Water War – Implications for India

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"As I travel around the world, people think the only place where there is potential conflict over water is the Middle East, but they are completely wrong. We have the problem all over the world."

- Kofi Annan, Former UN Secretary General

Abstract

Appositely labelled as 'Blue Gold' by famous authors Maude Barlow and Tony Clarke, water is slowly becoming more valuable than oil. If the current water consumption and availability trends are to be believed. water is bound to become increasingly salient in geopolitical discourse. For India, water issues with neighbouring countries, like China, Pakistan, Nepal and Bangladesh, hold high strategic significance and have the potential to become catalysts for a future conflict. China is an upstream riparian to some of the major rivers flowing into India from Tibet. A sizable length of these rivers are located in Chinese territory and melt water from the Tibetan plateau contributes around 35 to 40 per cent of the total flow in these rivers. With more and more industrialisation, China's water appetite is likely to surge further and water will get embroiled in the larger geopolitics. With the recent developments on our western borders and sustained covert support to militancy by Pakistan, even the Indus Water Treaty (IWT) is increasingly faced with challenges it wasn't designed to deal with.

Water, as an instrument and tool of bargain and tradeoff, will assume predominance in the next few years. India, therefore, needs to accord due importance to water diplomacy with her neighbours in order to maintain a strong hold over the water taps of Indian heartland. Since water is fundamental to human life and to the natural environment, there is also a need for methodical planning towards effective water management and prevention of any skirmishes.

The article examines India's water relations with neighbouring countries, analyses the undertones of 'Water War' and suggests response strategies.

Background

 ${f A}$ mongst all the natural resources available on earth, water is

the most vital for existence of life. If there was no water, there would be no life on earth. The availability, and quality, of water has always been of key importance to the mankind. It determines not only where people live but also their quality of life. The ancient Egyptian civilisation depended entirely on the Nile; the Romans expanded boundaries of engineering to use gravity and brought water closer to their cities. The earliest recorded water fight is a dispute around 2400 BC over the use of irrigation canals in the ancient Mesopotamian cities of Umma and Lagash between the Tigris and Euphrates rivers. In the recent times, water infrastructure was used as a weapon of war by the Islamic State which released floodwaters from dams captured along the Tigris and Euphrates rivers to punish downstream states and to slow the advance of opposing military forces.¹

Water as a natural resource is synonymous with abundance but the irony is that this synonymy with abundance promoted waste.² Even though it is considered renewable, water resources are facing serious threats from human activities. These include pollution, urban growth, deforestation and climate change. With the surging population across the globe, the ground water sources are depleting faster than they can be replenished. To make matters worse, inconsistent rainfall patterns are a matter of great concern. Water scarcity today affects more than half of the people on earth and by 2025 more than two-thirds of the global population will be struggling with water-stressed conditions.

"When the well is dry, we learn the worth of water."

- Benjamin Franklin

India's Water Availability

India is one of the most populous countries in the world, which supports about 18 per cent of world's population. With a significant geographical spread, India has historically managed its water resources reasonably well. While the northern plains are copiously supplied by rivers flowing from the bountiful Himalayas, the rest of the country is replenished by the raging monsoons. However, in past few years, booming economy, population growth, inconsistent monsoon patterns, rapid urbanisation and ever increasing pollution have put enormous strain on India's water resources. Already categorised as a water-stressed country, India has a per capita water availability of 1541 cubic metres. Studies show that the projected per capita water availability will become 1401 cubic metres and 1191 cubic metres by 2025 and 2050 respectively and eventually India will become a 'water-scarce' country.³ The demand for water continues to grow while collection, storage, regeneration and distribution have become over stressed. Without an efficient water management system, India is likely to get plunged into a water crisis. This would not only affect water security but also food security which can have larger socio-political implications.4

The Arab Israeli Water Conflict

"The next war in the Middle East will be fought over water, not politics."

