Understanding India-Pakistan water politics since the signing of the Indus Water Treaty

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Abstract

On 19 September 1960, the Indus Water Treaty (IWT) was signed between India and Pakistan, presumably resolving the conflict of Indus water sharing. Nevertheless, over the years the conflict has re-appeared, dragging both the riparian states into confrontation. This paper explores the reasons that lead to conflict despite the Indus water sharing having already been resolved by the IWT. Analysis of the documentation shows that increasing construction of hydropower projects by India instigates conflict between the riparian states. The paper also analyzes two variables that will actualize the possibility of further conflict if correct steps are not taken. The paper concludes in ascertaining the credibility of the IWT to precisely address the challenges vis-à-vis issues that have resurfaced in Indus water sharing.

Keywords: Causal explanation; Climate change; Conflict over Indus water sharing; Cooperation between India and Pakistan; Hermeneutic-understanding; Indus Water Treaty; Population growth; Scarcity of water

1. Introduction

Since the founding of the Vienna Circle in the 1920s, several means of inquiry began to emerge in social science. The 'causal' explanation is one such method whereby social scientists attempt to investigate the 'condition' of social phenomena. In the case of transboundary water conflicts, several conditions, with the support of empirical evidence, have been laid out to explain what leads to conflicts among or between the riparian states. These include: upstream-downstream approach, growing scarcity, populations, pollution and environmental changes, e.g. climate change (Falkenmark, 1986; Homer-Dixon, 1991; Gleick, 1993; Haftendorn, 2000; Toset et al., 2000; United Nations Development Programme (UNDP), 2006; Dinar, 2008).

In the case of Indus water sharing between India and Pakistan, it can be asserted that the condition that led to the conflict was the act of India cutting-off water supply to the Pakistan canals on 1 April 1948. And although the condition that led the two states to end the conflict was the signing of the Indus Water Treaty. doi: 10.2166/wp.2016.185

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Indus Water Treaty (IWT) in 1960, on multiple occasions India and Pakistan have entered into confrontation on Indus water sharing. For instance, in 1970, on Salal Hydroelectric project, India and Pakistan had conflict for nearly a decade, which was resolved in 1978; Baglihar Hydroelectric project was settled through a neutral expert in 2007; Kishanganga Hydroelectric project was resolved through the Court of Arbitration in December 2013 and conflict still persists on Wullar Barrage/Tubul Navigation project. On many occasions, Pakistan has raised objections on hydro-power projects carried out by India that include the Ralte (850 MW), the lower Kalnai (48 MW), the Miyar (120 MW) and the Pakadul project (1,000 MW).

This paper explores the conundrum of why, despite an agreement that was signed in 1960, conflicts persist between the riparian states over water sharing thereby adversely affecting cooperation between the two countries. In other words, what factors lead to conflict between the riparian states post IWT? In order to probe this matter, this study evaluates reports and official documents from experts, government officials and ex-diplomats, research institutions and think tanks, and media reports. The paper also analyzes two variables that will magnify further conflict in days to come if appropriate care is not taken to ameliorate them. The paper concludes in determining the integrity of the IWT to address the challenges that are surfacing which would enhance further cooperation between India and Pakistan.

2. A note on the analytical method

Stressing the need for different methods for the study of human sciences (Geisteswissenschaften), German historians and philosophers since the mid-18th century have challenged the preponderance of a single causal explanation (Erklarer) in natural sciences (Naturwissenschaften). Unlike, Naturwissenschaften, where the attempt is to explain the causal linkage of the physical objects that are external to human beings, in Geisteswissenschaften, the explanation involves examination of the inner workings of the human spirit. With this understanding, Wilhelm Dilthey (1833–1911) affirmed, that unlike the physical world, which can be, explained causally, ‘lived experience’ (Erlebnis) is the subject matter of human sciences as it reflects human emotion, desire and purpose. In other words, in the Geisteswissenschaften, the outward expression can be related to inner state. In order to access the inner life, Dilthey considered ‘hermeneutic understanding’ (Verstehen), a method for studying human science where one can gain access to and understand the manifestations of the human spirit. In fact ‘it is the only possible way of recovering the meaning of the different expressions of life’ (Mahajan, 2011, p. 53).

Ordinary expressions of human spirit can be detected through facial expression, gestures, speech, etc. However, when experience takes place in the form of written documents or texts as well as conversation, the technique of ‘linguistic’ and ‘historical/social background’ comes to the forefront so as to understand the meaning of human spirit (Taylor, 1985; Gadamer, 2006).

In the development of hermeneutics, the nature of interpretive inquiry has changed and also been challenged in that, the hermeneutic form of inquiry excludes the investigation of causal linkage from the province of human science (Mahajan, 2011). The inquiry here is not attempting an in-depth critical analysis on how the nature of the mode of interpretation has been published in the literature by several thinkers. Rather, the central argument is that the causal explanation, although it is important, is not always sufficient in explaining the social phenomena. In fact, hermeneutics as an interpretive understanding is equally essential in human science. Hence, in exploring the objective of this paper, along
with the method implicated in the natural sciences, hermeneutic understanding is supplemented with a critical review of reports and documents produced by government officials and experts, research institutions, and think tanks.

