

Disputed Waters: India, Pakistan and the Transboundary Rivers

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Abstract

Water disputes between India and Pakistan reflect the political relationship between the two countries since partition of British India in 1947. That partition broke the interdependent hydraulic system. In following decades, tensions between India and Pakistan have led to emergence of 'water nationalism' in both countries. In the past, many groups, in both countries, have made appeals to their respective government to scrap the Indus Water Treaty (IWT) of 1960, but no steps were taken in such direction by either of the two states. The IWT has survived two full wars (1965 and 1971), one limited war (1999) and a series of political-cum-military tensions (1987, 1989–90, 2002 and 2008) between India and Pakistan.

Keywords

Cooperation, disputes, India, Indus Water Treaty, Kashmir, multipurpose projects, Pakistan, Punjab

The partition of British India in 1947 also partitioned a well-knitted and interdependent irrigation system in north India. Since then, the two riparian regions—India and Pakistan—which until 1947 were parts of a single hydraulic unit, have been fighting over sharing of water resources through a large number of canals. Initially, incremental measures were adopted to resolve those disputes, but in 1960 the Indus Water Treaty (IWT) was signed after 8 years of negotiations, and mediation by the World Bank. The IWT addresses many water-related concerns of the two countries but has not been able to resolve their disputes. The prime reason for it is the political hostilities over a number of issues because of memories related to partition and construction of an imagination about the 'other' in India and Pakistan, since the partition of British India in 1947.

To begin with, it is pertinent to know the definitional aspect of a 'River'. In India, a broader definition was adopted at the first India Rivers Week held on 24–27 November 2014 in New Delhi:

a river is more than a channel carrying water; it is also a transporter of sediment; it is also the catchment, the river bed, the banks, the vegetation on both sides, and the floodplain. The totality of these constitutes a river. A river harbours and interacts with innumerable organisms (plant, animal and microbes). It is a natural, living, organic

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whole, hydrological and ecological system, and part of a larger ecological system. A river is also a network of tributaries and distributaries spread over its basin and the estuary. (Iyer, 2015, p. 447)

Hence, the water disputes between India and Pakistan are also disputes over the constituent elements of those rivers. In this article, an attempt is being made to address the following questions: Why water disputes exist between India and Pakistan? To what extent these water disputes are being affected by their bilateral political tensions? Can the two countries cooperate over transboundary rivers water issue? In this article, the author argues that cooperation over transboundary rivers water between India and Pakistan is dependent on their bilateral relationship, and provisions in the IWT can be explored to reduce their seasonal tensions over water sharing.

Excluding introduction and conclusion, this article is divided into four parts. The first section discusses the history of canal system in the region; the second section discusses the signing of IWT; the third section discusses the existing confrontations over the IWT; and the last section discusses about prospects for cooperation, if any. In this article, the word 'region' is used for catchment areas of Indus River System (IRS).

Methodology

In this article, the original document of the IWT has been used as a primary source and to analyze provisions for cooperation and reasons for disputes over them between India and Pakistan. The newspaper reports of 1960, when the IWT was signed, have been used to look into the background and the related 'euphoria' over it. Face-to-face discussions and interactions on social media and through electronic mails with a few individuals from both sides of the IRS catchment region have helped the author to build up his arguments over this issue. As in the past, the author has written and published essays and articles on this theme, some of the ideas and materials have been unavoidably repeated in this article (see Ranjan, 2011, 2015a, 2015b).

Partition of a Single Irrigation System

The northern part of India and large parts of Pakistan are fed with the IRS which comprises Indus, Jhelum, Chenab, Ravi, Beas and Sutlej and its extended tributaries, Kabul and Khurram, which rise in Afghanistan. These rivers along with many small tributaries have fed this region through centuries. They have helped in settlement of human beings and beginning of agricultural practices on the banks of IRS, which resulted in evolution of the Indus Valley Civilization, one of the most developed civilizations of ancient world. Even the word 'Hindu' (a religious group) has been derived from the River Indus (Thapar, 2014, p. vii). In ancient and medieval India, to promote agriculture activity irrigation structures were built by the rulers, but canal networks were set up during the Mughal period (1526–1857). During that period, canals were constructed to facilitate agricultural activities in areas ruled by the Mughal kings. In Punjab proper, a small system of canals was brought into existence in the Upper Bari Doab. The best known was the 'Shahnahr', excavated during the reign of Shahjahan. It took off from the Ravi at Rajpur (or Shahpur) close to the hills and carried water up to Lahor (Lahore)—a distance of about 37 *kurohs*, or 84 miles (Habib, 2014, p. 37). These canal systems helped the Mughals to collect sufficient tax out of agricultural produce and allied activities.

