

# 13

## STAKEHOLDER PERSPECTIVES ON TRANSBOUNDARY WATER COOPERATION IN THE INDUS RIVER BASIN

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### **Introduction**

The issue of cooperative security in the South Asia region has rapidly gained prominence against the background of common challenges that have surfaced in the region, such as climate change, terrorism, economic interests and the common structure of democracy in the countries of the region. However, efforts to increase regional cooperation, dialogue and negotiation are often hindered due to mistrust, mutual suspicion and power inequalities. This is evident in the case of bilateral engagement between India and Pakistan over the sharing of the Indus River Basin.

India and Pakistan share the Indus River Basin on the basis of an agreement known as the Indus Water Treaty (IWT). This treaty has survived two wars – in 1965 and 1971 – and can be considered a classic example of cooperation, but further dialogue has not taken place due to ongoing political tension and lack of trust between the two countries. Power and economic inequalities have made the countries extremely cautious in their attitudes towards sharing the Indus (Wolf and Newton, 2008; Dinar et al., 2007). Wolf and Newton (2008) highlight that the shifting political boundaries between India and Pakistan turned an intra-national water conflict into an international one, exacerbating the existing tensions relating to population displacement and unresolved territorial issues over Kashmir.

One of the major causes of tension over the IWT has been the ever-increasing demand for water due to high population growth. There is now enormous pressure on the federal governments of India and Pakistan from their respective states/provinces to meet this demand. While the treaty provides comprehensive provisions<sup>1</sup> for the development of infrastructure on the eastern and western rivers, such developments are always contested by the political representatives of states from both countries. For instance, the disputed state of Jammu and Kashmir (J&K) argues that it has the right to develop infrastructure on the rivers that flow through

its territory to meet its water and electricity demands. It feels the IWT does not accommodate these rights and that they were ignored in the drafting of the treaty. On the other hand, Pakistan believes that the rivers that flow through Indian Kashmir belong to Pakistan, and this is acknowledged in Article III of the treaty.

The discourse on water sharing between India and Pakistan is intrinsically related to the overall political climate between the two countries. Routine talks at the level of Indus water commissioners take place when the relationship is relatively cordial. However, when tensions rise – due to terrorism, the Kashmir conflict or trade disputes – negotiations under the treaty are suspended. The discourse that develops as a result of political tension negatively affects the interpretation of the treaty on both sides of the border. This results in a lack of cooperation, accusations and allegations, which increase the mistrust.

The primary research undertaken for this study involved interviews with stakeholders from India and Pakistan. For the purposes of the study, we identified two broad categories of stakeholders: government and non-government. The government stakeholders included representatives from Indus water commissions and ministries such as Water and Power, Planning and Development, Environment, Forestry, Food Security and Climate Change, among others. From the non-government side, we interviewed representatives of NGOs and INGOs, think-tanks and academics who play key roles in policy and provide advice to the respective governments. It is interesting to note that the major stakeholders in the water sector in India and Pakistan believe that the dialogue process should never stop, as they view it as the only means to resolve all the disputes. There is general consensus that face-to-face contact and forums allow divergent perspectives to be shared, and that this encourages collective action in resolving the outstanding disputes. There is also a shared belief that the young, progressive populations of the two countries will not countenance war as a means of resolving outstanding issues between India and Pakistan.

Below, we present a brief history of the negotiations that led to the IWT. We then discuss the institutional arrangements for the implementation of the IWT and post-IWT infrastructure development in the Indus Basin. Finally, we explore the Indian and Pakistani water stakeholders' perspectives on the IWT and chart the way forward.

