Overview

Sino-Indian water disputes: the coming water wars?

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As water scarcity in both China and India worsens, the competition over shared water resources in their transboundary rivers, particularly the Brahmaputra River, is set to intensify. Without an effective working mechanism between the two countries, water conflicts could potentially become a serious challenge to Sino-Indian relations. Nonetheless, the water wars narrative, which is gaining steam in India, is being overstated. This article argues that the major supporting arguments of the water wars narrative are very weak. To begin with, China has no plan to divert waters from Brahmaputra River. Second, even if China could successfully divert water from the Brahmaputra River, its impacts on the downstream countries will be rather limited. Third, China is not a water hegemon. Rather, it is becoming more willing to cooperate with neighboring countries regarding transboundary rivers.

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INTRODUCTION

For several years, World Economic Forum (WEF) Global Risk Reports have identified water as one of the three most important challenges worldwide. In 2015, water was moved to the top as the biggest societal and economic risk to the world for the next 10 years.[1] While the world as a whole has abundant freshwater resources, spatial disparity and seasonal scarcity of freshwater, compounded by climate change, is emerging as an acute threat to many parts of the world. Perhaps, the biggest potential point where water conflicts might erupt is in the Himalaya region, between the two most populous and thirsty nations in the world, China and India, which share several transboundary rivers, including the most contentious, the Brahmaputra River.[a]

The Brahmaputra River is one of the largest rivers in the world, emanating from the Tibetan Plateau. It flows across southern Tibet in China through the Himalayas and into India and Bangladesh before merging with the Ganges and emptying into the Bay of Bengal. With rapid economic growth and expanding population, all riparian states are suffering from water shortages. Since the completion of the Zangmu dam by China in late 2014, the largest hydropower dam on the Brahmaputra River, many Indian and international security observers have been warning of coming of 'water wars' between India and China, complicating the two countries' lingering border disputes.[2–4]

While water issues could emerge as a major threat in Sino-India relations given the rapidly rising water demand, competing water usage and threats from climate change, the water wars narrative appears to be premature and there is a need to revisit the popular Sino-Indian water wars narrative supported by in-depth analysis and empirical evidence. Towards this purpose, the rest of the article is organized as follows. Second section of this article reviews the major arguments of the water wars narrative. Sections III–V provide empirical evidence and

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analysis on why these arguments are not valid. A short summary of the article is presented in the last section.

CURRENT STATUS OF THE WATER DISPUTES

The Shared Rivers between Two Countries

India and China share four major rivers, but not exclusively between them as seen in Table 1. The Indus/Shiquan River is shared by China, India, and Pakistan. The Brahmaputra River is shared by India, China, Bangladesh, and Bhutan. The Kosi and Ghaghara rivers are shared by China, Nepal, and India. Clearly, India and China do not share any rivers uniquely: all transboundary rivers of India and China are also shared with other neighbors.

For all such rivers, China happens to be the upper riparian state. India is the middle riparian state in the Brahmaputra, Indus, and Sutlej rivers, but a lower riparian state in the other two river systems. Among the shared rivers, most tensions exist along the Brahmaputra River. This is due to three major reasons. First, while China is the upper riparian state for all the four transboundary rivers, it only occupies significant parts of the Brahmaputra River. China has over 50% of the Brahmaputra River basin area. As a result, the potential impact of China's activities on the Brahmaputra River is much bigger as compared to other rivers. Second, Brahmaputra River is a great importance to both India and China. For India, it accounts for nearly 30% of the freshwater resources and about 40% of total hydropower potential of the country.[5] In the case of China, while at national level, the Brahmaputra River's role in the country's total freshwater supply is quite limited, it is of great importance to Tibet. The Brahmaputra River is considered the birthplace of the Tibetan civilization and it plays a critical role in Tibet's agricultural and energy sectors. Third, the Brahmaputra River is linked to Sino-Indian border disputes. The two countries have contested claims in the Eastern Himalayas, the triple junction between India, China, and Bhutan from the west to Brahmaputra River in the east, largely along the crest of the Himalayas. This disputed area is called South Tibet in China and Arunachal Pradesh State in India which now controls the area. This disputed area occupies about an area of 90,000 km^2 and has a population of over 1 million people.[6]

TABLE 1 | Major Transboundary Rivers between China and India

Name	Countries
Indus/(Shiquan) River	China, India, and Pakistan
Brahmaputra/ (YarlungZangbo) River	China, India, Bangladesh, and Bhutan
Sutlej/(Langqên Zangbo) River	China, India, and Pakistan
Kosi/(Arun) River	China, Nepal, and India
Ghaghara/(Kongque) River	China, Nepal, and India

Source: Xinhuanet and Ministry of Water Resources India.