When the British set up their imperial rule in India, an irrigation system was there; they, with their technology, brought a revolutionary transformation in it. Over a period of time, the British imperialists constructed, extended the reach and improved the conditions of a series of canals to support production of primary resources for their industries and extract revenues out of those activities. In Punjab, six million acres of desert was transformed into one of the richest agricultural regions in Asia (Talbot, 2007). Agriculture was commercialized and farmers were encouraged to grow 'cash crops' (mainly indigo, cotton, etc.) instead of food grains (Jodhka, 2004), which was a reason for intermittent famines and starvation deaths in India, including in water-rich areas. Besides economic gains, the construction of canals was also related to the political imperatives of state building in the Indus Basin region. For the British, as much as for the earlier Indus Basin states, the link between canal building, agricultural settlement and political control was central to the construction of state power (Gilmartin, 1994). As Sir Charles Aitcheson maintained, 'It is of the greatest importance to secure for these tracts manly peasantry capable of self-support and of loyal and law-abiding disposition' (Talbot, 2007, p. 7). In these areas, canal colonies were situated in tracts designated as crown wasteland. Since the owner of the land was the state, it controlled the canal system, the water source, and agriculture depended on the will of the ruling authority (Ali, 1988, p. 10). The state distributed the land in canal colonies to the loyalist castes and loyal retired soldiers. In the process, a class system was formed where some got land (on lease, not on hereditary basis), while others were made a part of it to do menial works. This structure helped to bring prosperity in the region, though a lopsided one (ibid.).

In 1947, the above-mentioned interdependent irrigation unit was partitioned between two sovereign countries, which were born to remain in perpetual conflicts (Wolpert, 2011, p. 7). As the partition of British India was 'claimed' to be on the basis of religion, the border demarcation was supposed to be on the basis of religious demography; but there were so many interrelated complexities that Sir Cyril Radcliffe, head of the Boundary Commission, took into consideration geographical and administrative determinants too. Those important 'other factors', which he took into consideration, were routes of water canals, railways communication lines and administrative districts.

At the time of drawing the partitioning line, in both Punjab and Bengal award, many times, Radcliffe discussed canals, canal headworks roads, railways and ports before turning to population factors (Chester, 2009, p. 80). In some cases, explicitly stated in his award, Radcliffe gave these considerations more importance than what he gave to the contiguous religious minorities (ibid.). Muhammad Munir, one of the judges representing Muslim League, independently recalled that 'the preservation of the present (1947) irrigation system was an obsession with Sir Cyril' (ibid.). Some of the demarcation, such as the Ferozepur award, was entirely in consideration of 'other factors' (Michel, 1967, p. 178). Though in Punjab flow of the rivers helped in partition, Radcliffe was careful to specify that the relevant administrative boundaries, not the course of Ujh, Sutlej or the Ravi, constitute the new international boundary (Chester, 2009). The 'other factors' played a role in deciding demarcating lines not only in Punjab but also in Bengal. There, Radcliffe recommended the transfer of almost 6,000 square miles from east to west Bengal, and the districts of Murshidabad, Nadia, Jessore, Malda and Dinajpur were accordingly demarcated. The loss was compensated by assigning the sparsely populated district Chittagong Hill Tracts, with a Buddhist majority, to East Pakistan (Chakrabarty, 2004, p. 168). The arrangement was made to maintain 'railway communications and river systems', as well as to preserve the relationship of the Nadia and Kulti river systems with the port of Calcutta (now Kolkata) (Chester, 2009).

After drawing the partition line, Radcliffe expected India and Pakistan to come to an arrangement over canal waters themselves. 'I think it only right to express the hope', he wrote in his final report to the Viceroy on his boundary award,

that where the drawing of a boundary line cannot avoid disrupting such unitary services as canal irrigation, railways, and electric power transmission, a solution may be found by agreement between the two states for some joint control of what has hitherto been a valuable common service. (Cited in Haines, 2014, p. 640)

But it did not happen, instead disputes over shared waters aggravated between them.

Road to Signing of Indus Water Treaty

Soon after the partition of British India in 1947, the water disputes between Indian (East) Punjab² and Pakistan side of (West) Punjab started. To resolve it, a 'Standstill Agreement'³ was signed in December 1947 to maintain pre-partition-level allocation of water. That agreement expired on 31 March 1948, the same day on which the Arbitral Tribunal went out of existence. As a result, on 1 April 1948, India cut off supplies on the canals to Pakistan (Michel, 1967, p. 7), and discontinued the delivery of water from the Ferozepur headwork to Dipalpur Canal and to the main branches of the Upper Bari Doab Canal (Salman & Uprety, 2003, p. 44). Although non-availability of water was cited as a reason, it was the partition-related violence, whose scars were fresh, that guided East Punjab's decision, supported by the Union Government of India. Technically, had the Arbitral Tribunal continued, the disputes over canal supplies could have been referred to it (Michel, 1967). As East Punjab was not ready to discharge water to West Punjab, representatives of India and Pakistan met on 4 May 1948 to find out a solution, but they were stuck up, and the meeting was not yielding any result. The deadlock over it was broken after intervention by the Indian Prime Minister Pandit Jawaharlal Nehru (*The Hindu*, 6 May 1948). The dispute between the two Punjabs was over ownership of water resources. Pakistan claimed that it had inherent and prescriptive rights over the waters of the canal in dispute, and India counterclaimed that after the partition, it alone had an undisputed right over the water of the canal which lay in its territory (*ibid.*). According to guidelines of the arrangement, Pakistan had to cancel its claim in regard to the ownership of the canal, in return East Punjab assured that the water supply would continue for a specific period (*ibid.*). Also Pakistan had agreed to pay seigniorage charges to India for supply of water from East Punjab (Haines, 2014). But soon after the arrangement was reached at, it faced trouble: It could not be recognized and registered as an international agreement between two sovereign countries. The reason for it was, as India and Pakistan were members of the British Commonwealth, they were not considered as a 'foreign' territory to each other (*ibid.*). Finally, that issue was sorted out by the United Nations (UN), which recognized both of them as separate countries, hence 'foreign' to each other. And in May 1950, the UN duly registered not only 4 May agreement on canal water but also several India–Pakistan agreements dating from 1948 and 1950 on monetary arrangements, banking and foreign exchange transactions (*ibid.*).