## **Historical overview of the Indus River Basin**

The history of water sharing in the Indus Basin dates back to before partition of the sub-continent. The construction of a network of perennial canals by the British transformed the economy of Punjab and Sindh. Since these perennial canals and their branches and distributaries were spread over barren land with a population base that was inadequate for large-scale cultivation, these areas had to be 'colonized' by outsiders. Land that was not under cultivation was deemed as 'Crown (or State) Waste Land', which enabled the British to utilize or dispose of these lands as they wished. This gave the British Empire immense power to reward politically

significant individuals and specific sectors of society. The beneficiaries of agricultural colonization during British rule remained the inheritors of power in the independent states. In 1901 the British passed the Punjab Alienation of Lands Act, which prohibited the passing of land from agricultural to non-agricultural castes. This meant that only the agricultural castes were eligible for the granting of canal-irrigated land, a critical decision that completely excluded the lower (service) castes from acquiring landholding status. This shows that the establishment of canal colonies was a political process, and the British ensured that those who were awarded grants and landownership paid back in terms of land revenue and military recruitment (Ali, 2003).

In the process of establishing the canal colonies, the British initiated huge infrastructure development projects, including the Thal, Haveli, Bhakra Dam and Sutlej Valley canals in the province of Punjab and the Sukkur Barrage in the province of Sindh. The latter province, which is lower riparian, felt threatened by the irrigation projects in Punjab (Malik, 2011). This led to disputes at the interstate level, most notably among Sindh, Punjab, Bahawalpur and Bikaner (Michel, 1967). In response, several committees and commissions were appointed to search for a resolution. A brief overview of these commissions and committees is provided below.

- Tripartite Agreement (1921): This was an agreement that was signed by Punjab, Bahawalpur and Bikaner in 1921 for sharing the water of the Sutlej and Beas rivers. The agreement proposed equitable apportionment of water among the three states with recognition of existing use and claims of riparian owners.
- Indus Discharge Committee (1921): This committee was set up in response to a dispute between Sindh and Punjab over access to the water of the Indus and its tributaries. It proposed a comprehensive network of gauges to monitor discharge at all important points on the Indus and its tributaries. The provincial governments were tasked with installing these gauges and were instructed to cooperate with each other in the exchange of flow data.
- Sutlej Valley Project (SVP) Inquiry Committee (1932): After the development of Sutlej Valley canals it was noted that the river flow had fallen, particularly during the early Kharif season. The committee was constituted to investigate this issue. It recommended exclusion of some areas in Bahawalpur State, construction of new feeder canals and adjustments to the command areas of certain canals (Federal Planning Cell, 1990).
- Anderson Committee (1935): This eight-member committee was constituted primarily to resolve the interstate issues that had arisen as a result of construction of the Sutlej Valley canals and the Sukkur Barrage. It submitted its report in 1937. This proposed an increase in supplies for Thal and Haveli projects.
- Rau Commission (1945): After the passage of the Government of India Act 1935, the development of river water infrastructure became a state subject. Punjab was tasked with developing the riparian infrastructure for the rivers

that flowed through its territory. Similarly, Sindh would develop its own infrastructure in relation to the Indus for the promotion of irrigation and agriculture. However, any aggrieved province could complain to the Governor General if they were unhappy about the activities of other provinces. Sindh lodged a complaint against Punjab with respect to increased withdrawals from the Indus and its tributaries, and the Government of India constituted a commission in September 1941 to investigate the issue. It was tasked specifically with investigating the effect on downstream flows in the province of Sindh due to increased withdrawals in the province of Punjab. It submitted its report in July 1942. The commission confirmed the adverse effects of Punjab's increased withdrawals on Sindh's inundation canals and proposed the construction of the Guddu and Kotri barrages. It also proposed compensation for Sindh in the event of increased withdrawals from Punjab (Malik, 2011). These, along with other recommendations, were not accepted by either Punjab or Sindh. In a bid to resolve the issue, engineers from Punjab and Sindh entered into long negotiations and reached an agreement in September 1945, known as the Sindh–Punjab Agreement. This resolved the apportionment of water between the two provinces.