The Rise of the 'Water Wars Narrative'

For years, Indian media, security experts as well as some international observers have been warning of the coming of water wars between the two countries. Numerous news articles on the topic have appeared in both international newspapers such as *Huffington Post*, *the New York Times*, *the Guardian*, *South China Morning Post*, and *the Washington Times*, and India's domestic newspapers including the *Times of India*, *India Today*, *the Indian Express*, and *DNA*.[7–15] Apart from news articles, influential magazines including the *Economist*, *World Affairs*, *the Project Syndicate*, *World Review*, and *Geopolitical Monitor* have also published opinion pieces on various aspects of the Sino-Indian water war narrative.[16–20] Furthermore, numerous academic papers and policy reports have been published in peer-reviewed Journal papers, edited books and other forms. For instance, Christopher Mark in 2013 wrote an article entitled 'Water wars: the Brahmaputra River and Sino-Indian relations,' which was published by the Naval War College. In the article, Mark asserts that 'China's commitment to construct ever-larger upriver dams reflects a zero-sum mentality on water use that has the potential to bring it directly into conflict with India.'[21] In his paper 'Water Wars in the Middle Kingdom' which was published by the International Affairs Review in 2014, Matthew French believes that 'China has turned to the Tibetan Plateau as an answer to its internal water security problems, which risks enflaming neighbouring countries and damming in the region may trigger a deadly water race to control the remaining rivers.'[22] Elizabeth Economy published a paper entitled 'Asia's water security Crisis: China, India and the United States' in 2008 in which she discussed the growing conflicts between India and China over Brahmaputra River.[23] Nazia Hussain, a researcher from the Centre for Development and Peace Studies (CDPS), in her paper 'Water: The New Dimension in India-China Relations,' claims 'the silent "water war" is now

finally becoming a reality and India should be ready to face it.'[24] Wasbir Hussain, Executive Director at the CDPS in India, published a piece entitled 'India-China: Securitising Water' in December 2014 and he argued that 'a war over the border disputes may look remote, but that cannot be said about escalation of tensions over the securitisation of water.'

The most influential figure in disseminating the Sino-India water wars narrative is Dr Brahma Chellaney, who is the author of the book 'Water, Peace, and War: Confronting the Global Water Crisis' and the award-winning book 'Water: Asia's New Battleground.' In the latter, he argues that 'the battles of yesterday' were fought over land, 'those of today' are over energy, but the battles of tomorrow may be over water, most likely between China and India. Furthermore, in October 2014, India's former chief of Army-General S. Padmanabhan—even published a fictional book entitled 'Next China-India War: World's First Water War-2029,'[25] in which he claims that by 2029 as China is severely short of water, it begins to divert the Brahmaputra River, which eventually becomes a trigger for a full-scale war between two countries. India's current Prime Minster Narendra Modi, during his first campaign speech in 2013 at the ex-servicemen rally in Rewari, Haryana, expressed concern over China's water projects at the upper stream of Brahmaputra and he claimed that 'China is stopping the flow of the Brahmaputra.'[26,27] In September 2014, one day after Xi Jinping arrived in India for his first-ever tour of India, Tarun Gogoi the Chief Minister of Assam, a state in Northeast India, issued a letter to Indian Prime Minister Narendra Modi, requesting him to take up the issue of construction of dams on the Brahmaputra River by China with Xi Jinping. In this letter, Tarun Gogoi said there have been serious concerns about the construction of a series of dams by China on the Brahmaputra that would adversely impact downstream flow.[28]

Those who believe that water wars would break between China and India primarily focus on the future of Brahmaputra River. Their worry comes mostly from three points. First, China will be facing serious water shortages in the future and it will then begin to divert water flow from Brahmaputra to its dry north. More specifically, they believe that China already has a plan to divert water from Brahmaputra to its dry north. Second, they believe that it would be a catastrophe for the downstream countries if the Brahmaputra River at any point were to cease to flow. Third, they point to China's unwillingness to sign any binding agreement with downstream countries over transboundary rivers as evidence that China is insisting on the absolute sovereignty of water principle. They argue that following this principle would cause significant harm to downstream countries and that a lack of transparency from the Chinese side is further aggravating the situation.

China's Position and Responses

To be sure, Indian's concerns are not completely unfounded. China is indeed one of the most water-stressed countries in the world and water scarcity is likely to exacerbate given rapidly rising demand driven by industrialization and urbanization as well as pollution—China does have a track record of relying on mega-infrastructure projects such as Three Gorge Dams and South–North Water Diversion (SNWDs) projects to deal with its water challenges. There have been internal discussions about diverting waters from Brahmaputra to China's dry north. Last but not least, in relation to transboundary river cooperation with neighboring countries, China is one of the three countries (the others are Turkey and Burundi) that voted against the 1997 UN Convention on the Law of the Non-Navigational Use of International Watercourses (UNWC), and remains absent from the Mekong River Commission (MRC).