– Boutros Ghali, Former UN Secretary General

Jordan River System. The Jordan River originates in Jordan and flows downstream to form the border with Israel. Yarmouk River originates in Syria and also forms some part of the border between Jordan and Israel before joining the Sea of Galilee.



Jordan River System

Background. With a topographical advantage of being the upper riparian states, Syria and Lebanon had the first rights but failed to make good use of the available water. Israel, Jordan and the West Bank-Gaza being the lower riparian were coerced to either accept the leftovers or act forcibly to lay hands on the desired quantity and

quality of water. While Israel, with its formidable clout, acquired most of its wants, Jordan and the West Bank-Gaza with little, or feeble influence, adjusted to what was available. This water discord has been a part of the broader Arab-Israeli conflict.

Developments Leading to War. The first Arab-Israel war was fought in 1948 between the newly declared Israeli state and a military coalition of Arab states. Following the war, all co-riparian to the Jordan River system started water-development plans in their respective countries. Whilst Jordan announced plans to divert the Yarmouk River through construction of canals, Israel began the construction of the National Water Carrier to transport the water from Sea of Galilee to southern parts of Israel.⁵ These unilateral developments caused skirmishes amongst the co-riparian, which led to mediation by the United States of America (USA). Despite long negotiations to reach an agreement, the process failed in 1955.6 Although Israel was willing to negotiate, the major drawback was that Arab countries did not recognise Israel in 1955 and feared that the plan could be seen as an implicit recognition of Israel as a country. Following the failure of the negotiation process, all countries accelerated their infrastructure development to harness water which escalated the tensions. Finally, Israel attacked Syria's water projects that contributed as a spark for the six-day war in 1967. This water conflict continues to be a tousled affair even today and enmeshes Israel, Jordan, Lebanon and Syria into frequent war like situations.

Water Relations with Pakistan

Genesis. The partition of British India in 1947 led to the formation of two independent countries – India and Pakistan. Since the division was on political and demographic lines, it shredded a cohesive network of rivers and watercourses into a frayed system of tributaries. The geography of partition was such that the irrigation system, conceived originally as a whole by the British, was divided between India and Pakistan without considering the irrigated boundaries. While the source rivers of the Indus basin were apportioned to India, the well-developed irrigation system of canals and waterways ended up in Pakistan.⁷

Geography. The Indus River originates in the foothills of Mt Kailash in Tibet and then flows north-westwards through Ladakh and

Gilgit-Baltistan, just south of the Karakoram Range. It gradually bends southwards and descends into the Punjab plains along the entire length of Pakistan to merge into the Arabian Sea. It has five principal tributaries namely, Jhelum, Chenab, Ravi, Sutlej and Beas. The river system provides key water resources for both India and Pakistan and feeds the *breadbasket* of the northern plains in both countries which accounts for most of the agricultural production.



Rivers of the Indus Water System

Backdrop of IWT. The IWT was signed, on 19 September 1960, as a water-distribution treaty between India and Pakistan to use the water available in the Indus River system. According to this agreement, control over the water flowing in three eastern rivers of India — the Beas, the Ravi and the Sutlej, with mean annual flow of 33 million acre-feet (MAF), was given to India, while control over the water flowing in three western rivers of India — the Indus, the Chenab and the Jhelum, with mean annual flow of 80 MAF, was given to Pakistan. These allocations made to India were meagre to meet its irrigation water requirements, whereas the treaty permitted

enough water to irrigate 80 per cent of the cultivated land in the Indus River basin of Pakistan.⁸

