



Transboundary Watersheds in South Asia

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Introduction

Water sharing has been a tricky issue for countries across the globe and even within a country the struggle for water continues between provinces and districts. Examples are rife with evidence of water-sharing challenges countries face. From the Colorado Basin to the Nile, countries are facing a hard time getting an amenable arrangement for water sharing. Increasing demand for water and cheap electricity has forced countries to dam the flow of rivers, putting lower-riparian countries at the mercy of upper-riparian countries. Interestingly, the Law on the Non-navigational Uses of International Watercourses is still pending on ratification level because countries mostly believe that water issues are bilateral problems. South Asia has a similar story. With the increasing population, cheap hydropower production, and agricultural needs, countries have become strict on the transfer of water from one country to another. South Asia has eight countries: Pakistan, India, Bangladesh, Afghanistan, Sri Lanka, Nepal, Bhutan, and Maldives. Most of these countries do not have transboundary water-sharing agreements with each other except Pakistan and India, and India and Bhutan.

Dynamics in South Asia

India and Pakistan are the top water-stressed countries in the region. According to World Resources Institute's ranking world's water-stressed countries, India ranked at 13th position and Pakistan at 14th position¹. These are followed by Afghanistan at 27th, Nepal at 40th, Sri Lank at 77, Bangladesh at 128, and Bhutan at 155².

¹ Hofste, Rutger Willem, Paul Reig, and Leah Schleifer. "17 Countries, Home to One-Quarter of the World's Population, Face Extremely High Water Stress." World Resources Institute, August 6, 2019. <https://www.wri.org/insights/17-countries-home-one-quarter-worlds-population-face-extremely-high-water-stress>.