The above discussion relates mainly to interstate conflicts in the sub-continent over water sharing on the Indus and its tributaries. However, the situation became rather more complex after partition and the formation of two new, independent countries – India and Pakistan – in 1947. At that moment, a river that had been a source of interstate conflict suddenly became a transboundary river basin between two nation-states. Below, we present a brief overview of the developments that took place after partition and the eventual signing of a treaty on water sharing in 1960.

### **Transboundary water sharing after partition**

The new international border between India and Pakistan created a situation whereby head works on the Ravi and Sutlej rivers fell in the territory of India, while the major command areas of these rivers were in Pakistan (Gulhati, 1973). Initially, temporary agreements between East and West Punjab maintained the flow of water in the main channels after partition. However, India stopped the supply of water on 1 April 1948, after the expiration of the temporary arrangement the previous day (Wescoat et al., 2000). This sparked anxiety on the Pakistani side, and Prime Minister Liaquat Ali Khan approached his counterpart in India – Jawaharlal Nehru – in a bid to find an immediate solution (Shivananda, 1961). Nehru raised the issue with the government of East Punjab and asked them to resolve the issue with Pakistani West Punjab. The negotiations led to the Inter-Dominion (Delhi) Agreement, which was signed on 4 May 1948. The two Punjab provinces agreed to respect each other's share of water from the Sutlej River and vowed to continue to interact on water distribution bilaterally.

However, this Inter-Dominion Agreement was scarcely a permanent solution, and tension over the distribution of water between the two countries continued to escalate. Pakistan asked India to submit the matter to the International Court of Justice (ICJ), but India refused, as it believed a purely legal assessment of the matter would find in Pakistan's favour (Hirsch, 1956). Instead, the World Bank offered its good offices in September 1951 in a further bid to resolve the dispute, and both India and Pakistan accepted the invitation (Bindschedler, 1981). The Bank made it clear that it would search for a technical rather than a political solution, and after gathering data from both countries it presented its plan in February 1954. This proposed dividing the Indus Basin between the two countries. The eastern rivers (Ravi, Beas and Sutlej) – which accounted for almost 20 per cent of the basin's water – would be given to India, while the western rivers (Indus, Chenab and Jhelum) – 80 per cent of the basin's water – would be given to Pakistan. A large investment in infrastructure would be necessary to divide the water fairly, and the Bank suggested that this should be carried out by whichever side would benefit from such development. Pakistan rejected the proposal as it did not have the finances to build the infrastructure and it was unhappy about surrendering the water of the eastern rivers to India (Lilienthal, 1966). Nevertheless, the World Bank continued to negotiate with Pakistan, and in 1956 an agreement was reached over the latter's demands for storage facilities on the western rivers.

Between 1954 to 1960, the sharing of water between India and Pakistan was governed by a series of ad hoc arrangements. However, after a military coup in Pakistan in 1958, the country's new leader, Field Marshal Ayub Khan, unconditionally accepted the World Bank's 1954 and 1956 proposals, and work began on drafting the IWT. India, Pakistan and the World Bank signed the treaty on 19 September 1960 in Karachi. It was ratified by both governments in the following January. As per the World Bank's original proposal, Pakistan received an 80 per cent share of Indus water through the western rivers, while India received 20 per cent through the eastern rivers. The World Bank and other donors agreed to finance the construction of storage facilities on the western rivers, and link canals to transfer water from the western to the eastern rivers.

### ***Transboundary institutional arrangement for the Indus Basin***

The Permanent Indus Commission (PIC) was constituted under the terms of the IWT, and a permanent post of Commissioner for Indus Waters was created in both India and Pakistan. In India, the Indus Commissioner works under the auspices of the Ministry of Water Resources (MoWR), Government of India. He or she heads the Indus Wing and has overall responsibility for implementation of the IWT (MoWR, 2003). There are two divisional heads under the Indus Commissioner: Senior Joint Commissioner-I, who looks into eastern rivers matters; and Senior Joint Commissioner-II, who deals with matters relating to the IWT. The Senior Joint Commissioner-II's division manages and supervises meetings of the PIC and implements the treaty's provisions, such as data collection and sharing of daily

gauge and discharge data, irrigated crop area statistics for the western rivers, and flood warning notifications to Pakistan from 1 July to 10 October on the Chenab, Jammu Tawi, Ravi and Sutlej rivers, as requested each year by the Pakistani Commissioner. This division is also responsible for approving any national and state projects in the Indus Basin in accordance with the provisions of the treaty.

