Issue Brief

CLAWS

Waters of Discord

■ **Dhruv C Katoch**

The Indus Waters Treaty (IWT) was signed on 19 September 1960 by Prime Minister Jawaharlal Nehru and President Ayub Khan. In broad terms, the waters of the three eastern rivers, viz. Ravi, Beas and Sutlej, were accorded to India for exclusive use whilst the waters of the three western rivers, viz. Indus, Jhelum and Chenab, were accorded to Pakistan. The mean water flow from the eastern rivers is 33 million acre feet (MAF) as compared to 136 MAF from the western rivers. As such, based on the IWT, Pakistan got 80 percent of the waters from the Indus system of rivers. However, at the time of partition, Pakistan was dependent on the water supply from the eastern rivers. Accordingly, India agreed to pay a sum of 62 million pounds sterling to Pakistan to build replacement canals from the western rivers and other sources.

As per the IWT, India was also given the rights to tap the considerable hydropower potential of the western rivers before they entered Pakistan, without affecting water flows. Besides domestic and non-consumptive use, India was also permitted to draw water from the western rivers for agricultural purposes, up to a maximum permissible irrigated crop area of 1.34 MAF. The treaty also allows India storage capacity on the western rivers to the tune of 3.6 MAF, in addition to the storage that already existed on these rivers before the treaty came into force. 1.25 MAF of the total is general storage. The remaining quantity is split between 1.6 MAF for the generation of hydroelectricity and 0.75 MAF for flood control. In terms of rivers, 0.4 MAF of storage is allowed on the Indus, 1.5 MAF on the Jhelum and 1.7 MAF on the Chenab. These allocations were made on the basis of the water flows and usage in April 1960.

At present, India has not built any storage on its entitlement of 3.6 MAF on the western rivers (pondage for the Baglihar dam is 32.58 MCM or approximately 0.026 MAF). India is currently irrigating only 0.792 million acres of the 1.34 million acres, permitted for irrigation. Even if India starts using its full entitlement of water from the western rivers, it will amount to no more than 3 percent of the mean flow in these rivers. Yet, over the years, Pakistan has consistently raised the decibel level over the IWT. Such shrill cries have not been confined to the political class, but have extended to the military and bureaucratic circles as well. Sardar Aseff Ali, Education Adviser to Prime Minister Yousuf Raza Gilani, has gone to the extent of stating that the issue could trigger a war.[1] In June 2009, Majid Nizami, chairman of the Nazria Pakistan Trust, stated that the water dispute between India and

No. 19, July 2010

Pakistan could trigger a nuclear war between both countries.[2] Not to be left behind, Hafiz Saeed, the chief of the Jamaat-ud-Dawa and a key conspirator in the 26/11 attack on Mumbai, has threatened further mayhem over the treaty.[3]

An Emotive Issue for Pakistan

While the treaty allocates the waters of the three western rivers to Pakistan, it allows India to tap the considerable hydropower potential of these rivers before they enter Pakistan. However, there is a rider that such usage must not affect either the quantity of water reaching Pakistan or interfere with the natural timing of those flows. The former aspect has little relevance, as hydropower does not consume water and can have no impact on the total quantity of water reaching Pakistan.[4] However, the critical issue is of the timing of those flows. When a dam is constructed, there is a one-time effect when it is initially filled. If this filling is done in the wet season, it would have a negligible impact on agriculture in Pakistan. But if such filling were to take place during the critical low flow period, there would be a significant one-time effect. Of greater concern to Pakistan, however, is the permanent perceived threat of a large number of hydro projects on the Chenab and Jhelum rivers. After the Baglihar project, some other projects in the pipeline are the Kishanganga (a 330 MW project to be completed by 2016, in which the station will be constructed on the Kishanganga river in northern Kashmir, near the town of Gurez, and will transfer water to Bandipur in the valley of Kashmir), Sawalkot (a 1200 MW run-of-the-river plant on the Chenab, located upstream of the already finished Salal hydroelectric power project and downstream of the Baglihar project), Pakuldul, Bursar, Dal Huste, Gyspa and potentially many more. The cumulative live storage of all these projects will, in the perception of many in Pakistan, give India the capacity to have a major influence on the timing of flows into Pakistan. Theoretically, India could manage to store about one month's worth of low-season flow on the Chenab, in such a manner as would impose major reductions on water availability in Pakistan during the critical planting season. As agriculture in Pakistan's heartland depends not only on how much water there is, but the timing of the same during the planting season, the issue assumes immense importance. While India has never used water as a pressure point against Pakistani interests, the fear in Pakistan is that it can do so in future, with catastrophic results to agriculture in the Punjab province. In addition, Pakistan contends that the design parameters of the Baglihar and Kishanganga projects provide India with the potential to accelerate, decelerate or block the flow of the respective rivers, thus giving India a strategic leverage in times of political tension or war. Political or military aspects, however, fall outside the ambit of the IWT. In any case, the provisions of the IWT have been scrupulously observed by India, despite the various conflicts that have taken place between the two countries.