Flash Points

IWT has endured various wars and hostilities between the two countries and is largely considered a success. However, in the recent times, in view of sustained covert support to militancy by Pakistan and other geo-political developments, the treaty is increasingly faced with challenges it wasn't designed to deal with. In 2003 and 2016, Jammu and Kashmir (J&K) assembly demanded complete abrogation of the treaty claiming that it trampled upon the rights of the people of J&K. A more serious threat to the water agreement came in September 2016, after the terrorist attack on an Indian Army camp, when Prime Minister Narendra Modi stated that, "blood and water cannot flow together" and vowed to review the treaty.9 In the aftermath of the Pulwama attack in February 2019, India reminded Pakistan that water flowing into Pakistan from India can be diverted. This was followed by a statement from Syed Jamat Ali Shah, Pakistan's Water Commissioner, who avowed that such a move would be "tantamount to waging a water war" and invite a strong reaction from Pakistan.¹⁰ Hence, a conflict revolving around abrogation of water treaty is highly likely between India and Pakistan.

Way Ahead

Symbol of Goodwill. The preamble of the IWT asserts that it was entered "in a spirit of goodwill and friendship". Since neither goodwill nor friendship exists at the moment, critics argue that India has no obligation to continue with the treaty.¹¹ However, the treaty should not be a soft target for punitive action. Both countries should accept water as a fundamental human right and discuss joint solutions for water sharing. They must be forthcoming in announcing planned hydropower projects well in time to avoid any mistrust. While India has been generous and has avoided any interference in Pakistan's infrastructure development, Pakistan has vociferously objected to any legitimate development on the Indian side. She has maintained the rhetoric that any infrastructure development and capability building will allow India to strangulate Pakistan by stopping its flow of water in the event of a geo-political crisis. Pakistan must understand that it is losing additional benefits by objecting to run-of-the-river dams in upstream J&K state since this water would ultimately reach Pakistan for use and avoid dam building requirements in its own territory.

Infrastructure Development. Pakistan has been exploiting the aquifers in the occupied territories of Kashmir for decades now. The treaty does not have any clause on management of this huge reserve of groundwater, especially in Pakistan-Occupied-Kashmir. India must build up infrastructure in its own territory to tap these aquifers as well as arrest the unutilised water of its share within the clause of bilateral IWT. The pending work on Shahpurkandi Dam Project on Ravi River, Ujh Dam Project on Ujh River in J&K and Ravi-Beas link in Punjab must be expedited to feed water to the 'food bowls' of India.

The China Factor. China is an upstream riparian to some of the major rivers flowing into India from Tibet, as well as, a self-proclaimed "all-weather friend", to Pakistan. A sizable length of these rivers are located in Chinese territory and melt water from the Tibetan plateau contributes around 35 to 40 per cent of the total flow in these rivers. By keeping to the IWT, India could leverage its position as a responsible upstream riparian when it engages with China over water issue. Currently, India only has a data sharing agreement with China and it will definitely be at a loss if China proposes to obstruct or divert the flow of water in the Indus basin - a possible scenario - should India similarly obstruct Pakistan's access to water.

International Impact. Walking away from the IWT might result in India facing flak from the global community during a time when states are coming together and cooperating to improve the status of water security. Therefore, it is definitely in India's best interest to continue the IWT and avoid its termination.¹²

Strategic Leverage. India must further her strategic partnership with Afghanistan and continue the aid towards development of hydropower tapping capabilities on Kabul River which is an important tributary of the Indus basin and contributes vastly to Pakistan's share. The recently finished Salma Dam (Afghan-India Friendship Dam) built by India on Hari River should be followed by construction of the proposed Shahtoot Dam on Kabul River. This will afford significant strategic leverage in the event of a double act by China and Pakistan utilising water as a warfare tool. Water Relations with China

"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."

- Dr Brahma Chellaney

Genesis. China and India are the most heavily populated and parched countries in the world, which share several trans-boundary rivers like the Indus, Brahmaputra, Kosi and Ghaghara River. For all these rivers, China happens to be the upper riparian state. Amongst these shared rivers, most tensions exist along the Brahmaputra River. While the Indus River water sharing has already been discussed earlier, this analysis is restricted to Brahmaputra River.