However, the water wars narrative, as pointed out by Jonathan Holslag, appears to be premature. China has not approved any major water diversion project in Tibet, and while Indian security analysts, media, and politician are overly worried about the Sino-Indian water conflicts, their Chinese counterparts show little interest in the topic.[29] Nonetheless, the growing 'water wars' narrative in India has forced China to respond and made water disputes one of the top bilateral issues to being discussed between two countries' leaders. The Chinese Ministry of Foreign Affairs and Ministry of Water Resources were forced to respond to India's accusation of China's activities along the upper stream of Brahmaputra river on several occasions. During the major bilateral Sino-Indian summits, the Chinese President and Premier have had to reassure their Indian counterparts that China's dam building activities will not harm Indian's interest. For instance, in 2013, India's then Prime Minister Manmohan Singh conveyed his concerns directly during his first meeting with China's president Xi Jinping. In 2014, Modi discussed India's concerns about transboundary Rivers like the Brahmaputra at the meeting with Xi Jinping. China's official response toward India's complaints about China's ravenous exploitation of the Brahmaputra River has been mild: the Chinese government has repeatedly assured India that it has no plan to

divert the Brahmaputra River and its dam building plans will take into consideration the concerns of downstream countries.[29] Chinese scholars and the public have suspected India of exaggerating the China threat narrative and being unreasonable in its demands, and have urged the Chinese government to engage in a stronger rebuttal of India's charges.[30]

Some in China have even argued that India is deliberately playing up the water wars narrative to justify its own dam construction plans along the section of the Brahmaputra River, particularly in the Disputed Arunachal Pradesh (South Tibet in China). In recent years, India has built power utilities in Arunachal Pradesh, a part of its efforts to make the region India's 'Power Plant.' It is reported in October 2014 that India approved building the 3000-MW Dibang multipurpose dam project Dibang River-a tributary of the Brahmaputra River, in the disputed Arunachal Pradesh (South Tibet in China).[31] China naturally considers India's dam building plans a threat to the country's water rights and a deliberate attempt to strengthen actual occupation of the disputed Arunachal Pradesh. The following sections will revisit the three popular arguments which give rise to the 'water wars narrative.'

CHINA'S PLAN TO DIVERT THE BRAHMAPUTRA RIVER?

According to the United Nations, although China is home to 21% of the world's population, it contains only 7% of the world's freshwater supplies. With rapid industrialization and urbanization, the demand for freshwater is increasing at a very fast rate. It is forecast that by 2030, China's water demand will surpass 800 billion m^3.[32] However, China's supply is severely undermined by worsening water scarcity and pollution. Owing to overexploration and inefficient consumption, China's water resources are declining as more rivers disappear and aquifer water levels drop. According to a 2013 report published by the Chinese authorities, the number of rivers in China has decreased from at least 50,000 over a period of 20 years to almost 23,000 in 2011. This means that in the past two decades, China has lost more than 28,000 of its rivers. Besides, the country's wetlands have shrunk nearly 9% to make way for massive agricultural production and infrastructure projects since 2003. This is equivalent to an area of 340,000 km^2 of wetland, an area larger than the Netherlands. Also, China's agricultural production and industries are shifting from the southern regions to the central, western, and northern regions where water resources are even scarcer. Unsustainable extraction of underground water has led to the dramatic fall of water levels of aquifers in these regions, in particular, in one of the world's most overexploited groundwater resources, the North China Plain aquifer system. Owing to the expansion of irrigation systems and intensive farming practices, a significant proportion of the shallow aquifer has dropped by more than 20 m in the past decades, and with some areas experiencing declines of over 40 m. There is no doubt that China is facing a looming water crisis, but then the question is will China divert Brahmaputra River to solve its water problems?

India is worried that China already has a plan to divert the Brahmaputra River, to be more specific, the western route of China's SNWD projects.[33–36] This is, however, a misperception. The Grand Western Water diversion Project (GWWDP) originated from the Shuotian Grand Canal Idea which was proposed by a Chinese water export-Guo Kai. When the GWWDP was first suggested, it did trigger heated discussion among Chinese scholars and government officials. Nonetheless, this radical plan is not the same as the western route of the SNWD project.

