country in order to alleviate the water shortage in that more populated area.\textsuperscript{69} Because of the regional disparity of water resources, China has implemented part of its South-North Water Transfer Project. The Project comprises the Eastern Scheme, the Central Scheme, and the Western Scheme.\textsuperscript{70} However, the project is not likely to

affect the Yaluzangbu even with full implementation. So far, the plan envisaged involves the Yangtze River; and only the Eastern and Central Schemes have been implemented,71 with the Western Scheme approved only in principle.72

Because of the development of new technology and problems caused by the implementation of the Eastern and Central Schemes, the full implementation of the Western Scheme remains uncertain, and the possibility of transferring water from the Yaluzangbu is even more remote. Due to the environmental impact of the Eastern and Central Schemes, experts worry that the impact is probably going to be even greater to the more fragile ecosystem in the area involving the Western Scheme.73 The difficulty of construction in a tectonically active area further sets back the Western Scheme.74 The government has increased investment in pollution reduction in the existing transfer project, and investment is estimated to grow. The increase in the cost of pollution reduction will increase the water price for consumers. The resultant rise in water price, as well as the general public’s doubt about the effectiveness of pollution reduction, may cause demand for the transferred water to fall.75 China is reported to be industrializing sea ice desalination,76 which could make transfer projects uneconomical. As a result, the water flow reduction threat envisaged by Indian media probably will not materialize in the foreseeable future.

2. India’s Own Domestic Water Interlinking Project

While India has been speculating that China is going to transfer water from the Yaluzangbu/Brahmaputra, its own National River-Linking Project has been critiqued by domestic scholars and neighboring countries.77 The National River Linking Project aims to transfer water from India’s eastern part to the western and southern parts to control the floods and droughts in those areas. According to the project’s official website, this project will be one of the biggest inter-basin water transfer projects in the world if implemented.78 The project is to intercept water from fifty-four rivers flowing from India to Bangladesh, which is estimated to

71. JIA SHAOFENG & LIU JUN, supra note 20, at 35.
74. Id.
75. JIA SHAOFENG & LIU JUN, supra note 20, at 37-38.
78. Id.
greatly affect Bangladesh. There was even limited armed conflict at the border of the two countries because of the water utilization dispute.

From the project’s implementation map, it seems that this project is going to affect mainly the Ganges River, and will have limited effect on the Brahmaputra River. However, while China has no current plans to transfer water from the Yaluzangbu/Brahmaputra River, India is designing and implementing its National River Linking Project over the strong objections from other countries, which may enable China to draw a comparison and claim that it is also equitable and reasonable utilization for China to transfer its national waters in the future.

C. POTENTIAL DISPUTE OVER THE LOWER SUBANSIRI PROJECT

India has been building a gravity dam on the Subansiri, a major tributary of the Brahmaputra River. If completed, it will be the largest hydroelectric project in India. However, the dam is located in territory disputed by India and China.

China and India have unresolved territorial disputes in part of the drainage area of the Yaluzangbu/Brahmaputra. The dispute is the result of a border delimitation agreement signed in 1914 between the British colonial authority and the local Tibetan authority without either the authorization or participation of the Tsing central government. The Tsing and subsequent Chinese governments have consistently denied the validity of the agreement, arguing that the Tibetan authority did not have the authority to enter into such an agreement. In 1962, a war broke out between China and India over the disputed territory. The conflict ended in a bizarre way: the Chinese won the war and declared victory, but voluntarily withdrew troops from the territory. After the 1962 war, the disputed area has been under control of India, leaving the dispute unresolved. Although both governments have been trying to find a mutually acceptable resolution to the disputed territorial claims, so far, little progress has been made, leaving the danger of potential conflict.

As shown in the map below, the Subansiri Dam is built at the India-China border claimed by China. Due to practical bilateral economic cooperation considerations, both countries choose to downplay the territorial dispute for now. However, India’s construction of the Subansiri Dam without notifying or consult-

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79. JIA SHAOFENG & LIU JUN, supra note 20, at 188.
80. Id.
82. Route No. 11 in the map of the Himalayan Component of the National River-Linking Project may be diverting water from the Brahmaputra, but reading from the map, the impact is not likely to be great.
83. The basic facts and environmental concerns over the Lower Subansiri Dam can be corroborated by domestic Indian media reports. Because this article focuses on the geopolitical rather than environmental impact of the dam, the environmental concerns will not be discussed in detail here. See Teresa Rehman, Experts Call for Major Redesign of India’s Largest Dam, THE THIRDPOLE.NET, (Nov. 7 2013), http://www.thethirdpole.net/experts-call-for-major-redesign-of-indias-largest-dam/.
ing with China may alert China of its territorial claim, as the dam can be seen as adding to India’s claim of the disputed territory, and may further lead to instability of the region.