At the MoWR, a regional river wing named the Indus Basin Organization (IBO) has been established under the ministry's technical division, the Central Water Commission (CWC).<sup>2</sup> The IBO, which is located in Chandigarh (Punjab), manages and monitors hydrological and hydro-meteorological data and flood forecasting at the state level in Himachal Pradesh and J&K, and conducts research surveys, investigations into water resource development projects and appraisals of medium-scale irrigation projects across the basin states of Haryana, Punjab, J&K and Himachal Pradesh.

In Pakistan, the Office of Indus Water Commissioner comes under the auspices of the Ministry of Water and Power, which is based in Lahore. The Pakistani Indus Water Commissioner heads the office, with support from deputy and assistant commissioners and legal experts. The Commissioner seeks advice on water developments from relevant ministries as well as the Water and Power Development Authority (WAPDA) and irrigation departments on the Indian side of the Indus. The key role of the Commissioner is to ensure the proper implementation of the IWT.

## **Pakistani and Indian stakeholders' views on the Indus Water Treaty**

As part of our research into the Indus Water Treaty and cooperation between India and Pakistan, we conducted key stakeholder interviews using a structured questionnaire in order to compare the two countries' views on the IWT. Key themes that were captured as a result of these interviews are presented below.

### ***Pakistani views***

Our interviews reveal that there has been an overall consensus among all the stakeholders that the IWT has worked well over the past fifty-seven years. Despite two major wars, it has continued in its original form and the issues emerging with the passage of time have been resolved within the framework of the treaty. Water professionals, particularly in the government, believe that there is no need to renegotiate the treaty and make any changes to it. They believe it is an excellent document, which resolves all of the issues in the Indus Basin due to its technical robustness.

When asked about issues relating to climate change that have surfaced in the last couple of decades, the water professionals believed that we need to address these issues as the sub-continent is one of the most affected regions. On the question of how they might be addressed, there are varied opinions. Some believe that matters pertaining to climate change should be incorporated within the treaty, but the

majority believe that further research is needed. One respondent stated: ‘Once there is a reasonable body of knowledge available on climate change impacts in the Indus Basin, we can then tackle it separately, not necessarily amending the treaty’ (interview with government official, January 2017).

The majority of government officials were worried about the environmental flows in the eastern rivers, which are seriously impacting the basin’s ecosystem. However, they also believe that since the treaty gives India exclusive control over the eastern rivers, Pakistan should manage the ecology through water diversions that were developed post-IWT and should not demand any amendments to the treaty. As a goodwill gesture, and in the spirit of promoting cooperation between the two countries, they believe that India should release a reasonable amount of water during the monsoon season to restore the ecology in the eastern watersheds. The academics and civil society representatives we interviewed suggested that this is a very important issue and so should form part of the agenda in any bilateral discussions between the two water commissioners.

On the issue of groundwater mining, there is general concern that a disproportionate amount of groundwater extraction is taking place on the Indian side of the border and that this may affect the groundwater gradient, which could have negative consequences for Pakistan. However, the water professionals were of the view that more monitoring of the groundwater aquifer, particularly in the border areas with India, was necessary prior to tabling the issue for discussion between the water commissioners. As the IWT relates solely to surface water, opinion was divided over whether the treaty should be renegotiated to incorporate matters pertaining to groundwater or whether these should be kept separate. However, there was consensus that the pressure on this underground resource will increase in the future due to population increase, so there is a need to devise a comprehensive policy to safeguard it.