While the Treaty allocates the waters of the three western rivers to Pakistan, it allows India to tap the considerable hydropower potential of these rivers before they enter Pakistan. However, there is a rider that such usage must not affect either the quantity of water reaching Pakistan or interfere with the natural timing of those flows.

The Baglihar project, the Kishanganga project, as well as the Tulbull (Wular) project, are all being

opposed to by Pakistan on the narrow definition of what it means by storage. In the case of the Baglihar project, Pakistan objected to the dam's storage capacity, its power intake tunnels and the design of the spillways (which were gated). The two power intake tunnels were objected to, on the grounds that they were not authorised by the treaty, as also not being positioned high enough (the higher the power intake tunnels, the lesser the chances that they can be used to release large quantities of stored water). Pakistan applies the same logic to the gateways, which reach 32 metres lower than the effective top of the dam. The Indian argument rested on the premise that the pondage was within the limits set out by the IWT, the power tunnels were a technical necessity and the spillway gates were essential, else the dam would soon fill with silt and become useless. The neutral expert appointed by the World Bank to adjudicate these differences agreed with India's contention, though he did call for minor design changes, including a reduction in the height of the dam by 1.5 metres.[5] In April 2008, Jamaat Ali Shah, Pakistan's Indus Waters Commissioner, stated that "in compliance with the IWT, India has not, so far, constructed any storage dam on the Indus, the Chenab and the Jhelum rivers. The hydroelectric projects being developed by India are the run-of-the-river projects, which India is permitted to pursue, according to the treaty,"[6] thereby conceding that the water projects undertaken by India did not contravene the provisions of the treaty.

Ground Realities

It is a little-known fact that while the three western rivers originate in Tibet and India, the major portion of their catchment area - approximately 65 percent - lies either in Pakistan or territory controlled by Pakistan. For the most part, the Indus is exclusively controlled by Pakistan and its tributary, the Jhelum, has no outlet except through Pakistan. While the

Repeated assertions by Pakistan that India is misappropriating water meant for Pakistan have no basis in fact, though they come in handy as political tools to whip up anti-India sentiment and divert attention from the real issues which plague Pakistan.

Chenab originates from Himachal Pradesh in India and runs through the Jammu region before entering Pakistan, no canals have been built on this river to divert its waters to other parts of India. It is obvious that the waters of the western rivers must flow in their entirety into Pakistan. Thus, repeated assertions by Pakistan that India is misappropriating water meant for Pakistan have no basis in fact, though they come in handy as political tools to whip up anti-India sentiment and divert attention from the real issues which plague Pakistan.

Pakistan has three main river basins – Indus, Kharan and Mekran. The latter two basins form the Baluchistan plains, while the Indus forms the largest and most important river basin with the fertile plains of the Punjab and Sindh provinces.[7] Pakistan has added vastly to its irrigation infrastructure, which today feeds over 40 million acres of irrigated land and comprises three major storage reservoirs, 19 barrages or head works, 43 main canals with a conveyance length of 57,000 kn and 89,000 water courses, with a running length of more than 1.65 million km, giving Pakistan the highest irrigated and rain-fed land ratio in the world at 4:1. However, this has come with tremendous environmental and resource degradation in the ecosystem. The Tarbella, Mangla and Chashma reservoirs in Pakistan have already lost about 5 MAF due to sedimentation, and

it is estimated that by 2012, this loss would increase to 6 MAF, almost equal to the original combined capacity of the Mangla and Chashma reservoirs. This is having a negative impact on agriculture in Punjab as there is no additional water, which can be used, in the system. Another factor for consideration is the use of Indus waters for irrigation in the Punjab province at the expense of Sindh, which has created friction between the two provinces. According to Arif Hassan, two dams at the Tarbella and Chashma reservoirs resulted in the siphoning off of 74 percent of the Indus waters before it reached Kotri, the last barrage point on the Indus in the southern Sindh province, reducing the deltaic area from 3,000 sq km to 250 sq km.[8] Controlled irrigation and increased diversions have resulted in excessive water logging and land salinisation.