With its origin near Manasarovar Lake of Tibet, Brahmaputra flows across the Himalayas into Arunachal Pradesh, Assam and subsequently to Bangladesh before merging with the Ganges and emptying into the Bay of Bengal. The river is of great importance to both India and China. In China, it is considered the birthplace of Tibetan civilisation and plays a critical role in Tibet's agricultural and energy sectors. For India, it accounts for nearly 30 per cent of the freshwater resources and about 40 per cent of total hydropower potential of the country.¹³ Further, for state of Arunachal Pradesh hydel-energy is what oil is to the Gulf countries. The state, therefore, stands out as India's greatest powerhouse and in view of the emerging national water shortages, its best future water source.¹⁴



Flash Points

Control and conquest of nature has been a defining feature of the Chinese communist elite. In the post 1949 period, almost half of the world's total big dams have been constructed in China.¹⁵ Since the completion of Zangmu dam by China (the largest hydropower dam on Brahmaputra River), many security observers have warned of 'water wars' between India and China. In his paper 'Water Wars in the Middle Kingdom' which was published by the International Affairs Review in 2014, Matthew French stated that "China has turned to the Tibetan Plateau as an answer to its internal water security problems which risks enflaming neighbouring countries. Her damming efforts in the region may trigger a deadly water race to control the rivers". The much debated on-going project of South-North water diversion scheme on Tsangpo River (named downstream as Brahmaputra) is also likely to severely debilitate the water supply and hydropower capability in Northeast India and Bangladesh. In addition, China's unwillingness to sign any binding agreement with downstream countries and lack of any transparent mechanisms in information sharing over trans-boundary rivers is also evidence that China is insisting on the absolute sovereignty of water principle.¹⁶ In the absence of a water treaty, China depriving India of water during lean seasons becomes a possibility. According to Chandan Mahanta, who heads the Centre for Environment at the Indian Institute of Technology, Guwahati, the Chinese hydropower projects could convert Brahmaputra into a seasonal river implying water scarcity in India. Another risk is the release of flood waters during the monsoon season, which could inundate the already flooded Brahmaputra river basin in Assam.¹⁷ As dreaded by various scholars and diplomats. a silent Water War with China is finally becoming a reality and India should be ready to face it.

Way Ahead

Water relations with China cannot be viewed in isolation. The resultant contours that it will give to the foreign policy of the two nations also need to be factored. Chinese intentions are clearly evident in her *"salami slicing"* approach in all the geo-strategic affairs. Her continuous assertion over Arunachal Pradesh as its territory absolves it of the obligation to share water over the prospective massive damming of River Brahmaputra. As China's water appetite

surges, similar territorial disputes are likely to gather steam and water is likely to get embroiled in the larger geopolitics. India's challenge will, therefore, be to raise these issues in a manner that China is forced to engage India. Unlike the lower riparian states of the Mekong River, India cannot afford to cringe down under the strategic clout of China. China's water diplomacy must be offset by a strong counter-strategy from India.

India must complete the essential infrastructure developments in North-eastern states within the laid down time frames. Water issues should increasingly form an agenda in the bilateral talks between India and China. India can also counter China's covert water war by innovative means, including underscoring of Hong Kong, Xinjiang, Taiwan or Tibet issue, to derive some leverage. However, given the economic and military rise of China in the past decade, this action also needs to be timed and pitched prudently. While the options available are restricted, timely implementation is critical lest China exploited its upper riparian status to control the water taps of Indian heartland.