The GWWDP intends to divert water from the upstream sections of six rivers in south west China, including the upstream of the Mekong, the Brahmaputra River, and the Salween, to the dry areas of northern China through a system of reservoirs, tunnels, and natural rivers.[37] In contrast, the officially approved western route of the SNWD project is about linking the headwaters of the Yangtze and Yellow rivers across the high-altitude Qinghai-Tibetan Plateau. In 2011, at a press conference, China's vice-minister of Ministry of Water Resources confirmed that China had no plan to divert waters at Brahmaputra. He further added that 'despite calls from scholars and water experts to utilize waters in Brahmaputra River, from the government's point of view, given the technical difficulties, the amount of water diverted, environmental impacts and relationship with neighbouring countries, the proposal is not included in the government's current water project plans.'[38]

In recent years, as China has spent trillions of yuan on damming its rivers and diverting water flows through digging grand canals, India has become concerned that in the future China may eventually implement the GWWDP and start diverting waters from Brahmaputra River to China's dry northern provinces. While such concern is understandable, it is very unlikely that China will divert water from the Brahmaputra to its dry north for four major reasons.

First, despite the fact that some scholars and officials particularly from the military have expressed support for the GWWDP, the mainstream scientific community has been very much against this plan and the Chinese authority has never endorsed it. In 1999 when China was formatting the detailed plans for the SNWD project, the State Council established a special taskforce which consisted of experts from Ministry of Water Resources, Ministry of Land and Resources, China's Science Academy, Ministry of Railway, and other departments to conduct a field study regarding the Guo Kai's GWWDP. After a 36 days field research trip, this taskforce produced a very optimistic report in support of Guo Kai's plan.[39] However, this optimistic report was disputed by another more authoritative report produced by China's Engineering Academy, which was led by Chinese academician and formal minster of Ministry of Water Resources, Qian Zhengying, as well as renowned water expert and academician Zhang Guangdou. They invited 43 academician and 300 experts who had spent a whole year preparing the report. In July 2000, Qian and others submitted their report to China's State Council and other relevant departments. The main message of the report is that the GWWDP is not technically feasible in the foreseeable future, and given the development trajectory of China, it is neither practical nor necessary.[39] After evaluating both reports, China's policy makers decided to halt further discussion of the GWWDP. Eventually a relatively less radical proposal, which intends to link upstream of Yangtze and Yellow rivers, was approved which subsequently became the western route of the SNWD project.

In 2005, the book 'Can Tibet's Water Save China' written by Li Ling, again, drew renewed attention from public, scholars, and some officials on the Grand Western Water Diversion Plan. However, in 2006 China's then minister of Ministry of Water Resources, Wang Shucheng, strongly criticized the plan in his speech at Hong Kong University and he said that 'Grand Western Water Diversion Plan is not needed, not feasible and not scientific.'[40] Wang reiterated his position on the GWWDP in 2011.[41] In recent years, as attention has mostly focused on the feasibility of the western route of the SNWD project, little interest has been left in this radical GWWD plan.

Second, while both the eastern route and central route were completed, the western route of the SNWD project which intends to link upper stream of Yangtze and Yellow rivers have been suspended since 2006 when many water experts expressed their strong objections toward the western route. Economic considerations are one of the key reasons behind the strong resistance toward the western route. Many experts argued that the total construction cost will be too high and it does not make economic sense to use the diverted water as it will be too expensive for the consumers. Social and environmental costs constitute another important factor. As the Yangtze River and Yellow rivers are two completely different ecosystems, linking the two together could have disastrous environmental and ecological impacts. In addition, conflicts of interests among different provinces make construction of the western route even more difficult. Upstream provinces, particularly Sichuan province, are strongly against the western route as their own economies will be severely affected by the proposed water diversion project.[42] The GWWDP is a much bigger proposal, its building cost, economic, social, and environmental impacts will be even higher. It would, in fact, be staggeringly expensive and complex to divert the Brahmaputra to northern China, even for China, a powerful country which has demonstrated its penchant for heroic engineering. The costs in energy and finance of a project that would involve crossing the upper reaches of the Salween, the Mekong, and the Yangtze en route are almost incalculable.

Third, the Chinese government has become more aware of the futility of water diversion projects as a solution to China's water shortages as there has been increasing criticism from scholars of the Three Gorges Dam and SNWD projects.[43,44] Concurrently, there has been growing public resistance toward major water infrastructures projects with the rapid rise of civil society in China and public awareness of the potentially negative impacts of these mega water projects on the environment. It is increasingly clear that the Chinese government is placing more emphasis on potential environmental impacts as well as sustainability of major water projects. Chinese president Xi Jinping has stressed that water conservation must be given topic priority and the economic, social and environmental impacts, and sustainability of the projects must be thoroughly evaluated.[45] In a press conference in March 2015, when being asked about the progress of western route, Jiao Yong, vice-minister of China's Ministry of Water Resources, said that while the government is still studying the western route, top priority will be given to water conservation and environmental protection.[46] Echoed by China's former minister of Ministry of Water Resources, Wang Shucheng, he believes that solutions to China's water problems lie in the development of a water-sustaining society and water diversion projects are not only costly but also aggravate current ecological

and relocation problems. Furthermore, with the declining costs of water recycling and desalination technologies, the western route could turn out to be economically unattractive, even before the much more expensive GWWDP in considered.