In 1992, Pakistan was already a water-scarce country, with water availability assessed at 1,700 m^3 (cubic metres) available per capita [(according to the United Nations Population Fund/Ministry of Population Welfare (Pakistan)]. By 2003, Pakistan's per capita availability of water declined to the extent that it was categorised as a "water-stress" country by the World Bank, surpassing Ethiopia, and on par with African countries such as Libya and Algeria. Pakistan is now a water-scarce country at 1,200 m^3 per capita per year. According to Simi Kamal, based on current projections, water availability (per capita) will be 855 m^3 by the year 2020. Kamal further states that Pakistan has already used up the resources that exist in its water cycle and does not have additional sources of water to mobilise.[9] Hence, putting up additional dams or reservoirs doesn't necessarily mean there will be additional water coming in. It would only imply reappropriating the water already in the system.

As stated earlier, Pakistan has the largest contiguous irrigation system in the world. However, its poor state of infrastructure results in transmission and seepage losses, which have been assessed at two thirds of its total capacity. This translates to about 68 MAF of potentially usable water, if the canal system is adequately repaired and maintained. Of the total sweet water availability of approximately 144 MAF, 97 percent is already used in agriculture. Thus, there is a need to improve farming methods to conserve water and increase productivity, rather than demanding more water only to maintain some of the lowest productivity rates in the world per unit of water and per unit of land.

The need of the hour for both countries is better water management in their respective countries and greater cooperation on water issues.

Conclusion

While Pakistan has been categorised as a water-stress country, the situation in India is only marginally better. Population growth in both countries, in a situation where water inflows are constant, will further worsen the situation. And as climatic changes reduce water flows due to glacial melt, the situation can only deteriorate further. The need of the hour for both countries is better water management in their respective countries and greater cooperation on water issues. As of now, both sides are seeking more water and neither is satisfied with the IWT. A renegotiation of the treaty, as suggested by some experts, is not an option, for if one side gets more water, the other will not accept it. In addition, too many changes have taken place in water use in the two countries since the treaty was first implemented and any changes now will cause massive upheavals.

It is a positive sign that the treaty has survived major conflicts and still remains a viable basis for cooperation and peace between the two countries. The need is to build a climate of trust between the two countries, which would allow India to exploit the vast hydro potential of these rivers unhindered and, at the same time, give Pakistan an assurance on their flows. As an immediate step, the collection and dissemination of data on the water flow of the Indus and its tributaries, all along their length(s), will dispel any fear that India is poaching on water which has been allotted to Pakistan, as also give Pakistan an assurance that the timings of the flows are not being interfered with. Both countries also need to delink the issue of river waters from both historic grievances as well as the Kashmir issue. We can opt to play a win-win game. The alternative is continued hostility and a loss to both sides.

Notes

1. "Unresolved Water Issue Could Trigger Indo-Pak War, says Gilani's Advisor," *ANI*, 03 January 2010, http://www.thaindian.com/newsportal/south-asia/unresolved-water-issue-could-trigger-indo-pak-war-says-gilanis-advisor_100298147.html, accessed on 04 January 2010.
2. "Indo-Pak Water Dispute Could Trigger a Nuclear War: Nizami," *ANI*, 07 June 2009, http://www.thaindian.com/newsportal/south-asia/indo-pak-water-dispute-could-trigger-a-nuclear-war-nizami_100201885.html, accessed on 09 June 2009.
3. "India Imposed War on Pak by Constructing Illegal Dams: Saeed," *The Indian Express*, 07 March 2010.
4. John Briscoe, "War or Peace on the Indus?" *The News*, 05 April 2010.
5. However, the World Bank has made it clear that it was not a guarantor of the Treaty. The neutral expert appointed was Professor Raymond Lafitte of the Swiss Federal Institute of Technology, Lausanne, Switzerland.
6. Dr S Chandrasekharan, "The Indus Waters Treaty – Its Dynamics and Reverberations," *South Asia Analysis Group Paper No. 3676*, 19 February 2010, http://www.southasiaanalysis.org/papers37/paper3676.html, accessed on 07 March 2010.
7. For further details, see Aijaz Nizamani, Fauzia Rauf, and Abdul Hakeem Khoso, "Case Study: Pakistan - Population and Water Resources," in Alexander de Sherbinin and Victoria Dompka Markham (eds.), *Water and Population Dynamics: Case Studies and Policy Implications* (New York: American Association for the Advancement of Science, 1998), http://www.aaas.org/international/ehn/waterpop/paki.htm, accessed on 04 January 2010.
8. Arif Hassan, "Death of the Indus Delta," in Board on Earth Sciences and Resources/Earth and Life Studies (eds.), *Down to Earth* (Kenya: RIOD, 1992).
9. Simi Kamal, "Pakistan's Water Problems: Do We Care Enough to Act?" *Triple Bottom-line*, 21 October 2008, http://www.tbl.com.pk/pakistans-water-problems/, accessed on 23 October 2008.