The territorial dispute illustrates China’s interest in giving downstream countries notice of its planned measures. Under both the Convention and customary international law, the notification process not only applies to upstream countries’ planned measures, but also to any riparian planning a major project.85 The World Bank’s policy for projects on international watercourses confirmed this view.86 Especially in Yaluzangbu/Brahmaputra’s case, China might want India to give

84. The data derives from two sources. See Map of Subansiri Lower Dam and the India-China border, Google Maps, http://maps.google.com (search for “Subansiri Lower Dam,” and the India-China border as shown in the map corresponds to the Indian claim); Map of 墨脱 (Medog), Google Maps, http://maps.google.com (search for the Chinese term “墨脱” (Medog); the red dotted line is the Chinese claim of India-China border). From a comparison of the two maps, it is easy to see the contentious issue and where the potential dispute may arise.  

85. SALMAN, supra note 30, at 31.  

86. Id.
China prior notification on its planned measures near the border area and in the disputed territories, considering the fragility of the regional ecosystem and the political sensitivity of the territorial dispute. There is huge hydropower potential in the Great Bend of the Yaluzangbu/Brahmaputra, which lies in the disputed territory controlled by India. Therefore, China might want to have prior notification of India’s planned measures and reach a mutual understanding with India on how implementation of the projects would affect the status of the disputed territory and whether that would add to India’s claim of effective control over the disputed territory. Furthermore, because both governments are facing many internal governance problems and are involved in many disputes with other countries, it might be in the interest of both countries to avoid provoking the territorial disputes in Yaluzangbu/Brahmaputra utilization.

III. EXISTING COOPERATION

A. SOME INFORMATION SHARING AT A GOVERNMENTAL LEVEL

Current developments prove that some level of information sharing can greatly facilitate cooperation and relieve tensions. In October 2013, China and India signed the Memorandum of Understanding on Strengthening Cooperation on Trans-Border Rivers.87 In a previous May 2013 memorandum, China agreed to provide hydrological information of the Yaluzangbu/Brahmaputra River in flood season. In the new October Memorandum of Understanding, China agreed to extend the data provision period from May 15 to October 15 of the relevant year, starting sixteen days earlier than the previous one.88 The effect of high-level cooperation on alleviating tensions is obvious. When talks between the two governments were still in progress in April 2013, the Indian Water Resources Minister made statements to allay concerns about China’s dam building on Yaluzangbu/Brahmaputra by saying that “the water of Brahmaputra comes from Arunachal Pradesh and other places” even before signing the May 2013 memorandum.89

Although the memorandum specifically addresses sharing some hydrological data and does not establish a comprehensive bilateral water treaty, it nevertheless sets a good framework for future comprehensive cooperation. The memorandum recognizes the importance of trans-border rivers cooperation in enhancing mutual strategic trust and communication.90 Even though the countries will provide hydrological data of the Yaluzangbu/Brahmaputra River during flood seasons rather than information on the Zangmu Dam and other dams to be built, it is

87. Memorandum of Understanding, supra note 13.
88. Id.
90. Memorandum of Understanding, supra note 13.
almost as effective because the hydrological information during flood season will be a direct reflection of the functioning of the dams. This could be a way to cooperate without having to disclose information considered sensitive by the parties. In the memorandum, India expressed appreciation for China providing the hydrological data, assistance in emergency management, and extending the data-providing period.91 The signing of the two memoranda and the implementation of the data-providing measures lays the groundwork for establishing a more comprehensive cooperation mechanism, and it is a sign of alleviating tensions between the two countries over the utilization of the Yaluzangbu/Brahmaputra.

B. NON-GOVERNMENTAL-2010 DHAKA DECLARATION ON WATER SECURITY

In 2010, twenty-five water experts from India, Bangladesh, China, and Nepal met in Dhaka to discuss the future cooperation over the Himalayan River Basin. Former officials from India and Bangladesh participated, as did Chinese experts with little official background. The Dhaka Declaration emphasizes data sharing and scientific exchange, joint research projects, the serious consequences of climate change, and the need to defend equal interests, especially those of the lower riparians.92

IV. FUTURE COOPERATION REGIME

If there is to be a comprehensive cooperation regime, it should at least include the core principles of the Convention, namely equitable and reasonable utilization, prevention of significant harm, notification of planned measures, and possibly other complementary measures like information-sharing. Furthermore, the riparians must also consider their obligations to comply in good faith with the Convention and international environmental law generally, especially India and China, which have been trying to impress the international community as responsible regional powers.93

However, there remains the question of whether cooperation should be at a sub-basin level, namely through bilateral mechanisms between the riparians, or at an all-basin level including all three major riparians. An all-basin mechanism has become more practicable because current technology makes it possible to conduct basin-wide flow assessment and gather basin-wide information. Scholars have pointed out that in many developing regions, all-basin level cooperation is

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91. Id.
93. The good faith compliance with international obligations has been identified as an important element in international cooperation over shared resources. See CHRISTINA LEB, COOPERATION IN THE LAW OF TRANSBOUNDARY WATER RESOURCES 30-36 (2013).
used less often than sub-basin level cooperation, a fragmented approach that may not address basin-wide problems and may even create or exacerbate them. Moreover, all-basin cooperation may also enable states to take advantage of the financial assistance of international development banks. Thus, it might be in the interest of the optimal utilization of the water resources to have an all-basin solution.