² ibid

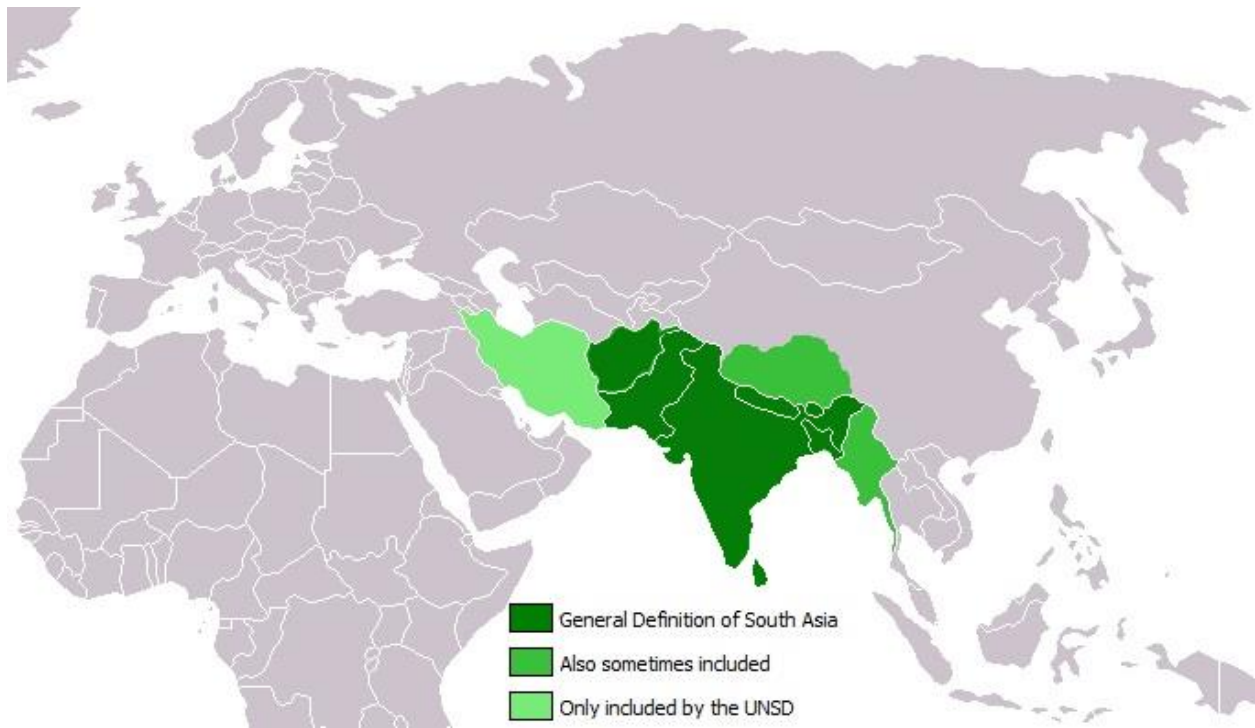


Figure 1 Map of South Asia Source: Wikipedia

Although China is not part of South Asia, its southern part (Tibet) is home to most rivers in South Asia making it an integral unit in the water equation of South Asia. China ranks 56th in the WRI ranking of water-stressed countries. The region has not been studied in its entirety for water security and transboundary watershed management with Pakistan at its center, however, there have been studies insisting on the need for cooperation and arrangements. The growing population, poor project implementation, urbanization, and climate change have strained the region’s water supply. The Indus Water Treaty is the only functioning water treaty in the region between Pakistan and India. It was signed during good times because the World Bank had huge respect and was willing to invest in water infrastructure for both countries. Imagining such a treaty in present circumstances is an arduous task. In April 2023, India surpassed China as the world’s most populated country³. That means it would require more water for its growing

³ Dotto, Carlotta, and Rhea Mogul. “How India’s Population Exploded to Overtake China’s and What’s Next.” CNN, July 10, 2023. <https://edition.cnn.com/2023/04/28/asia/india-population-overtakes-china-graphics-intl-hnk-dst-dg/index.html#:~:text=India%20is%20expected%20to%20surpass,recording%20population%20rankings%20in%201950>.

population and development needs. The countries in South Asia are not bound by cooperation and development desires, rather countries are at odds with each other. Although the Indus Water Treaty exists between India and Pakistan, both countries have been in lock horns for a long time.

Bhutan was quick to realize the importance of its waters. It was a small landlocked poor country with per capita income dwindling behind other South Asian counterparts. Bhutan went into agreement with energy-hungry India to construct hydropower plant Chukha⁴. It provided essential electricity required for Bhutan and sold the surplus to India to earn valuable foreign reserves. The long-term understanding and vision between the two countries have continued to provide dividends for both countries. However, India has not been able to get to terms with Nepal and Bangladesh for any mutually beneficial deal on the utilization of their shared water resources.

South Asia has three main basins: Indus, Ganges, and Brahmaputra⁵. These basins are shared and spread over Pakistan, some parts of Afghanistan, India, Bhutan, Nepal, and

⁴ Biswas, "Cooperation or Conflict in Transboundary Water Management."

⁵ Kaithwar, Raj. "The Shape of Water in Transboundary River Basins of South Asia;" South Asia@LSE, March 2, 2018. <https://blogs.lse.ac.uk/southasia/2018/03/01/the-shape-of-water-in-transboundary-river-basins-of-south-asia/#:~:text=Himalayan%20watershed%20consists%20of%20three,a%20large%20amount%20of%20freshwater.>

Bangladesh.