Linked to rivers water is Pakistan's claim over the Kashmir valley because IRS flows through the territory. This had been substantiated by a statement in 1957, by then Pakistani prime minister Hussain Suharwardy: 'There are as you know six rivers (in the Indus Basin). Most of them rise in Kashmir. One of the reasons, why, therefore, that Kashmir is so important for us is this water, which irrigate our lands' (cited in Alam, 2002, p. 347). Even the first military ruler of Pakistan, General Ayub Khan, in his

² It includes Punjab and Patiala and East Punjab State Union (PEPSU). The latter merged into Punjab in 1956. In 1966, Haryana was carved out of Punjab.

³ Although India and Pakistan became two sovereign countries in 1947, they have officially used the word 'agreement' for all pre-IWT water-sharing arrangements.

autobiography, *Friends Not Masters*, has cited similar reasons to explain why Kashmir valley is important for Pakistan (Khan, 1967).

Arrangements made under the 1948 agreement failed to resolve the water disputes between India and Pakistan; hence, they again engaged in talks over water sharing from IRS. After the partition of India in 1947, Pakistan had constructed a couple of link canals which ensured for her 50 per cent of the supplies she received from the eastern rivers (*The Hindu*, 21 September 1960a). India suggested that by construction of two more link canals all the supply from India could be replaced. But Pakistan insisted on continuance of the historic supplies as ever before. India also agreed to pay certain sum if it were a part of a final settlement of the dispute. No agreement was reached because, for Pakistan, replacement work could not be separated from development work (*ibid.*). As the talks were not moving ahead, Pakistan insisted on third-party mediation. It raised the issue at various international forums including in the UN Security Council on 16 December 1952 (Thapliyal, 1996). It also proposed that the issue be submitted to the International Court of Justice or to the UN Security Council, but India categorically rejected any third-party involvement in dispute settlement, and urged that the Inter-Dominion Agreement be made permanent (Salman & Uprety, 2003). For 3.5 years, the two countries talked but failed to reach a consensus.

In 1951, David E. Lilienthal, former chairman of Tennessee Valley Authority and the United States Atomic Energy Commission, visited Indus catchment areas and wrote an article published in the popular American magazine *Colliers*. He made the following proposals (Government of India, 1953, p. 41): (i) the Indus basin water resources are sufficient to continue all existing uses and to meet the further needs of both countries for water from that source; (ii) the water resources of the Indus basin should be cooperatively developed and used in a most effective manner to promote the economic development of the Indus basin viewed as a unit; and (iii) the problem of development and use of the Indus basin water resources should be solved on a functional and not on a political plane without relation to the past negotiations and past claims and independently of political issues. On the issue of politicization of the water conflicts between India and Pakistan, Lilienthal wrote (*ibid.*, p. 37):

Planning of the water resources (and the accompanying potential electric power) of the Indus Basin is nothing new; it was for generations largely a function of British-trained Indian engineers of the state of Punjab. They saw the river basin as a unit, as it is in nature. Then partition, a politico-religious instrument, fell like an axe, and colleagues who had worked together all their lives, elbow to elbow, separated because they were Hindu and Sikh or Moslem. Partition did not repeal engineering or professional principles among these engineers; it merely made them secondary for a time to politics and emotion.

This article influenced Eugene Black, the then president of the World Bank, to offer help of the World Bank to resolve water disputes over the IRS, which was reluctantly accepted by India. The World Bank made it clear that it would not adjudicate the dispute, but work as a conduit to agreement. Second, it made difference between the 'functional' and 'political' aspects of the Indus dispute, and maintained that it would only look into the 'functional' aspects and not 'political' aspects of the disputes (Salman & Uprety, 2003). It is maintained that the US played an important role in signing of the IWT because of its security concerns in South Asia, especially to protect Pakistan's interests. The then President of the USA Dwight D Eisenhower, after an advisory letter from the then American ambassador to Pakistan James Langley, wrote a letter to the Indian Prime Minister Nehru and Pakistan's President Iskander Mirza and offered his office as an intermediary. It is believed that India's economic situation at that time made Nehru to accept mediation (Stone, 2010).

During negotiations, Pakistan desired to confine the Working Party to a consideration of what it called the three 'common' rivers, the Ravi, the Beas and the Sutlej (and to keep the Chenab, the Jhelum and the

main Indus outside the scope of discussions), for the purpose of determining the 'surplus' waters, that is, waters over and above what Pakistan regarded as 'existing' uses and then to proceed to distribution of only such 'surplus' between the two countries. India, on the other hand, felt that the Working Party had to determine the *total* waters between the two countries, taking into account *total* requirement of each (Gulhati, 1973, p. 107). The Working Party accepted India's point and included all rivers, which constitute the IRS, in the talks.