Last, in contrast to the western route of SNWD projects which is about linking two Chinese domestic rivers, the GWWDP inevitably has impacts on downstream countries, affecting China's relationship with neighboring countries, particularly India. At a press conference, responding to questions on the commissioning of the first phase Zangmu dam in Tibet, Chinese Foreign Ministry spokesperson Hua Chunying stated:

> *We have taken full account of the concerns of the downstream areas, and we bear in mind the bigger picture of China-India's good relationship and we have been providing hydrological data and emergency management to the Indian side and have played an important role in flood prevention and disaster relief in the downstream areas.*[47]

Whilst to some observers, this statement might have no real substance, it does reflect a great deal of truth in the Chinese thinking. As for China, a stable and favorable external environment is considered critical to its peaceful rise and continued economic growth. Hence, given the potential negative impact of the GWWDP on China's relations with its lower riparian neighbors, particularly India, it is even more unlikely that the Chinese government will seriously consider the GWWDP. This is especially true under Chinese President Xi Jinping's New Foreign Policy Doctrine of bringing amity, security, and common prosperity to its neighborhood.[48]

China's strong interest in building dams on transboundary rivers in Tibet cannot be denied, including the upstream of Brahmaputra River. However, this is aimed at generating electricity for Tibetan residents. For decades, residents in Tibet have been suffering from the lack of access to electricity. Tibet's per capita electricity consumption in 2013 was slightly over 1000 kWh, less than one third of the national average. To address the electricity shortage challenge in Tibet, China has been transferring electricity from neighboring provinces such as Qinghai and Xinjiang. Yet these electricity diversion projects are too costly and still insufficient. Given Tibet's rich hydropower potential, it is understandable that China wishes to harvest the energy potential of the Brahmaputra River. With the first session of the Zangmu dam completed in November 2014, China plans to build more dams on Brahmaputra.

In sum, while China intends to utilize the hydropower potential in Brahmaputra River to address Tibet's energy shortage problems, it has no plan to divert the flow of the Brahmaputra River and it is very unlikely that such plan will be implemented in the future.

THE POTENTIAL IMPACTS ON DOWNSTREAM COUNTRIES

In relation to the potential impacts of China's plan on Brahmaputra River, many believe that China's dam building activities and water diversion projects will have devastating impacts on downstream countries. Given China's position as the upper riparian state, it is understandable that downstream countries are worried about China's water projects. The potential impacts of China's water projects, be it 'run of the river' dams, dams with storage capabilities, or even the 'imaginary water diversion plan,' however, are being overexaggerated.

Accordingly to Chinese official sources and as acknowledged by the Indian government, Zangmu Dam and other hydro dams planed by China on the Brahmaputra and its tributaries are run-of-river dams, which tend to have smaller environmental impact than big reservoirs as these dams create only a small reservoir and do not have enough capacity to effectively regulate the downstream flows.[49] This does not, however, mean that Zangmu dam and other Chinese planned run of river dams are completely environmentally benign as their impacts on migratory fishery can still be significant. Nonetheless, what should be noted is that while Zangmu dam is the first major dam China has ever built on the mainstream of Brahmaputra, it is actually a small dam, with an installed power generating capacity of 510 MW, as compared with the country's 18,000-MW Three Gorges Dam. It is even much smaller than those that India is building or planning to build on the Brahmaputra river system. As mentioned in previous section, the Indian government has given the green light to construction of the 3000-MW Dibang hydropower project on the Dibang River, a major tributary of the Brahmaputra in Arunachal Pradesh (South Tibet in China), one of the areas disputed between the two countries.[50] This dam will be India's largest and one of the world's tallest dams. In addition, India has plans for more than 160 dams to harness the waters of the Brahmaputra River and its tributaries.[51] Therefore, it is not correct for India to blame China's dam building plans when India itself is building bigger and more dams along the river,

particularly in the disputed territories between two countries.