Water Relations with Bangladesh

Genesis. Plenteous water flowing through munificent rivers marks both the physiography and cultural identity of Bangladesh. These rivers are the principal arteries of fresh water, food, fish and commercial transportation in Bangladesh. As stated by a publication issued by the Bangladesh Water Development Board, about 405 rivers flow through the country to form the *Ganges-Brahmaputra-Meghna* (GBM) mega-basin which is the second largest hydraulic region in the world. Within this basin, 54 rivers cross the border between upstream India and downstream Bangladesh. Only one however, is subject to a bilateral agreement between the two countries: the Ganges River.¹⁸



Source: http://www.bdembassyuae.org/bd-geo.html

River Systems of Bangladesh

Major Issues of Discord

The issues of water discord between India and Bangladesh are enumerated below:-

(a) The Ganges Water Treaty (GWT). While the long standing conflict over sharing the lean season flows of the *Ganga* was contentedly resolved in 1996 by the GWT, the issue of water

diversion at Farakka Barrage still lingers on. The Farakka Barrage was built by India in 1975 to divert water from the Ganges River to the Bhagirathi-Hoogly river system. The agreement was based on the flow average between 1949 and 1988; however, the real flow at Farakka in the 1990s was much lower than that. The Bangladeshi political factions, therefore, allege that India is drawing excess water from Ganges at Farakka and the amount allocated to Bangladesh is unjust. India, in turn, complains that the water allocated to Bangladesh leaves it with less water than stated and what is necessary for the functioning of the Kolkata Port and National Thermal Power Corporation in Farakka. Farakka barrage has also been criticised for excessive siltation in Ganga thereby triggering floods in Bihar. The signing of the GWT has definitely helped in improving the overall bilateral relations between the two countries but an understanding on the issue of water diversion at Farakka needs to be arrived at.¹⁹

(b) Teesta River Water Sharing Conflict. Teesta River is an important tributary of the Ganges River, with 83 per cent of the catchment area in India and the remaining 17 per cent in Bangladesh. Negotiations on water sharing of Teesta have been on since 1983; however, no agreement has been reached on the issue till date. A mutually agreeable deal was close to be inked in June 2015 but was stalled due to objection by the Chief Minister of West Bengal stating that the planned agreement would render West Bengal dry. The issue remains a vexed problem and has loomed large over India-Bangladesh relations for over a decade. It has been a sore point in all the deliberations and bilateral talks. There are many imponderables in sharing the Teesta waters on a basis that is satisfactory to both Bangladesh and India. In the past two decades, run-of-theriver project dams on Teesta, upstream in Sikkim, have experienced a substantial reduction in water flow owing to periodic landslides, siltation, etc. Unless an integrated view of Teesta basin management is adopted, the water and power needs of Sikkim and Bengal cannot be attended to in juxtaposition to the needs of Bangladesh.²⁰ Therefore, an easy resolution may not be feasible under the prevailing hydrological conditions.

(c) The China Factor. China's long distance transfer of waters from Brahmaputra, and extensive damming in Tibet, has adversely affected the hydrology of the Indian rivers. The equitable sharing of water quantities based on old figures is no more feasible today. Therefore, Bangladesh needs to be sensitised about the disturbed water supply-demand chain that exists within India as middle / lower riparian.

Way Ahead

Under the current political leadership in India and Bangladesh, the signing of the Land Boundary Agreement in 2015 proved that anything is possible with political will. This example presents a significant hope for an agreement to be reached over the Teesta waters also. It will not only improve bilateral ties but also have a positive influence on further efforts to enhance co-operation at Farakka.²¹ In order to expedite an agreement, joint studies, particularly by the Joint Rivers Commission, for bridging differences and resolving misconceptions must be vigorously progressed. The central government must get the state government of West Bengal on board and arrive at a solution which protects the interest of all stake holders. A final agreement should be based on the recommendations of technical experts followed by a political compromise, if required.

Water Relations with Nepal

Background. The India-Nepal Treaty of Peace and Friendship of 1950 forms the bedrock of special relations that exist between India and Nepal. Cooperation in water resources from common rivers is one of the most important areas of bilateral relations. Nepal possesses huge fresh water resources and a large number of rivers originating in Nepal feed the perennial river systems of India in terms of ecology and hydropower potential. Various water sharing agreements signed between the two nations include the Mahakali Agreement (1920), Koshi Agreement (1954), Gandak Agreement (1959) and the Mahakali Treaty (1996). These agreements have been beneficial to both the nations. However, negligence in implementation from both sides, excessive infrastructure developments along the embankments causing floods and mistrust on water sharing issues have long muddled the waters.