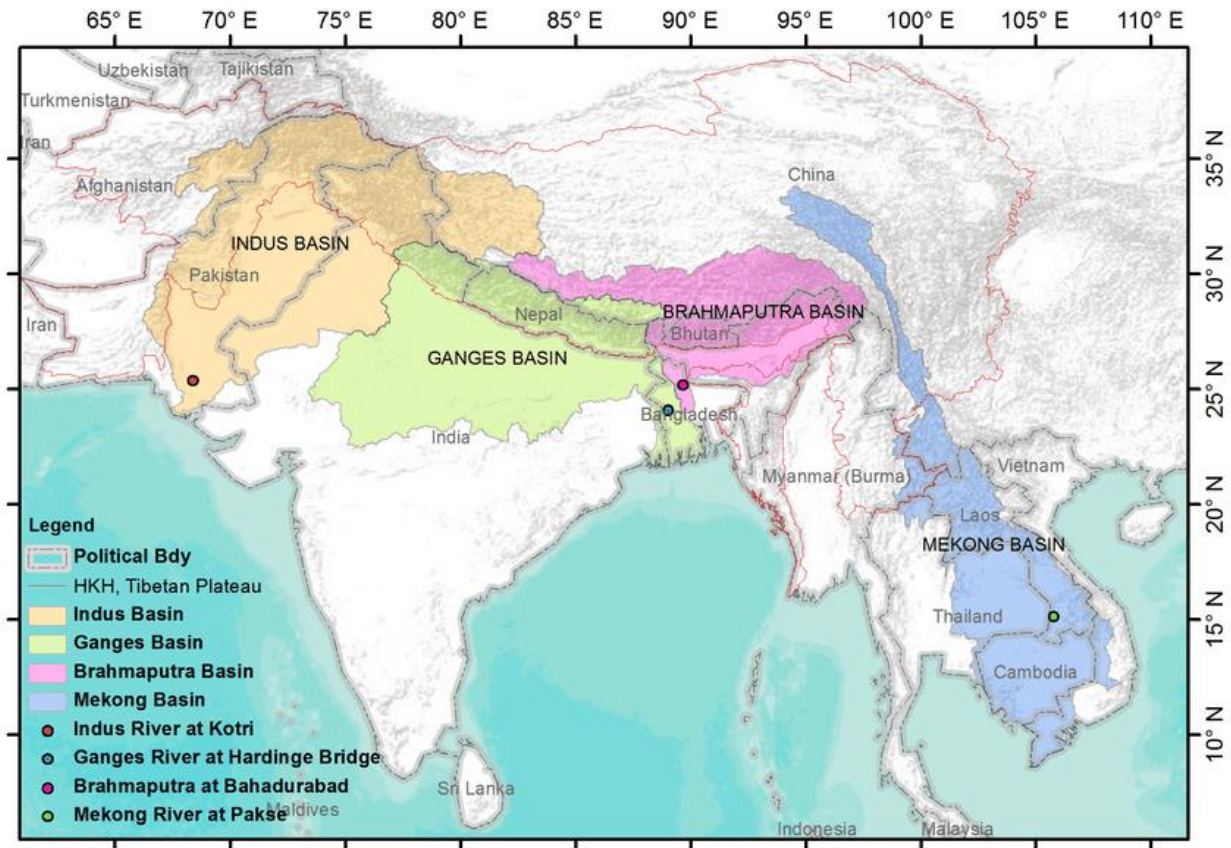


Figure 2 Indus, Ganges, Brahmaputra Basin, source: Research Gate: Hasson, Shabeh ul. (2016). Seasonality of Precipitation over Himalayan Watersheds in CORDEX South Asia and their Driving CMIP5 Experiments. *Atmosphere*. 7. 10.3390/atmos7100123.

Global Water Treaties

Globally, shared watersheds have been a contested region that pushed countries into conflict, but countries have realized their interests are served well in cooperation, not in conflict. This mode of thinking paved the way for more collaboration between countries with a history of conflict and non-cooperation. The historical enmity that Pakistan and India spewed did not get in the way of the resilient Indus Water Treaty. Below are some of the global water treaties that can be a source of inspiration for present and future water agreements.

Table 1: Global Water Treaties

Name of Treaty	Name of River Basin	Year signed	Parties
Indus Water Treaty	Indus River	1960	Pakistan and India
Israel Jordan Treaty	Jordan River	1995	Jordan and Israel
Nile Agreement	Nile River	2015	Egypt, Sudan, and Ethiopia
Mekong Water Treaty	Mekong River	1995	Thailand, Vietnam, Laos, and Cambodia
Ganges Water Treaty	Ganges River	1996	India and Bangladesh
Helmand Water Treaty	Helmand River	1972	Afghanistan and Iran

Conflict Literature

There is a lot of literature on conflict eruption due to water stress and scarcity, but there is a dearth of literature forcing countries to focus on cooperation. The literature produced on transboundary watersheds is mostly centered around conflicts and lack of cooperation crafting a scary image for the present and future decision maker. To put into context, a google scholar research for water crisis retrieves 2180000 results from 2000-2023 and 208000 for water conflict, and for the same period, the repository has 42500 results for water cooperation. The notion of water resources is often taken as finite resources which makes it another resource that is essential, and its dearth will trigger World War three. However, water is a renewable resource that is generated with every water cycle. The media hype around scarcity is valid, but that is not a pretext for war. This scarcity is

triggered by human actions and particularly poor management. Scarcity if mapped from the local level to the national level, it will boil down to the management of the resource.