Maj Gen **Dhruv C Katoch** (Retd) is Additional Director, Centre for Land Warfare Studies.

CENTRE FOR LAND WARFARE STUDIES (CLAWS)
RPSO Complex, Parade Road, Delhi Cantt, New Delhi 110010
Tel.: +91-11-25691308, Fax: +91-11-25692347, Email: landwarfare@gmail.com
Website: www.claws.in

Research findings are disseminated through the Centre's publications: CLAWS Journal, Issue Briefs, Manekshaw Papers, Monographs, Books and Website. The research faculty of CLAWS comprises a balanced mix of serving military officers and civilian scholars. CLAWS publications include the following:

Books

- **The Unmaking of Nepal** Rs.375
  R S N Singh
- **India's War on Terror** Rs.680
  Gurmeet Kanwal and *N Manoharan (eds.)*
- **Chinese WMD Proliferation in Asia: US Response** Rs.680
  Monika Chansoria
- **The Bridge on the River Meghna Dash to Dhaka, Bangladesh Liberation War 1971** Rs.680
  Ashok Kalyan Verma
- **Net-Centric Warfare** Rs.620
  Vijay Oberoi (ed.)
- **Army Aviation 2025** Rs.460
  Vijay Oberoi (ed.)
- **Special Forces: Doctrine, Structures and Employment Across the Spectrum of Conflict in the India Context** Rs.620
  Vijay Oberoi (ed.)
- **Army 2020: Shape, Size, Structure and General Doctrine for Emerging Challenges** Rs.620
  Vijay Oberoi (ed.)

Monographs

- **Human Rights and Armed Forces in Low Intensity Conflicts** Rs.225
  K S Sheoran
- **Assam: Terrorism and the Demographic Challenge** Rs.195
  Anil Bhat

Manekshaw Papers Rs.90 per copy

- The Tibetan Diaspora in India and their Quest for the Autonomy of Tibet
- National Strategy for Cyberspace Security
- Sri Lanka's Ethnic Conflict: How Eelam War IV was Won
- Jammu and Kashmir: The Emerging Contours and the Way Ahead
- 'Informationising' Warfare: China Unleashes the Cyber and Space Domain
- Understanding the Indian Mujahideen
- Changing Nature of Conflict: Trends and Responses
- Militancy and the Pakistan Army
- The Emerging Balance of Power in Asia: Conflict or Cooperation
- India's Missile Defence Programme: Threat Perceptions and Technological Evolution
- Winning Hearts and Minds: Lessons from Jammu and Kashmir
- Sri Lanka: The Last Phase in Eelam War IV - From Chundikulam to Pudumattalan
- Principles of War: Time for Relook
- Why India, Why Not Pakistan? Reflections on South Asian Military Politics
- India's Strategic Culture: The Impact of Geography
- Left Wing Extremism in India: Context, Implications and Response Options
- Insurgency in the FATA & NWFP: Challenges and Prospects for the Pakistan Army
- The Rising Tide of Left Wing Extremism in India and Implications for National Security
- Iran's Nuclear Quagmire: Trends and Challenges
- Trends in Pakistan's Defence Spending
- Armed Forces in Disaster Management
- The Al Qaeda in India
- Indo-US Strategic Convergence: An Overview of Defence and Military Cooperation
- The Impact of Geo-politics of Southwest Asia on Afghanistan: A Medium-Term Perspective

CLAWS Journal

It is a bi-annual flagship publication of the Centre. Launched in 2007, the Journal carries high quality original articles by serving and retired members of the armed forces and civilian scholars. Contents fall under three major categories: commentaries on topical issues, research articles and book reviews. The Journal will be published as a quarterly in the near future.