Major Issues of Discord

The issues of water discord between these two nations are as below:-

(a) Mahakali Treaty. Amongst all the above agreements, the Mahakali Treaty, signed in 1996, is the most ambitious yet debated deal. Mr KP Sharma Oli, the current Prime Minister of Nepal, was also the coordinator of the team for studying the treaty. The major benefits of the treaty are flood control and irrigation of agricultural land in India and Nepal. The United Nations Environment Programme in 2007 also appreciated the treaty and went on record to state, "The signing of the Mahakali Treaty has indeed provided India and Nepal with an opportunity for meaningful cooperation to benefit millions of people in the two countries whose livelihood depends on the waters of the Mahakali River". However, there is discernment in certain quarters in Nepal that the treaty lacks clear provisions on what constitutes Nepal's water rights. The treaty is formally active but the progress in its implementation has been tardy. The Pancheshwor Multipurpose Project was the centre of attraction of this treaty; however, even the Detail Project Report (DPR) of this project has not been finalised till now.

(b) Kosi Agreement. India and Nepal signed the Kosi Agreement in 1954 to regulate the flow of Kosi River towards enhancement of hydel-power generation, irrigation water and to ensure flood management. A barrage straddling the India Nepal border was constructed for this purpose and embankments were raised on either side of the river. There have been various disputes over this agreement fuelled by floods in the Kosi region. In April 2008, there was a devastating flood in the Kosi Basin which displaced 50 thousand people in Nepal and around 30 lakh in India.²² Both sides blamed each other for failure to prevent such a massive disaster. The floods were caused by a breach of the eastern embankment at Kusaha village in Nepal, resulting in the worst damage in the past 60 years of recorded flood history in India and Nepal.23 There have been at least seven such recorded breaches since 1961 and the river is better known as "Sorrow of Bihar". Practically, the disaster could have been averted with reasonable foresight and better coordination between the two countries.

Way Ahead

The water sharing issues with Nepal might seem to be less significant but they hold phenomenal strategic importance for India. Being a cordial and friendly nation with great geo-political importance, India needs to accord due importance to water ties with Nepal. The emergent speculation and mistrust between the two neighbours needs to be offset with confidence building measures during bilateral talks like the annual Nepal-India Joint Commission meetings. Concurrently, a joint technical committee of experts from India and Nepal should carry out a revised cost benefit analysis of the projects to review the water sharing agreements and set up proper accountability and compliance mechanisms.²⁴ The authorities should also examine the roads and bridges built recently on both sides to check their impact on the drainage capability of rivers. High level visits, by ministers and Indian delegates, to Nepal at frequent intervals to re-affirm faith in each other will go a long way in fostering the bonhomie between the two nations.

Conclusion

History has proven that a multitude of factors usually converge and bring countries at the brink of war. When politics and water mix and cooperation transfigures to conflict, freshwater becomes an issue of national security and a tool of violence. For India, water issues with Pakistan and China will be far more political and strategic, and will continue to hold high potential to become catalysts for conflict. Water as an instrument and tool of bargain, and trade-off, will assume predominance with these countries since the political stakes are very high. With Nepal and Bangladesh, however, there is far more scope to overcome and break political deadlocks through sensible water sharing arrangements and resource development.²⁵ It is, therefore, recommended that absence of a conflict should not be equated to peace and effective risk-reduction strategies must be adopted with all neighbouring states over water sharing. Since water is fundamental to human life and to the natural environment, there is a need for methodical planning towards effective water management and prevention of any future skirmishes. The former United Nations Secretary General Kofi Annan had rightly said, "The world's water resources are our lifeline for survival and sustainable development. Together, we must manage them better and ensure their sustainable use for generations to come".

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