After 8 years of negotiations, mediated by the World Bank, India and Pakistan signed IWT on 20 September 1960 at Karachi. India's Prime Minister Jawaharlal Nehru visited Karachi, then capital of Pakistan, to sign the IWT. While signing the treaty, the Indian prime minister hoped that the agreement would bring prosperity to peasants, and peace, friendship and goodwill between India and Pakistan (*The Hindu*, 21 September 1960b). The Vice President of the World Bank W.A. B. Illitif said '*Insha Allah* (God willing) this treaty would end for all time to come' the Indus water dispute between the two countries. R.H.M. Thomson, British parliamentary undersecretary, described the treaty as 'significant not only to India, Pakistan and Commonwealth but to the whole world'. William M. Rountree, the US ambassador to Pakistan, represented the six donor countries (*ibid.*).

The IWT allocates the three western rivers to Pakistan—Indus, Jhelum and Chenab plus Kabul—barring some limited uses for India in Jammu and Kashmir (J&K) (Verghese, 2006). India got the entire waters from three smaller rivers (Ravi, Beas and Sutlej), with some minor irrigation uses for Pakistan from four nullahs that join the River Ravi (Ministry of Water Resources, 1960; D'Souza, 2011 & Iyer, 2005). India was also permitted to develop additional irrigation of 1.34 million acres in J&K against which only 642,477 acres has been achieved so far, leaving a balance of over half a million acres. Further, India is allowed 3.60 million acre feet (MAF) of storage (0.40 MAF on Indus, 1.50 MAF on the Jhelum and 1.70 MAF on the Chenab). Sector-wise allocation is: 2.85 MAF for conservation storage (divided into 1.25 MAF for 'general storage' and 1.60 for 'power storage') and an additional 0.75 MAF for 'flood storage' (Ministry of Water Resources, 1960; D'Souza, 2011 & Verghese, 2006).

Compromises and adjustments are needed to make any treaty acceptable to the parties in a dispute, and IWT was not an exception. India had to accept the following points: First, India's right to the use of the western rivers as they flowed through Pakistan territory has been effectively cut excepting for minor use in Kashmir. Second, it has made India pay for the replacement work. Third, India's payment has been separated from the other financial disputes pending between the two countries. Fourth, it has been conceded that replacement is as important as development. Whatever additional irrigation potential is developed in Pakistan will be shared between replacement and development. The transition period of 10 years has been worked out on this basis. Finally, while India got additional 3 MAF of water, Pakistan got altogether 35 MAF (*The Hindu*, 21 September 1960a). After this experience of mediation over the IWT, India shied away from accepting it as a means to resolve or address its other transboundary river water disputes.⁴

In the final reckoning, Pakistan got about 80 per cent of the Indus and India 20 per cent. India has limited rights on the western rivers and cannot undertake projects on those rivers without providing all the details to Pakistan and dealing with Pakistan's objections. Why did India put itself in that position? (Iyer, 2005). The answer is that if Pakistan got the near-exclusive allocation of the three western rivers, India for its part got the eastern rivers. This was important from the point of view of the Indian negotiators because the water needs of Punjab and Rajasthan weighed heavily with them in seeking an adequate

⁴ After the signing of the IWT, Pakistan insisted for mediation on the dispute over the water sharing from river Ganga between India and East Pakistan. India declined it. After the IWT, India has not even accepted mediation, as a mean, to address its water disputes not only with Pakistan but also with other 'friendly' co-riparian states.

allocation of Indus water for India (ibid.). Yet, Punjab had a serious grievance over the signing of the IWT by the union government. Citing provisions of the IWT which caused transfer of three river waters to Pakistan, Punjab had terminated all its water-sharing agreements with its neighbouring states in 2004.

The demand of Kutch (in Indian Gujarat), which used to fall into a catchment area of River Indus, decades back, was not taken into consideration despite many petitions, arguing about their historical claim on its water, sent by the prominent Kutchi leaders, in 1950s, to the Ministry of Irrigation and Power, Government of India (Mehta, 2005, p. 91). Also people from Indian side of Kashmir always show their ire against the IWT. On 3 April 2002, the Jammu & Kashmir Legislative Assembly, cutting across party affiliations, called for a review of the treaty. The state government has been contending that in spite of untapped hydroelectric potential of 15,000 MW, the state has been suffering from acute power deficiency due to restrictions put on the use of its rivers by the Indus Treaty. They claim that their interests were not taken into consideration and their views were not taken while signing the treaty. Baglihar judgement is considered as a blessing in disguise for the people from J&K (Warikoo, 2005). This is because the run-of-the-river dam can produce 450 MW of hydroelectricity⁵ to be utilized by the people from the state. In addition, the state is entitled to get loyalty from the power producing companies. In 2015, the Minister for Power Development, Government of J&K, Mohammad Ashraf Mir, in a reply in the assembly to a question from Bashir Ahmed Veeri, informed the members that J&K government receives over Rs 2,400 crore as water charges from NHPC as water usage charges from year 2010–2011 to 2015 (*The Economic Times*, 25 March 2015). Enthusiastic about the prospects of financial gain, a cabinet subcommittee was constituted to look into the various issues associated with transfer of power projects to the state, which recommended seeking return of Salal, Uri-I and Dul Hasti Hydroelectric Projects to the state apart from those transferred to NHPC vide MoU of July 2007 (ibid.). Well the states may have their argument(s), but the Indian Constitution under Article 253 gives power to the Union to enter into any such treaty(ies).