Let us dive deeper into the water-sharing mechanism between South Asian countries. As highlighted above, these countries share some formal and informal structures for water sharing. However, demand is shifting because of increasing population, agriculture, and industrial demand, and worse by climate change, the attitude of these countries has changed.

Pakistan-India: Indus Water Treaty

After partition, Pakistan, and India locked horns in 1948 over rights of the Indus water and its tributaries. The conflict brought the two countries to the brink of war, but international mediation helped cool down the situation. The constant mediation and active role of the World Bank and the US led to an agreement between the two countries. The Indus Water Treaty signed in 1960 resulted in the division of the six rivers between the two states⁶. The eastern three rivers, Sutlej, Beaus, and Ravi were given to India, and the Indus, Jhelum, and Chenab were allocated to Pakistan.

The role of the World Bank was instrumental in realizing the treaty because WB ensured infrastructural funds flowed to Pakistan for building an essential water reservoir. The two mega reservoirs Tarbela and Mangla Dam Considered the most resilient water



Figure 3 Map of Indus River and Tributaries

⁶ Vater, John Joseph. "The Indus Waters Treaty: Prospects for India-Pakistan Peace." Institute of South Asian Insitutes, June 23, 2021. <https://www.isas.nus.edu.sg/papers/the-indus-waters-treaty-prospects-for-india-pakistan-peace/>.

treaty, IWT has lived through multiple wars and tense standoffs between the two states. However, cracks have started to appear in the treaty as India is aggressively working on the previously virgin western rivers on the pretext that Pakistan is not utilizing the rivers and is wasting million-acre feet of water each year. Since all the headwaters of the western rivers flow through the illegally Occupied Indian Kashmir. The polarized leaders have attempted to weaponize waters as the Indian Prime Minister said, “Blood and water cannot flow together”⁷. The intense rhetoric is damaging the treaty and putting the lives of millions of people at risk.

Pakistan-Afghanistan Water Sharing Arrangements

Pakistan and Afghanistan have historically been known for their grudges and hesitancy for bilateral talks because of the historical disagreement on the Durand line⁸. Both countries have forgone opportunities for collaboration in many instances, however, the shrinking water bucket for both countries provide another opportunity to improve their bilateral relations. Both countries share multiple small rivers, but the prominent river basin shared is the Kabul River. It is the main source of livelihood on both sides of the border⁹.

⁷ Foley, Emma Claire. “‘blood and Water Cannot Flow Together:’ Natural Resources and the Nuclear Threat in the India-Pakistan Conflict.” Global Zero, February 19, 2020. <https://www.globalzero.org/updates/blood-and-water-cannot-flow-together-natural-resources-and-the-nuclear-threat-in-the-india-pakistan-conflict/>.

⁸ Kaura, Vinay. “The Durand Line: A British Legacy Plaguing Afghan-Pakistani Relations.” Middle East Institute, June 27, 2017. <https://www.mei.edu/publications/durand-line-british-legacy-plaguing-afghan-pakistani-relations>.

⁹ Kakakhel, Shafqat. “Afghanistan-Pakistan Treaty on the Kabul River Basin?” The Third Pole, March 2, 2017. <https://www.thethirdpole.net/en/regional-cooperation/kabul-river-basin/>.