Regarding cooperation between the two countries over the Indus River Basin, the Pakistani respondents highlighted general mistrust and a communication gap, particularly in the formal channels of negotiation between the two water commissioners. The treaty permits both countries to ask for river flow data at any spatial and temporal resolution. However, the respondents criticized the Indian side’s general laxity in responding to such demands. The supposedly regular meetings between the water commissioners were also frequently postponed due to the political climate between the two countries. Although the treaty should be independent of other issues between India and Pakistan, it is often linked with other tensions, which causes unnecessary delays in resolving matters pertaining to the Indus. Indeed, the Pakistani respondents suggested that their Indian counterparts’ delaying tactics often forced them to raise issues that could have been resolved bilaterally to neutral experts or the International Court of Arbitration.

Notwithstanding all of these issues, however, there was a firm acknowledgement that the dialogue process should continue. All of the Pakistani stakeholders we interviewed believed that such dialogue helps to bring the two sides closer together and fosters cooperation. They also stressed the importance of involving people from all walks of life in the dialogue process.

### *Indian views*

We conducted a series of interviews with Indian officials, including representatives of the Central Water Commission, the Central Groundwater Management Board, state government Departments of Water, Energy, Forestry, the Environment and so on, academics and civil society organizations. The predominant theme that emerged in these interviews was the political deadlock that is hindering cooperation between India and Pakistan on issues relating to the Indus River Basin. In India water is a state subject, and there are more issues between states on water sharing and hydropower development than at the transboundary level. Hence, officials from the states of Punjab, Haryana and J&K are more concerned about their state-specific issues, rather than promoting regional cooperation on the Indus Basin. For instance, there is only one dam on the Ravi and a balancing reservoir planned in Shahpur Kandi. Disagreements and a lack of coordination between Punjab and J&K have led to a major impasse over this irrigation project. It was proposed more than a decade ago as a major (168 MW) hydroelectric project in Punjab, with the site located at the interstate border of J&K, Himachal Pradesh and Punjab. However, construction of the dam ceased in 2014 due to the ongoing interstate dispute between the Punjab and J&K governments. Although the project will facilitate irrigation and power generation in Punjab and J&K, and therefore benefit the residents of both states, they have been unable to reach agreement on how it should proceed. The dispute centres on J&K's claim that Punjab violated a 1979 agreement between the two states by constructing the dam without first securing J&K's consent. Moreover, tension increased in 2004, when Punjab passed the Punjab Termination of Agreements Act, which annulled all agreements relating to sharing the waters of the Ravi and Beas rivers.

We asked the Indian officials a similar set of questions to facilitate comparison with the responses from their Pakistani counterparts. With regards to the issue of climate change and its absence from the treaty, the Indian government officials argued that this was not a cause for concern when the treaty was signed, and it is still an emerging issue now, so further research is needed. They suggested that the existing research is fragmentary, and little work has been carried out on the impact of climate change in the Indus River Basin, so it would be unwise to raise the subject with the water commissioners before comprehensive studies had been undertaken. Moreover, they felt there was no need to renegotiate the treaty in order to incorporate the possible impacts of climate change on the basin; rather, efforts should be made to conduct joint studies and promote cooperation on the issue, as endorsed in Articles VI and VII of the treaty.

The issue of groundwater mining in India is becoming increasingly serious. Punjab, which is considered India's bread basket, is already overexploiting its groundwater reserves. The cropping pattern in the state is predominantly paddy/ rice cultivation. These crops are water intensive, but farmers are encouraged to cultivate them due to huge and increasing demand from the rest of the country. According to the Central Groundwater Management Board, this will lead to exhaustion of the state's groundwater reserves in the next ten to twenty years.



Farmers will then be forced to change their cropping pattern. The government officials seemed to be unaware of the potential impact of groundwater mining at the transboundary level, and merely pointed out that this matter is not regulated under the terms of the treaty. There is also a lack of evidence and data relating to whether there has been any change in the gradient due to groundwater mining on the Indian side of the border. However, the officials agreed that research into this subject would be beneficial, as it would help to inform the state government's decisions on groundwater extraction.