Despite grievances, the IWT is still intact and provisions under it, more or less, have been abided by the two signatories. An example is that even in the midst of the 1965 war, Indian payments to Pakistan as part of the treaty continued uninterrupted, as did the works of engineers of both countries to control the opening and closing of sluices (Choudhary & Schofield, 2006, p. 244). During all their wars, the two sides have also not directly attacked on each other's irrigation facilities, which would cause greater catastrophe to India or Pakistan. The fact that the IWT and the irrigation works survived the crucial test is evidence of their mutual value to each nation (Michel, 1967, p. 10). But this does not mean that both sides have accepted the IWT, voices have been raised against the continuation of the IWT.

Post-IWT Political Confrontations over the IRS

After the IWT was signed in 1960, it was thought that all water-related disputes between India and Pakistan would be permanently resolved, but they were not. The disputes related to behaviour of two riparian states over interpretation of the provisions of the IWT and construction of multipurpose hydrological projects evolved soon after the signing of the treaty. The allegations against upper riparian, which are not always incorrect, for regulation of water are being made by all lower riparian states. Usually, in their self-interests, the upper riparian states choke or divert water during the summers and

⁵ According to NHPC assessment report, once fully operationalized Baglihar dam is expected to generate 450 MW of electricity.

release more than the required quantity of water during non-water-requiring seasons. This creates drought in summer and floods in the monsoon season in the lower riparian areas. This behaviour by upper riparian states becomes a 'regular' practice when the two riparian states are in a hostile relationship.

The degree of India–Pakistan hostility is such that although IWT is considered as one of the well-drafted treaties between two arch enemies, it has failed to resolve water disputes between them. The reason for disputes over the IRS is not always water per se, rather memories and imaginations about the 'other' which create animosity between India and Pakistan. Till now, water had never been the main cause for tensions and wars between India and Pakistan, but in future, at times of conflict, it can be a highly contested arena for negotiation even though it may not be a proximate cause of the conflict (Alam, 2002).

Pakistan alleges that by virtue of being upper riparian, India regulates its water resources, though a few commentators partially agree with this proposition. Writing in *The Times of India*, Pakistan's former cabinet minister, Sherry Rehman, blames both India and Pakistan for the IWT crisis. She averred that India can technically remain on right side of the IWT if it builds hydropower dams on the rivers Chenab and Jhelum, but it is not allowed to use storage and timing to render downstream farmers destitute nor to divert tributaries as indicated by the Kishenganga plan. She even blamed Pakistan for wasting 35 per cent of its share from the IRS (Rehman, 2010). Also, former foreign minister of Pakistan, and now leader of Tehrik-e-Insaf party, Shah Qureshi stated that Pakistan wastes its share of water from the IRS and so India should not be blamed for its water woes (*The Nation*, 2 May 2010). John Briscoe on the basis of his study claimed that the dams India is building will give it 'the ability to choke off water if it wanted to pressure its neighbour'. He suggested that India should provide water flow data to Pakistan and warns Pakistan against the heated rhetoric on water issue (Briscoe, 2010a). Briscoe's allegations on hydrological data sharing might be correct, but they cannot be generalized. In 2010, India allowed Pakistan to inspect several under-construction Indian hydropower projects on the western rivers. The two countries had also agreed to set up a telemetry system to measure river flows (Kugelman, 2011).

Most of the water disputes between India and Pakistan occur over the issue of construction of multipurpose projects. According to provisions in IWT, India is bound to inform Pakistan or consult on planned withdrawals and works on the western rivers and to ensure no harm or derogation of Pakistan's water rights (Verghese, 2006). Many projects have been opposed by Pakistan, and those which had been approved have taken longer than the needed time. Pakistan assumes that through these projects India may destroy its agriculture-based economy. A few approved multipurpose projects are Salal, Uri, Dul Hasti and Baglihar, all run-of-river hydel schemes with diurnal peaking 'pondage' to drive the turbines, but no 'storage' facility.⁶ The Salal Hydroelectric Project on the Chenab, under prolonged discussions at the commission level and later between the two governments, was eventually accepted by Pakistan (with some agreed changes) in the 1970s.⁷ The design objection to Baglihar was finally cleared by a neutral expert in 2007. This project was conceived in 1992 and is under construction since 2002 on the Chenab River (Wirsing, 2013, p. 92). However, differences over other projects—Tulbul or Wullar

⁶ It is claimed that run-of-the-river dams cannot divert water; but they can. Technically, weirs and barrages or run-of-the-river dams can divert water from rivers to canals or power stations by creating a hydraulic head in the rivers. As these projects do not have storage facilities, they cannot store a large quantity of water but minimum storage is needed, which they do, to run the turbines to produce hydroelectricity (Dams and Development, 2000).

⁷ Salal project was settled by mutual agreement between the two governments. The condition stipulated by Pakistan for agreeing to the project was that the low-level sluices should be permanently blocked. India accepted this despite the fact that it meant trapping of the silt in the reservoir, leading to severe turbine maintenance problems and a reduction of generation capacity and project life (Iyer, 2013).

and Kishenganga—are still unresolved. The Tulbul flood detention barrage across the Jhelum has been stymied for 18 years. Pakistan claims that the Kishenganga (tributary of Jhelum) diversion will leave insufficient water for its Neelum–Jhelum irrigation-cum-hydro project above Muzaffarabad. India has, however, assured it with certain ecological releases which, with other stream flows, should suffice to protect Pakistan's 'existing uses' at the time India first submitted its Kishenganga proposals, as required (Verghese, 2010). On the issue of Kishenganga, after a long stalemate, in June 2010, Pakistan used the arbitration clause provided in IWT. On the issue of arbitration, Ramaswamy R. Iyer writes 'Pakistan must have known that with a specific provision in the treaty envisaging inter-tributary transfers on the Jhelum, their contention that Kishenganga was a violation of the treaty was unlikely to be upheld' (Iyer, 2013, p. 10). They are contesting it on the drawdown flushing,⁸ which India wants to use. This has arisen from the Baglihar case (ibid.). On 18 February 2013, the Court on Arbitration (CoA) delivered first part of its verdict. In that verdict, the court accepted India's position on diversion of water, but the drawdown flushing which was allowed by the neutral expert in Baglihar case has been disallowed by the CoA (Parsai, 2013).