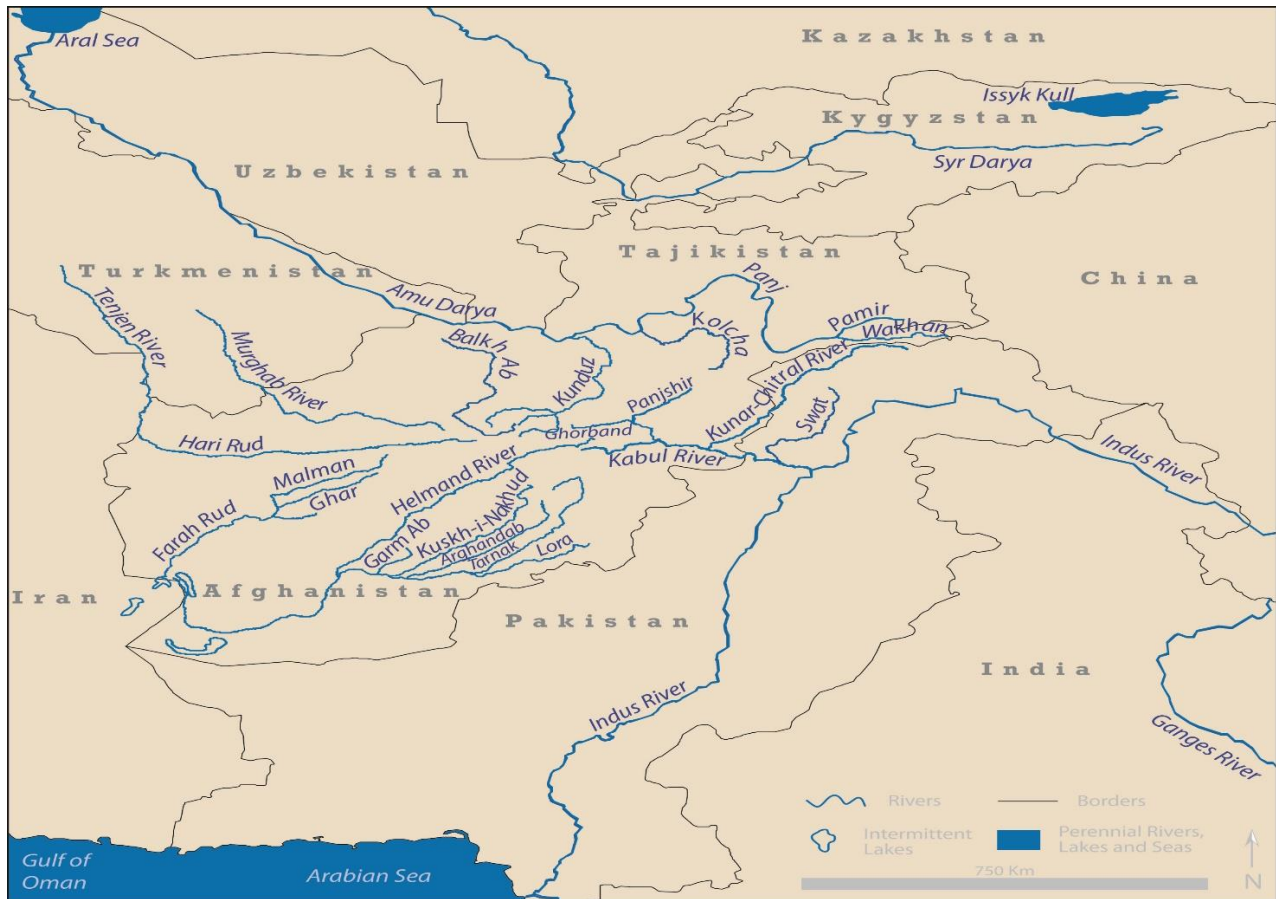


Figure 4 Rivers of West South Asia, Source: University of Nebraska

Originating in the Sanglakh Range, an offshoot of the Hindu Kush, west of Kabul in the province of Maidan Wardak, the river Kabul travels 700 Kilometers long river till its culmination into the Indus at the point of Attock¹⁰. The biggest tributary of River Kabul, River Chitral originates in Pakistan and joins the river at Jalalabad and river Kabul enters Pakistan Thorkham at flows into Khyber Pakhtunkhwa. It amounts to 16.5 MAF of the 18.3 MAF of water Pakistan shares with Afghanistan. Chitral River adds 8.5 MAF of water to the Kabul River¹¹. Therefore, Pakistan is lower as well an upper riparian at the same time.

Moreover, three sub-basins make up the KRB: Panjshir, Logarupper Kabul, and lower Kabul basin. The Kabul River's principal tributaries are the Logar, Kunar, Panjshir, and

¹⁰ ibid

¹¹ Malik, "Pak-Afghan Water Issue."

Alingar rivers in Afghanistan, and the Swat and Bara rivers in Pakistan. In addition, the Kurram River, Pishin Lora/Bore Nullah, Gomal River, Kadanai River, Kundar River, and Abdul Wahab Stream are some of the seasonal rivers that flow from Afghanistan into the tribal regions of Khyber Pakhtunkhwa (KP) and Baluchistan Province of Pakistan¹².