Finally, the Indian respondents felt that both state and national governments in India have actively pursued power generation and irrigation developments on the eastern side of the river system, particularly on the Beas and Sutlej rivers. The basin states of J&K and Himachal Pradesh are both endowed with huge hydro-power potential – 20,000 MW and 25,000 MW, respectively. However, the Jammu and Kashmir State Power Development Corporation website<sup>3</sup> suggests that only 19.80 per cent of the state's potential has been exploited so far. One of the main eastern rivers, the Ravi, as well as one of its tributaries, the Ujh, and the Jhelum River in the west are especially underutilized. The Ujh passes entirely through J&K with just a small barrage, which makes it challenging to maximize its potential. By contrast, on the western river systems, India has made considerable progress on the Chenab.

### **Dialogue as a medium to foster cooperation in the Indus Basin**

As far as IWT is concerned, the governments of Pakistan and India believe that it has served them quite well for more than half a century. There have been tensions over water sharing, but these have mainly been due to political instability. The most recent example was the fiery political rhetoric that emerged as a result of an attack on an Indian base in the Indian-held Kashmir region, which raised questions over the future of the IWT. Not for the first time, some Indian politicians even threatened to abrogate the treaty and stop water entering Pakistani territory. However, both nations are aware that the treaty was negotiated with the help of the World Bank, and it still has a role to play in diffusing tension. Sensing the severity of the situation, the Bank intervened and asked the two governments to resume dialogue between the water commissioners. Less than six months later, a delegation headed by the Indian Indus Water Commissioner agreed to visit Pakistan in March 2017.

The stakeholders on both sides of the border believe that a comprehensive dialogue process between the two countries is absolutely essential. They feel that this dialogue should take place at various levels, starting with the research and academic communities, then moving up to discussions between technocrats and, ultimately, politicians. Such dialogue invariably helps to diffuse tension and fosters cooperation as it promotes understanding of the opposite side's opinions and perspectives.

In order to harness the basin's hydropower potential, and to mitigate challenges and disasters, there is a need for cooperation and coordination among not only

India and Pakistan but also China and Afghanistan. India's scientific community stresses the need for more scientific data and assessments as a starting point for initiating discussions on transboundary water management in the Indus Basin. The lack of data complicates hydrological assessment and modelling work, which makes it difficult to know the current state of the basin, the challenges it faces, and how these may be addressed. The scientists highlighted that there is sufficient information on topographical terrain, soil type and land use, but a serious shortage of meteorological and hydrological data (including flow data). This is mostly due to India and Pakistan's continuing reluctance to share flow data with each other. The ongoing political tension between the two countries impedes knowledge sharing among the stakeholders, which in turn impacts on transboundary collaboration. Hence, there is a vicious circle of political deadlock over transboundary cooperation and collaboration and an absence of institutional mechanisms for data sharing, poor knowledge sharing at the basin level and an absence of basin-wide scientific assessment leading to inability to identify key gaps and potential solutions in both technical and political terms at the basin level, which finally leads to reinforcement of the political deadlock. Data sharing is a prerequisite for opening up discussions, identifying key gaps and formulating solutions, so political support for it is essential. Water is a state subject in India, so the country's state governments are of paramount importance here, as they dominate the allocation of river water. Nonetheless, NGOs and academics can also play vital roles in improving contact between the two sides and generating a knowledge base that may be used by the decision-makers to help them make more informed decisions regarding the future of the Indus Basin.

## Notes

- 1 Articles II, III and IV of Indus Water Treaty: 'Provisions Regarding Eastern and Western Rivers'.
- 2 CWC looks into water resources matters in the country under the auspices of the Ministry of Water Resources, Government of India. The chairman of this division is actively involved in the interactions between the two commissioners.
- 3 See <http://jkspdc.nic.in> (accessed 20 May 2017).

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