What really worries India the most is not China's construction of hydropower dams on the Brahmaputra, but China's water diversion plan at the Great Bend, which could let the Brahmaputra River run dry, thus threatening the survival of hundreds of millions in the downstream. On the basis of river basin data (as shown in Table 2), it is easy to reach a conclusion that the potential impacts of Chinese flow diversion could be huge considering the fact that 50% of the river basin of Brahmaputra is in the Chinese territory. However, river basin area data can be deceptive as basin area figure is not equivalent to water discharge data, which are relatively a better indicator on the potential impacts any water projects along the river.[b]

While China has the largest spatial share of the basin, over 50%, it generates only 22–30% of the total basin discharge because of Tibet's cold desert climate and annual rainfall is very low.[26] The Brahmaputra originates from a lake called Tamlung in the Angsi Glacier and flows approximately 1217 km in Tibet, where the total annual precipitation of rain and snow together varies between 25 and 65 cm. In contrast, the Indian section of the basin, covering 34.2% of basin area, contributes 39% of the total discharge. Equally significant is the contribution from Bhutan. This mountainous state covers 6.7% of the total basin area but generates 21% of the system output. Isabel Hilton, editor of *Chinadialogue*, further argued that only 14% of the Brahmaputra's flow is in the river at the point at which it enters the gorge and the other 86% enters the river after it has entered India.[52] Owing to the existence of large border disputes in Arunachal Pradesh (South Tibet in China) which also forms part of the river basin for Brahmaputra river as well as huge difference of the water flow between dry and monsoon season, it is very difficult to have a precise and actuate measurement of China's contribution to total water flows in the Brahmaputra river. Nonetheless, it is generally agreed that China's contribution to the total water flows is much smaller as compared to its share by area of the river basin.

Even if the radical Grand Western Water diversion plan proposed which was discussed in previous sessions, not all water in Brahmaputra River generated in the Chinese territory will be diverted. The GWWDP intended to divert around 20% of total water flows from six rivers in south western China, including the Mekong, Brahmaputra River, and the Salween.[26] As for the Brahmaputra River, even to discard the proposed water diversion volume, at maximum, around 50% of the water discharged will be affected as the diversion plan would start roughly in the middle part of the Brahmaputra River in Chinese borders. That is to say, even when 100% of the water at that point was diverted, an impossible scenario, it would only affect around 50% of the total water discharge originating from China.[53]

Last, the utilization rate of water in Brahmaputra River is very low. According to Professor Pranab Kumar Ray, Director of the Centre for Hydro-Meteorological Research in Kolkata, the utilizable water of the Brahmaputra system is estimated to be a mere 4% of the total discharge due to very flow rate and sheer volume. That is to say, a 10 or 20% reduction in the water flows of Brahmaputra River would be unlikely to cause water scarcity of any nature in the Indian part of the basin.[53]

TABLE 2 | Brahmaputra River Basin

Countries Included	Area of Country in the Basin (km^2)	As % of Total Area of the Basin
India	195,000	36
China	270,900	50
Bangladesh	39,100	7
Bhutan	38,400	7

Source: FAO 2011.[61]

CHINA IN REGIONAL AND INTERNATIONAL WATER GOVERNANCE

At part of the water tower of Asia, China is the source of cross-border river flows to the largest number of countries in the region, from Russia to India, Kazakhstan to the Indochina peninsula. The perception of China as a water hegemon which believes in the Doctrine of Absolute Territorial Integrity over river waters is one of the key factor that keeps the Sino-Indian water wars narrative alive and flourishing.[54]

Downstream countries' perception of China as an uncooperative water hegemon is largely attributed to China's passive role in international water governance and its reluctance to cooperate with downstream countries. China was one of three countries to vote against the adoption by the UN General Assembly of the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC), which seeks to strike a

balance between upstream and downstream interests. At regional level, China avoids multilateral entanglements. For years, China has been criticized for being absent from the MRC and turning down binding water agreements with India and other countries.

Although China certainly needs to be more engaging with neighboring countries on transboundary river issues, the label of water hegemon is incorrect. To begin with, owing to low level of regional integration and deep-seeded mistrust among regional countries, the degree of cooperation on the Asia's major transboundary rivers remain very limited as compared to other parts of the world. In Central Asia, Tajikistan and Kyrgyzstan did not consider water usage by downstream countries including Uzbekistan, Turkmenistan, and Kazakhstan in their hydropower development projects.[55] In Southeast Asia, even with the existence of MRC, Laos decided to move forward with the Don Sahong and Xayaburi dams despite objections from downstream countries. In South Asia, India has taken a unilateral approach to divert water or withdraw water from transboundary rivers. In fact, India has long been criticized for paying little regards to the concerns of lower riparian country, such as Bangladesh and in diverting waters from and building dams in transboundary rivers despite the existence of water treaties.