Pakistan has built multiple structures to produce energy and divert water for irrigation purposes in the greater Peshawar Valley. The river is the primary supply of fresh water available for drinking for millions of people living on Pakistan's side of the border, and it provides 80% of the irrigation in Peshawar, 85% in Charsadda, and 47.5% in Nowshera¹³. The importance of River Kabul for Pakistan cannot be enough emphasized.

With increasing population, the demand for water, agriculture, and energy has spiked on both sides of the border pressing countries to build hydro structures for energy and water distribution. The lack of agreement on transboundary waters between the two countries makes any unilateral move by countries suspicious and detrimental to the other. Therefore, a bilateral treaty on the KRB is essential as things would get further intricate moving forward. There have been attempts to negotiate a proposal treaty like the Indus Water Treaty between Pakistan and Afghanistan.

Historical Records of Agreements on Water

There have been few attempts on improving bilateral water sharing between the two countries. Here is a timeline for attempts for transboundary cooperation¹⁴.

- In 1921, Afghanistan and the British Empire agreed on navigation rights on the Kabul River.
- In 1933-1934, the Afghan government and the state of Chitral signed an agreement on timber navigation rights on the Kunar River.

¹² Ibid

¹³ Waleed Majidyar, "Afghanistan and Pakistan's Looming Water Conflict," Diplomat, December 15, 2018, <https://thediplomat.com/2018/12/afghanistan-and-pakistanslooming-water-conflict/>.

¹⁴ Shams and Muhammad, "Towards Sustainable Transboundary Water Cooperation between Afghanistan and Pakistan."

- In 2003, an unsuccessful attempt was made by Pakistan to draft provisions for a river treaty with Afghanistan.
- In 2005, another unsuccessful attempt was made by a delegation from WAPDA regarding the restoration of a hydroelectric plant on the Shamil/Kaitu River.
- In 2006, the World Bank made an unsuccessful attempt at an agreement between the two countries.
- In 2011, Again, the WB proposed a dispute resolution mechanism and joint management of water resources, but no progress has been made.
- In 2015, Afghanistan, China, and Pakistan announced a joint power-sharing project on the Kunhar River, a tributary to the Kabul River, but no progress has now been made.

As the demand for water increases on both sides, it will be hard to find an amicable agreement. Therefore, it would require visionary and inclusive leadership from both sides to realize the true potential of bilateral water agreements. The hostile attitude and vindictive inclinations would harm the people on both sides.

Challenges and Way out

In particular, the Afghan side has a shortage of engineers and technical staff to maintain data and maintenance because of the perpetual war and conflict in the country. On the other hand, Pakistan has relatively experienced water managers and engineers managing the river flows and the extensive canal system in the country. This disparity can be a source of collaboration as Pakistan can assist Afghanistan with human resource training, data collection, and maintenance of rivers¹⁵.

The primary challenge stems from the flawed understanding of the river's integrity and national sovereignty. Instead of recognizing equal rights of the local riparian states, both Pakistan and Afghanistan believe in absolute sovereignty over water in their territory¹⁶.

¹⁵ Shams and Muhammad.

¹⁶ Shams and Muhammad.

The United Nations 1997 convention addresses this problem with twin principles of “equitable and reasonable utilization” and no significant Harm¹⁷. Also, the power asymmetry between the two states can also be a source of collaboration and resistance. There are well-structured legal and political institutions on one side and the other side may find this to their disadvantage. Interestingly, Afghanistan Water Law of 2009 transboundary rivers as those that flow on the common border between Afghanistan and other countries which did not make the Kabul River a transboundary river. However, the new Water Affairs Management Law 2020 has redefined a transboundary river as one that flows from Afghanistan into another country¹⁸. This new legal development is a positive step in the right direction which opens doors for further negotiations and collaborations on the shared rivers.

The water collaboration can significantly impact other avenues of cooperation, for example, The Afghanistan-Pakistan transit trade agreement (APTTA) can be significantly impacted by the new water agreements with increasing mutual trust and reliance. So far, nothing substantial has been achieved on the water sharing and agreement, but moving forward, it is expected that both countries realize the potential of agreement over conflict and resistance.