As a downstream country with limited negotiation power, Bangladesh may incline towards an all-basin solution rather than a sub-basin one. India has traditionally favored a bilateral/sub-basin mechanism over a multilateral/all-basin mechanism. It may also be in China’s interest to enter into an all-basin level mechanism instead of a bilateral agreement with India because, by bringing Bangladesh into the game, China may be able to push India into accepting more concessions.

Both China and India are traditionally powerful players in the region and may be very resistant to Bangladeshi efforts to push the upstream countries into commitments. However, it is still possible to have an integrated all-basin mechanism that will reasonably protect the interests of all riparians. Both China and India need to manage the Yaluzangbu/Brahmaputra in a way that is consistent with their national water management policies. On China’s side, although it is an upstream country in most of the river basins, it does have some downstream country concerns. For example, China is a downstream riparian of the Aksu River, one of the most important rivers for China’s water-scarce northwestern Xinjiang Autonomous Region. Because the Aksu River is so important for the irrigation in Xinjiang, China must be cautious about the possibility of creating a precedent that may jeopardize its utilization of the Aksu River.

Because of India’s midstream position and its traditional place in the regional water politics, India used to favor a bilateral solution over a multilateral solution in order to not make too many concessions to other riparians. Although India has expressed concerns over China’s utilization, it is also under siege from other neighboring countries regarding water pollution and non-compliance with India’s water treaties obligations. Pakistan, Nepal, and Bangladesh in particular express these concerns, countries with which India has a much more advantageous negotiating position as an upstream country. This pressure from the down-

94. SUBEDI, supra note 21, at 17.
95. Id.; TREFNER, MIÖC & WEGERICH, supra note 1, at 339-41.
96. TREFNER, MIÖC & WEGERICH, supra note 1, at 340. The author’s original analysis is about the Ganges River Basin, but the same logic applies to the geopolitical incentives of Brahmaputra management cooperation.
97. Id.
99. Id.
100. See generally SALMAN M.A. SALMAN & KISHOR UPRETY, CONFLICT AND COOPERATION ON SOUTH ASIA’S INTERNATIONAL RIVERS: A LEGAL PERSPECTIVE 30-36 (World Bank 2002).
stream countries may incentivize India to engage in constructive negotiation with China. Its potential problems with China, discussed in previous sections, may in turn incentivize India to pay more attention to the claims of its downstream countries, thereby facilitating the formation of an all-basin mechanism. India might be changing its policy in this direction. In its 2012 National Water Policy, the Indian government recognized that inter-regional water sharing disputes are obstacles to the optimal utilization on an all-basin/sub-basin basis. It is therefore also in India’s interest to engage in cooperative negotiation with other riparians in managing the water resources of the Yaluzangbu/Brahmaputra in order to not contradict its position with regard to other rivers.

An all-basin mechanism will also enable the riparians to share benefits. As stated before, both India and Bangladesh have great irrigation needs for the water of the Brahmaputra River, especially in the dry season, and both suffer from the flooding of the river in flood season. Although the dams currently being built by China are run-of-the-river projects, which do not have water storage capacity, it is technologically possible for China to design future projects with water storing and capacity adjustment to help downstream countries control floods and alleviate drought. However, this is only possible when there is a specific mechanism setting out the rights and obligations of all parties to prevent abuse. Having such a cooperative regime will also make it easier for states to utilize financial assistance of international financial institutions, as these institutions are more likely to approve programs with general agreement of all riparian states.

CONCLUSION

As the least utilized of the Himalayan rivers, the Yaluzangbu/Brahmaputra is important for the economic development and water security of all its riparians. This article has observed that there are high stakes involved in the utilization of the Yaluzangbu/Brahmaputra. Although current negotiations on the utilization of the Yaluzangbu/Brahmaputra are leading to bilateral rather than multilateral mechanisms, it might be in the interest of all the riparians in the basin to establish an all-basin mechanism based on the customary rules of reasonable and equitable utilization, prevention of significant harm, and notification of planned measures codified by the Convention. The tectonic and ecological fragility of the region calls for a holistic utilization mechanism to achieve optimal utilization of the river. An all-basin mechanism has become more practicable as current technology makes it possible to conduct basin-wide assessment and information gathering. An all-basin mechanism is also important for the riparians to reconcile their national water policies, avoid provoking sensitive territorial issues, and share the benefits of flood control and international financing.

101. Gov’t of India Ministry of Water Res., supra note 6, ¶ 1.2(viii).
102. Treffner, Mioc & Wegerich, supra note 1, at 334.
103. See Salman, supra note 30, at 31.