In the case of the 1997 UNWC, China did vote against. However, India has not ratified the agreement and, in Asia, only Uzbekistan and Vietnam have ratified. For China, while there are many factors behinds the country's reluctance to participate in regional and international water governance, China's decision to vote against the 1997 UNWC is not because of its insistence in the doctrine of absolute territorial integrity. Rather, China is pursuing the concept of restricted territorial sovereignty and China's position on rights of riparian states over transboundary river is quite close to the general principle agreed in the 1997 UNWC.[56] As stated by Chinese ministry of foreign affairs spokesmen: 'we have taken full account of the concerns of the downstream areas (in our damming building projects).'[47] This is exactly reflecting two fundamental principles of the 1997 UNWC, the equitable utilization and no-harm rules. Professor Patricia Wouters, in a study which compares China's transboundary water treaty practices with approaches adopted under the UNWC, shows that China in fact embraces the fundamental principles of UNWC: the overarching duty to cooperate, the norms of equal and reasonable use, and due diligence obligation not to cause significant transboundary harms, despite the treaties' vague content.[56]

Nonetheless, there are three key factors behind China's objection to the 1997 UNWC. The first is that China feels that 1997 UNWC overemphasizes downstream responsibility at the expense of the interests of upper riparian states. For instance, China believes that lower riparian countries should compensate the upper riparian states for its efforts in preserving and protecting the ecological system of transboundary rivers. Second, there were national sovereignty and national security concerns as the 1997 UNWC requires countries to share water and other data with other riparian states. For decades, data and information related to water, land, and other critical resources which have been considered state secrets, have not been made open even to the domestic audience, not to mention foreign countries. Nonetheless, what should be noted is that these areas are gradually opening up. China has become more willing and open to share hydrological data with neighboring countries including India. The third and the most important factor is the conflict between mandatory involvement of a third party in dispute settlement under the 1997 UNWC given China's long tradition on bilateral approach to dispute settlement. China's aversion to the 1997 UNWC's third party compulsory dispute settlement is linked to its culture and tradition. However, what is clear is that both UNWC and fundamental principles of Chinese foreign policy, the Five Principles of Peaceful Coexistence, stress peaceful resolution of international issues, with preference for bilateral dialogue and consultations.

China is actually party to some 50 treaties governing or related to its shared water resources, although most of the treaties are not water sharing agreements.[56] In recent years, China has been showing more willingness to cooperate with downstream countries on transboundary river issues. In Northeast Asia, China and Russia have a long history of water cooperation and they are bound by numerous bilateral agreements and have a number of joint institutions. While the Sino-Russian interaction related to the management and use of transboundary water resources has gone through ups and downs generally following political relations between the two states, over the last few years their water-related cooperation has become increasingly active. In Central Asia, China, which is an upstream country in a number of river basins shared with Kazakhstan, including the Irtysh and Ili rivers, has been engaged in bilateral relations with the latter on a number of water-related issues. Their efforts to create an adequate legal and institutional framework have been relatively successful—there are several bilateral agreements and

joint commissions, whose primary focus is water quality in transboundary watercourses.[57] In April 2011, China and Kazakhstan launched the long-awaited China-Kazakhstan Friendship Joint Water Diversion Project on the Khorgos River, a 150-km long tributary of the Ili and a border river between both countries. Under the agreement, each side will be allotted 50% of the water diverted, and the goal of the project is to improve irrigation, secure water supply for the ecosystem, and moderate flood damage, especially in Khorgos Port and the China-Kazakhstan Trade Cooperation Zone. While sharing water along a border river is not the same as along a transboundary river, this is arguably a sign that progress on bilateral water issues is possible with Beijing.[58] In Southeast Asia, as China is pushing forward the Great Mekong Subregion cooperation strategy, it is more willing in reaching out to Southeast Asian countries on issues related to Mekong River, in particular, flood control and river transportation. China is gradually opening up to the MRC as well. In December 2014, China's vice-minister of Ministry of Water Resources, Jiao Yong, during his visit to the MRC Secretariat in Vientiane, Lao PDR., expressed the goodwill of China to continue and to enhance the cooperation with the MRC and emphasized that China would work with the MRC on a joint scientific study on water flow fluctuations of the Mekong–Lancang River and on the organization of the 2nd MRC-Ecosystem Study Commission for International Rivers (ESCIR) Symposium, among other existing and upcoming activities.[59]