Afghanistan-Iran Water Sharing Agreements

Afghanistan and Iran signed a bilateral water-sharing agreement in 1972 on the Helmand River. The Helmand River after its journey in Afghanistan ends at Lake Hamoun on the Iran-Afghanistan border. Iran and Afghanistan share a 900 Kilometers long border with historical reliance on each other particularly in water sharing. The Helmand Water treaty ensured Iran would get 22 cubic meters of water per second with an additional option of

¹⁷ Law of Non-Navigational Uses of International Watercourses 1997

¹⁸ Shams and Muhammad, “Towards Sustainable Transboundary Water Cooperation between Afghanistan and Pakistan.”

4 cubic meters of water¹⁹. Iran was getting this water during the instability in Afghanistan. However, with the security situation improving and the new Taliban regime getting in control, the conflict has re-emerged between the two countries. Afghanistan has built two storage dams on the Helmand River to counter drought spells and improve its agriculture stretch. The lack of rains and storage requirements do let enough water in the Helmand River that is putting the Sistan and Balochistan region of Iran under water stress²⁰.

Recently, both countries came close to conflict because of the Helmand River. The Taliban regime and Iranian force exchanged fires on the border because of the blockade of Helmand River flow on the Afghan side. Due to continues decrease in the feeding of Lake Hamoun, it is shrinking putting a strain on the agricultural communities on the Iran sides. The water sharing is further exacerbated by the impacts of climate change with long spells of drought. As things get uncertain around climate change and water demands of both countries, it would be interesting to see how the treaty binds both countries together. It has certainly been a cohesive force and will help both countries navigate the uncertain times ahead.

India-Bangladesh-Nepal Water Agreements

India and Bangladesh share a total of 54 rivers, and they have been able to agree on water sharing mechanism on the Ganges²¹. The Ganges Treaty was signed in 1996 keeping in mind 30 years of old data in mind to ensure water sharing was done optimally²². The treaty was signed for thirty years, and in 2026, the treaty expires which leaves both countries with a more complex situation to draft a new deal²³. The Ganges is a lifeline for

¹⁹ MAKOOI, Bahar. "Iran and Afghanistan Dispute Helmand Water Rights as Climate Change Deepens Crisis." France 24, June 10, 2023. <https://www.france24.com/en/asia-pacific/20230610-iran-and-afghanistan-dispute-helmand-water-rights-as-climate-change-deepens-crisis>.

²⁰ ibid

²¹ "Bangladesh, a Country That Shares 54 Rivers with India." DNA India, September 6, 2011. <https://www.dnaindia.com/india/report-bangladesh-a-country-that-shares-54-rivers-with-india-1584128>.

²² Rahman, Zobaidur. "Interview: What Now for the Ganges Treaty?" The Third Pole, March 14, 2022. <https://www.thethirdpole.net/en/regional-cooperation/interview-what-now-for-ganges-treaty/>.

²³ ibid

people in parts of India particularly West Bengal and Bangladesh. The initial Ganges agreement was on the quantum of water that Bangladesh was supposed to get. More importantly, the treaty acknowledges Bangladesh's right to water as a lower riparian state. The demand for water is increasing in the basin and the water supply is shrinking making it even harder to agree on sharing mechanisms. A treaty only on one river will not be enough to continue peaceful negotiations.



Figure 5 Map of GBM basin, Source: <http://www.un.org/Depts/Cartographic/map/profile/seasia.pdf>

The greater Ganger-Barhmaputra-Meghna (GBM) basin requires comprehensive multilateral agreement among Nepal, India, and Bangladesh. Interestingly, this basin is one of the poorest regions of the world even surpassing the countries of sub-Saharan Africa²⁴. The health and education indicators are equally dismal. However, these countries still fail to agree on developing the basin on agreed terms. India has agreed terms with Bhutan on water-sharing, but it has not been able to repeat that with the other two neighbors.

As the population explodes in the basin region and the demand for water upticks, it will force these countries to act mutually. The urban growth in the basin areas is higher than in other regions like Europe, which has implications for water and energy demands and will negatively impact other natural resources if timely action is not taken²⁵.

²⁴ Biswas, "Cooperation or Conflict in Transboundary Water Management."

²⁵ ibid

The Role of China

China has become an unavoidable player in the South Asian politics of Water. Its addition to the South Asian Association for Regional Cooperation (SAARC) as an observer state has given it the window it required to understand South Asian mechanisms²⁶. The China-India water conflict or predicted war is not on the table because there is no exclusively shared watershed between the two countries. Major rivers between China and India.