Due to improved political relations, in 2010 Pakistan gave the green signal to India's project—Uri-II and Chutak (run-of-the-river project on River Suru, tributary of River Indus, in Kargil). Also both governments concurred that Baglihar dispute had been definitively resolved (ibid.). Tension between the two also prevailed over Pakistan's decision to construct the Diamer-Bhasha dam on its side of Kashmir. This was also contested by Pakistan's province of Sindh. India was opposed to it because a project carried out in a 'disputed' area must get its nod, and the Pakistani province of Sindh feared that through this dam Indus water would be diverted away to Pakistan's province of Punjab (Briscoe, 2010a). The dispute over the project has been amicably resolved between Sindh and Punjab in 2013, through a reconstituted and empowered Council of Common Interests for Resolutions of Disputes. This body is empowered under the constitutional amendment number 18 of the Pakistani Constitution. The World Bank has re-agreed to finance this project (www.internationalrivers.com). In 2015, during the annual talks between Indus Water Commissioners, a year and half after India started work on an 850-MW hydropower project at Drabshala village on Chenab River, Pakistan objected to the 'design of the dam', and said it was not in conformity with the IWT of 1960. Officials said the Indian side was asked by their Pakistan counterparts to 'address' their concerns or else they would move for 'third-party arbitration' (*Indian Express*, 4 February 2015).

Prospects for Cooperation

The period from 2005 to 2015 was declared as the decade of water cooperation by the UN. Co-riparian states were requested to take measures to initiate transboundary water collaboration, shared waters and shared responsibilities (Halepoto, 2014). This was to promote a common use of resources for development and not for conflicts and wars (ibid.). Yet, as mentioned above, the dispute over the IRS is an unending saga between India and Pakistan, and it is going to aggravate in the future. In this situation, a question arises: Can the two countries ever think of an idea to cooperate over the IRS? It is difficult, but not impossible. Theoretically, in Waltzian sense, India and Pakistan are preoccupied with autonomy, power and security, which predispose them towards conflict and competition. They also maintain a fear that if

⁸ Drawdown flushing is a technique to clear sediments and silts in hydrological projects. In this technique, a change is made in head or in water level according to a background condition.

they were to cooperate, their partners could eventually turn out to be better off by virtue of having achieved relatively greater gains. As a result, given the right set of circumstances, the advantaged partners would then be in a position to use their superior power resources to inflict harm. This fear distracts them from cooperation with the other (Waltz, 1979). Stretching further the neo-realist's logic of 'relative gain', Joseph Grieco maintains that it is not only 'relative gains', rather their relative positions, which as defensive positionalists, the states seek to defend. They do not want to upset the perceived power balance, through cooperation, that the states are sensitive to (Grieco, 1988).

Against this logic of realists or neo-realists, the constructivists have their own explanations to the rivalry. In the case of water issues between India and Pakistan, water nationalism has emerged as a part of this construction process. These disputes have been constructed to whip up frenzy nationalism among people of India and Pakistan. This is so because both countries act as the alien 'other' to each other. Jamad-ud-Dawa (JuD) chief Hafiz Saeed in his rallies at Muzaffarabad and Lahore, in March 2010, denounced India's 'theft' of waters through 'illegal dams' that could trigger nuclear war. Banners in both rallies had slogans, such as 'water or war', 'water flows or blood', 'Liberate Kashmir to secure water' and 'No peace with Indian water aggression' (Verghese, 2010). In India after an attack carried out on Indian Parliament in 2001, it had weighed the option of stopping waters to Pakistan by abrogating the IWT (Akhtar, 2010). It was stopped by the legal community which argued that the IWT could not be abrogated unilaterally as it was guaranteed by the World Bank and other global powers (Cited in Akhtar, 2010). Even in 2008, after an attack on Mumbai, voices were raised to abrogate the IWT. 'There is one option which can hurt Pakistan most—that of announcing India's intent to withdraw from the IWT...' (Menon, 2009). Although these voices have not affected the water decisions of the two states, they have certainly constructed water nationalism against each other.

Pragmatically, as discussed above, in all transboundary river water disputes there is an asymmetrical situation whereby the upper-lying riparian, through means of the hydrological situation, controls the quantity and quality of the water flow. The advantaged state would only be open to an agreement with the disadvantaged state if it leads to political or economic pay-offs. The asymmetrical structure of water conflict, in terms of game theory is a Rambo situation which excludes the possibility of a cooperative solution. The advantaged state prefers to maintain the status quo as opposed to seeking a compromise with the disadvantaged state (Haftendorn, 2000). An agreeable settlement would only be possible when the Rambo situation is replaced by a dilemma situation, that is, a conflict structure whereby the power of the advantaged state can be balanced or modified; as with a security dilemma, in which it is in the best interests of all parties in the conflict to cooperate. At that time, symmetry between the actors will only exist as far as the hydrological asymmetry between the actors is balanced out by other factors (ibid.). This is not the case between India and Pakistan. Though both countries are nuclear powers, capable to destroy each other, India is superior in conventional sense of power. It is this conventional power which creates asymmetry, and Pakistan wants to balance because of historical reasons and present political calculations.