In South Asia, for the Brahmaputra River, it is certainly true that there is neither an effective multilateral working mechanism to deal with transboundary river issues among China, India, and Bangladesh nor any bilateral water treaty signed between China and lower riparian states including both India and Bangladesh. Nevertheless, China has signed several agreements on the Brahmaputra River with both India and Bangladesh over the past 10 years. In 2005, during Wen Jiabao's visit to Bangladesh, the two countries issued a Joint Communiqué in which both sides agreed to cooperate in the field of water resources, and to utilize and to protect the water resources of transnational rivers in the region, keeping in mind the principles of equality and fairness. A memorandum of understanding (MoU) was signed between the two countries on March 19, 2010, during Prime Minister Sheikh Hasina's visit to China, which states that both Bangladesh and China would cooperate on hydrological data sharing and flood control to reduce the Brahmaputra's annual negative impacts in Bangladesh. It also states that the countries would cooperate with each other in relation to water. This MoU was renewed and the data provision period was extended in 2014. In May 2015, Zafar Ahmed Khan, Secretary to the Ministry of Water Resources in Bangladesh, signed another MoU with China, which focused on consultation between Bangladesh and China relating to discharge of water, intensity of river flow, rainfall, and other information on Brahmaputra and Yellow rivers. China promised that it would provide technical help relating to Flood Management and Control issues to Bangladesh. Similarly, China signed a MoU with India in 2002 for provision of Hydrological information on Brahmaputra River in the flood season by China to India. In 2006, two countries set up an expert level mechanism to discuss interaction and cooperation on sharing flood season hydrological data, emergency management, and other issues regarding *trans*-border rivers. After the first MoU on Brahmaputra River expired in 2007, a new MoU with a validity of 5 years was signed on June 5, 2008 during the visit of Indian Foreign Minister to China. This MoU was further renewed in May 2013, with a validity of another 5 years during the visit of Chinese Premier Li Keqiang to India. In October 2013, the two countries signed a separate MoU on *trans*-border rivers, which changed the data provision period from June 1–October 15 every year to May 15–October 15. In practice, what should also be noted is that the key stumbling block to substantial cooperation between China and India on the Brahmaputra is border disputes, since Arunachal Pradesh (South Tibet in China) forms large part of river basin for Brahmaputra River. This makes any water sharing agreement impossible.

CONCLUSION

Water-related conflicts have a long history and will continue to be a global and regional problem. As water scarcity in both China and India worsens with rapid economic development and population expansion, the competition over shared water resources in transboundary rivers, particularly the Brahmaputra will intensify. Without an effective working mechanism between the two countries and with lingering border disputes, water conflicts could potentially become a serious challenge to Sino-Indian relations.

The water wars narrative, however, is being overblown. We state here that the major supporting arguments behinds the water wars narrative are very weak and even deceptive. In summary, China has no plan to divert waters from the Brahmaputra River.

The west route of China's SNWD project is about linking the upstream of the Yangtze and Yellow river, and thus, has nothing to do with the Brahmaputra. In the foreseeable future, it is extremely unlikely that China will consider diverting the Brahmaputra River. Next, even if, hypothetically, China could successfully divert the water from Brahmaputra River, its impacts on the downstream countries will be very limited as China's share in the total water discharge of Brahmaputra River is much smaller as compared to its contribution to the river basin and only a small fraction of the water in the Brahmaputra River is being utilized. Last but not least, while China remains reluctant to engage in substantive cooperation with neighboring countries on transboundary water issues, it is unfair to label China as a water hegemon. China is not sticking to the doctrine of absolute sovereign, in fact, its approaches toward transboundary river management are in accordance with its five principle of peaceful coexistence and in line with the fundamental rules agreed in the 1997 UN water convention.

As rightly pointed out by Selina Ho, due to divergent interests between central and local governments and among different ministry and departments, as well as fragmented end devolved power and authority in relation to the management of transboundary rivers, China does not have an independent transboundary river policy. Instead, it manages its transboundary rivers as a subset of its broader relations with other riparian states.[60] Therefore, as evidenced in the relative success in China and Kazakhstan cooperation on the Irish River, China and Russia cooperation on the Amur River, and to a lesser extent, cooperation between China and Southeast Asian countries on the Mekong River a developing bilateral relationship between China and the riparian states is the precondition for closer cooperation on transboundary rivers. Therefore, as far as managing the Brahmaputra River is concerned, playing up the 'water wars' narrative or the 'China threat' narrative in general is not helpful. Worse still, the real danger of the water wars narrative is that it becomes a self-fulfilling prophecy as it erodes mutual trust, which is desperately needed for improving Sino-Indian relations, and leads to overreactions from both sides.

NOTES

[a] The Brahmaputra is known by different names in the course of its journey to the Bay of Bengal. For instance, it is called 'Yalu Zangbu river' in China. Nonetheless, this article will use the name 'Brahmaputra' to refer to the river through all its stages.

[b] Certainly, what should be noted is that water discharge data sometimes fails to reflect seasonal differences.

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