Table 2: Rivers Shared by China and India Source: Xinhuanet and Ministry of Water Resources India.

Name	Countries
Indus (Siquan) River	China, India, Pakistan
Brahmaputra/(YarlungZanbo) River	China, India, Bangladesh, Bhuttan
Sutlej/(Langqen Zangbo) River	China, India, Pakistan
Ghaghara/Kongque River	China, Nepal, India

However, the water war narrative has been pumped to the public through different mediums and people have written books fictionalizing and portraying the possibilities of a full-fledged war between the two countries. A few of the popular sources are *Water Wars: the Brahmaputra River and Sino-Indian Relations* by Christopher Mark, *Water Wars in the Middle Kingdom* by Mathew French, *Water, Peace, and War: Confronting the Global Water Crisis* by Dr. Brahma Chellaney, and many more. The center of most papers is concentrated on the Brahmaputra River²⁷. As water scarcity looms over China, experts are worried that China might divert the Brahmaputra River for its local consumption draining the water for lower riparian states. The diversion projects

²⁶ Ahmad, Omair. "As SAARC Withers, China Gets Greater Say in South Asian Water Diplomacy." *The Third Pole*, May 9, 2023. <https://www.thethirdpole.net/en/regional-cooperation/opinion-as-saarc-withers-china-gets-a-greater-say-in-south-asian-water-diplomacy/>.

²⁷ "WIREs Water - 2015 - Zhang - Sino-Indian Water Disputes the Coming Water Wars.Pdf."

proposed like the South-North Water Diversion (SNWD) project (SNWD) and the Grand Western Water Diversion Project (GWWDP)²⁸.

As China plans infrastructure on the Yarlung Zangbo, the upper stream name of Brahmaputra, the apprehensions are valid for lower-riparian states²⁹. China has built multiple hydro dams on the Mekong River, and it is planning similar projects on the Yarlung Zangbo in the Autonomous Region of Tibet. India and Bangladesh have raised concerns because the flow of water will be distributed in lower-riparian states. The situation has fanned animosity in the bilateral relations between China and India. The lack of mutual agreement between the Basin states including China is a primary factor in disconnected work on the basins. Surprisingly, the Mekong River Commission (MRC) does not include China and the Brahmaputra Basin does not have any agreement. This calls for negotiations and collaboration among the basin states. Therefore, China is pivotal in building harmony, cooperation, and development around the water resources in South Asia.

Conclusion

South Asia is home to one-quarter of the world's population. The region thrives on the shared watersheds that give lives to communities, flora, and fauna in the region. The major water basins like Helmand, Indus, Ganges, Brahmaputra, and Mekong are not only water sources but also home to civilizations and cultures. Therefore, their unilateral control and usage should be shunned and discouraged. Drawing treaties for shared watersheds is essential to thwart conflicts and move forward toward a peaceful neighborhood. The global water treaties have worked exceptionally well paving the way for more treaties, which lead to mutual development. The Indus Water Treaty is a

²⁸ Zhang, Hongzhou, and Genevieve Donnellon May. "To Build or Not to Build: Western Route of China's South-North Water Diversion Project." *New Security Beat*, August 12, 2021. <https://www.newsecuritybeat.org/2021/08/build-build-western-route-chinas-south-north-water-diversion-project/>.

²⁹ Walker, Beth. "China Plans More Dams and Mega Infrastructure in Tibet." *The Third Pole*, January 4, 2021. <https://www.thethirdpole.net/en/climate/china-plans-more-hydro-projects-and-mega-infrastructure-in-tibet/>.

wonderful example of a resilient treaty that has worked amidst intense circumstances. Similar treaties are required between other countries sharing waters in South Asia. Afghanistan and Pakistan have a long history of shared culture and border animosity that necessitates a watershed agreement. Similarly, Afghanistan and Iran must honor the Helmand water treaty. India must lead the negotiation with Bangladesh and Nepal on the Brahmaputra basin. China should also be made part of the negotiations because the unilateral action of China has adverse impacts on the lower-riparian states. Water disagreements can lead to long-term conflicts between states. Therefore, it is pertinent to think of agreements and mutual solutions to water issues in South Asia.