Due to political animosity between India and Pakistan, they even shy away from cooperating to manage natural disasters or in carrying out relief activities in shared border areas. In 2014, there was a heavy flood in both sides of J&K. At the time of deluge, instead of cooperation the two were engaged in cross-border firings. It was clear that no information was passed by the upper riparian to the lower riparian areas where large-scale damage occurred. Though there is no specific provision in the IWT to manage floods, a few provisions in Articles IV, VII, etc. can be exploited for a common purpose (Ranjan, 2014). Any progress towards this direction is possible only when the two countries have at least a

working relationship. Few days before that flood, in August 2014, India cancelled the anxiously awaited foreign secretary level talks with Pakistan for not-so-convincing reasons.

In future, the water disputes may exacerbate due to increasing demand–supply gap, climate change, rise of water nationalism and supply-side multipurpose constructions. The demand–supply gap is due to geometric rise in population, which reduces the per capita availability of water resources. According to one estimate, it is expected that by 2025 India's per capita water availability will be around 1,631 cubic metres, while Pakistan's will be 877 cubic metres (Himalayan Challenge: Water Security in Emerging Asia, 2010). The phenomenon of climate change has an impact on seasonal cycle. Under its impact, often, precipitation is taking place in non-monsoon seasons, while monsoon is experiencing dwindling rainfall, which leads to unwanted floods and drought. Not only the change in precipitation but also the social relation in the catchment areas of IRS affect the distribution of water (Mustafa, 2010). This social relationship is based on class or caste differences, and has existed since agricultural practice was established in the region.

In such a physical and political environment, the possibility of cooperation is bleak, though utmost needed. A few steps can be taken to move in that direction: First, there is a need to come out from the state-centric approach of river management, and instead foster cooperative dialogues between river front communities on both sides, such as river ecologists, dependent farmers and water historians (D'Souza, 2011). The quantitative hydrology must be replaced by viable dialogues over fluvial relationships and ecological processes (*ibid.*).

Second, the discussions on Indus waters must be de-linked from both historic grievances and the other Kashmir-related issues (Briscoe, 2010b). Though it is difficult, because of their relationship, the two countries can look out for a joint and collaborative undertaking. There is utmost need for constructive use of the provisions given in the IWT (Iyer, 2013).

Third, there is a lack of imagination over benefits sharing paradigm of cooperation over transboundary rivers water. In the transboundary water resources sense, benefit sharing refers to a paradigm or policy tool that identifies the gains of interstate cooperation beyond merely the sharing of water, but incorporates the sharing of opportunities that water brings to a country, a basin and a region (Jacobs, 2012, p. 207). India and Pakistan have to imagine the related benefits they can accrue through cooperation over the IRS.

Fourth, there is utmost need to change the narratives related to India–Pakistan disputes over the IRS. New narratives can be developed only if one starts using or talking about cooperation even while discussing the existing disputes between the two countries. This applies to people from both sides of the border. Most of the papers, essays and articles, including the present one, use the word 'dispute' or 'conflict' in the title, and focus is on these two traits, instead of giving even scant attention on cooperation. On a personal note, as I have worked on this topic in the past, I have interacted with many individuals from both countries, who are working or have worked on the theme. Most of them have a complaint over the IWT and they blame the other country for 'taking away' or 'stealing' their country's water. Only a few individuals said that the IWT is a good treaty and advocate cooperation between India and Pakistan over water sharing from the IRS.

Fifth, India and Pakistan are avoiding signing the 1997 UN Convention on Non-Navigational Uses of International Watercourses. This convention ensures 'equitable and reasonable use' and 'the obligation not to cause significant harm' to neighbours and co-sharers (Halepoto, 2014). Not only India and Pakistan, until now out of 145 co-riparian states only 35 countries have signed it. Then on 11 December 2011, the UN General Assembly adopted a resolution on the Law of Transboundary Aquifers, which suggested that states 'make appropriate bilateral or regional arrangements for the proper management of

their transboundary aquifers' (ibid.). The IWT has not used the exact words but it calls for the same spirit which India and Pakistan can follow to cooperate over the IRS.

Sixth, countries sharing good bilateral relationship do make compromises and adjustments on 'non-core' or 'secondary' issues; sometimes, they do so, even on core issues, for larger mutual interest. India and Pakistan do not have good relations, therefore water conflicts endure, and problems over it keep on erupting, at regular intervals of time. In order to address their water-related disputes, the two countries have to improve their bilateral relationship, which is possible if they remain engaged in talks, despite occurrence of any untoward incidents, instead of resorting to a blame game and derailing the dialogue process.

Conclusions

This article has discussed the history of canal system and its partition in 1947. It has also discussed how India and Pakistan moved towards discussion and signing of the IWT in 1960. Despite the existence of IWT, the problems and disputes over water sharing exist due to political relationships between India and Pakistan. The IWT does not have an exit clause, so it cannot be abrogated. However, it does permit the possibility of re-negotiation. Article XII of the treaty says that 'it may from time to time be modified by a duly ratified treaty concluded for that purpose between the two governments' (Ministry of Water Resources, 1960; D'Souza, 2011 & Sinha, 2011). As the treaty is going to remain intact, despite cries by the people from both the sides of the border, the best option is to cooperate to meet the upcoming water challenges instead of aggravating the problem.

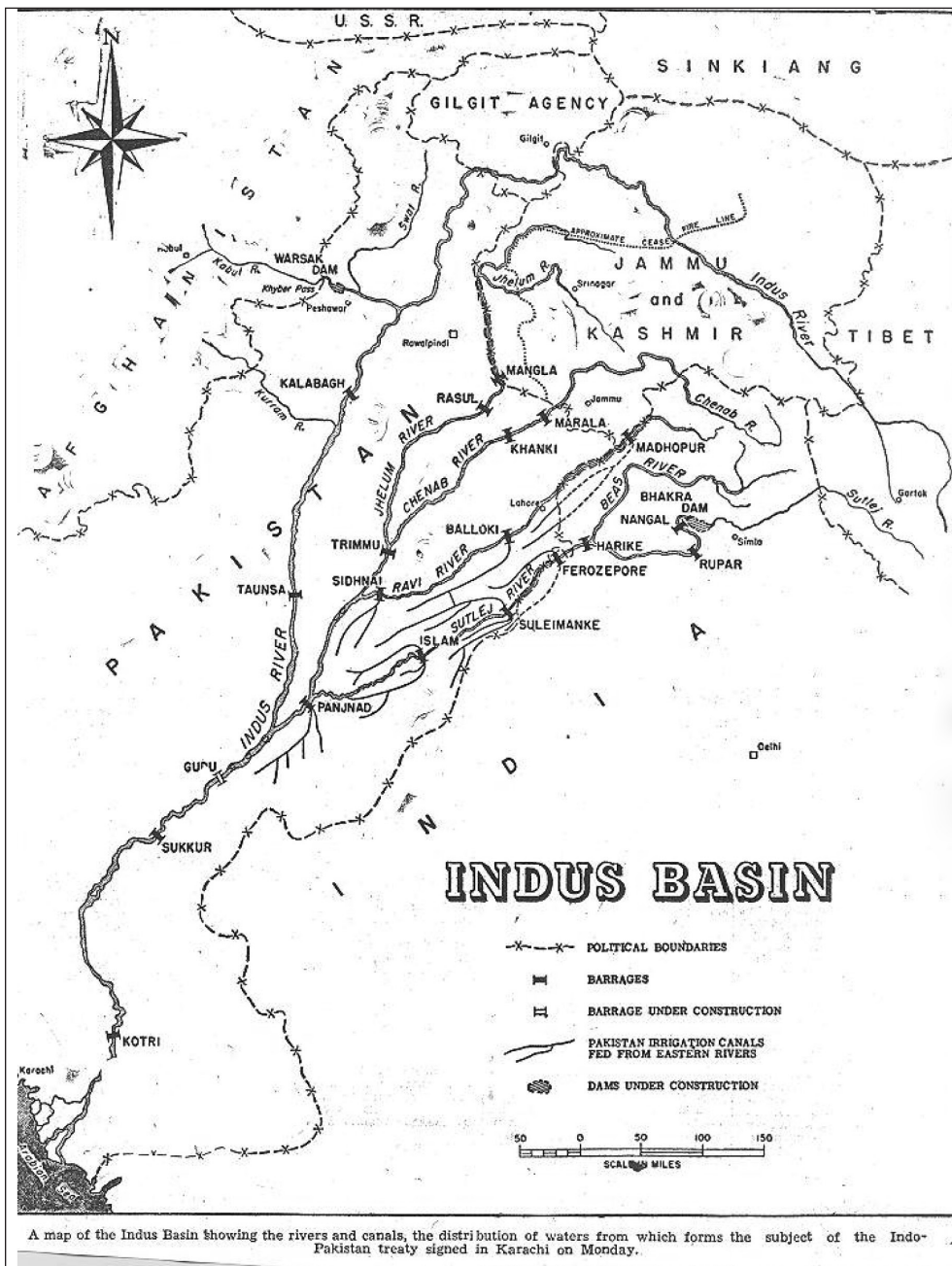
This article has also discussed how and why construction of multipurpose water projects creates tensions between India and Pakistan. The growing supply-side management of water resources is problematic. It tries to interfere with the natural flow of rivers and these structures are a means for upper riparian state to regulate the water flow to lower riparian state.

As it is mentioned in this article, political relationship between India and Pakistan decides their water relations. The partition-related memories and their construction are potent reasons for the continuing animosities, but also related to them are the religious differences between people living across the border. Tensions have increased further after the rise of militancy in Kashmir valley since 1989, for which India holds Pakistan responsible. On the contrary, Pakistan blames India for militancy and violence in Balochistan and in other parts of the country. These issues do influence decisions over water sharing between India and Pakistan.

Finally, this article also suggests a few necessary steps to ensure cooperation between India and Pakistan on the IRS water. A few amendments can be made in the existing text of the IWT, due to change in situation and to address the future water-related concerns in the region, but this is possible only when India and Pakistan agree to cooperate.

Appendix A

The Indus River Basin in 1960, *The Hindu* (21 September 1960).



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