3. Discernment shared by riparian states on Indus water sharing

What follows are statements with reference to the Indus water conflict made by heads of state, diplomats, military leaders, opinion makers and politicians that portray the general understanding about the nature of the conflict, and how it is evolving and progressing between the riparian states over Indus water.

In the wake of Baglihar Dam filling in October 2008, Pakistan President Asif Ali Zardari asserted, ‘Pakistan would be paying a very high price for India’s move to block Pakistan water supply from Chenab River.’ Further, he warned India ‘not to trade important regional objectives for short term domestic goals’ (Reuters, 2008). Moreover, in January 2009, Zardari, in an article in The Washington Post, warned, ‘the water crisis in Pakistan is directly linked to relations with India. Resolution could prevent an environmental catastrophe in South Asia, but failure to do so could fuel the fires of discontent that may lead to extremism and terrorism’ (Zardari, 2009).

If the then President Zardari has tried to link water disputes between India and Pakistan with extremism and terrorism, then the importance of Indus basin water in the perception of several fundamentalist groups is widely evident. According to B.G. Verghese, ‘water is the latest battle cry for Jihadis’ where ‘they shout that water must flow or blood must flow’ (The Economist, 2011). The founder of the Lashkar-e-Taiba and Jamaat-ud-Dawa (JuD), Hafiz Saeed, openly called on India to stop ‘water terrorism’ and also threatened to blow up India’s dams (The Economist, 2011). Moreover, Abdur Rehman Makki, another Pakistani extremist leader also warned that, ‘if India were to block Pakistan’s water, we will let loose a river of blood’ (The Economist, 2011). Moreover, on another occasion, JuD chief, Hafiz Muhammad Saeed, warned about an alleged plan by India to make Pakistan barren by impeding the flow of water in the river feeding Pakistan and also urged the Pakistan government to hold talks seriously with India on the water issue, or else it would result in the devastation of Pakistan’s agro-based economy (The Express Tribune, 2012).

If Pakistan’s perception of sharing of Indus water by India is unsatisfactory or marked with a kind of anti-India rhetoric, the perception of India, if taken into consideration, is characterized by a defensive position. Countering Pakistan’s army General Ashfaq Kayani, where he cited the reason for Pakistan having an India-centric approach in its defense preparedness was due to the water issue, eminent strategic thinker, Subrahmanyam (2010) writes,

‘the real problem appears to be mismanagement of its water resources by Pakistan. There has been disproportionate appropriation of water resources by Punjab at the cost of the other three provinces. The charge of India holding up water has been raised presumably to divert the responsibility for not distributing waters to the four provinces of Pakistan equitably’ (Subrahmanyam, 2010).

1 For a general understanding of Pakistan’s perception on Indus water sharing, Pakistan government officials, policymakers and civil societies have expressed concern on water disputes with India. For further details, see Haq (2010).
In order to counter Pakistan anxiety, fallacy, misinformation and allegations pertaining to India that characterized the debate on water scarcity in Pakistan, Indian High Commissioner Sharat Sabharwal (2010) at the Karachi Council on Foreign Relations and Pakistan-India Citizens Forum, stated that

‘the Treaty permitted the limited use of water from the Western Rivers of the Indus system by India and that this entitlement had not been fully used to date. As against the storage entitlement of 3.6 MAF, India had built no storage so far. Of the 1.34 million acres permitted for irrigation only 0.792 million acres was being irrigated’ (Sabharwal, 2010).

Moreover, on the hydroelectric usage by India, Sabharwal (2010) added that out of a total potential of 18,653 MW, projects worth 2,324 MW have been commissioned and those for 659 MW are under construction and therefore he asserted that India has ‘exploited only a fraction of the hydroelectric potential available to us on these rivers’. Further, he added that New Delhi had ‘no storage and diversion canals networks’ to withhold Pakistan’s share of water and all claims to the contrary were baseless allegations. Also, the Indian High Commissioner urged Pakistan to ‘adopt better water management’ and avoid wastage of water in a time of increasing scarcity (Sabharwal, 2010).

From these statements, one can make out that the condition of the two states’ relationship with regard to Indus water is marked by fear as well as distrust especially on the part of Pakistan, as Pakistan is downstream and at a natural disadvantage. Further, instead of cooperating with one another and trying to resolve the dispute amicably, retaliation is the ‘normal’ response between the nation states.

4. India thirsts for hydropower in Jammu and Kashmir

From the Kashmir territory, three major rivers – Indus, Jhelum and Chenab – flow into the Pakistan territory. Ascertaining the real motives by both countries over Kashmir, several Pakistan government officials have relayed to Brecher (1953) the vital importance of Kashmir in terms of providing economic resources and security for Pakistan. But for India, the strategic location of Kashmir was considered as the most imperative, the Indian spokesmen were ‘generally reticent’ to speak about the importance of Kashmir in terms of economic management (Brecher, 1953, p. 46). Hence, the Indian government’s policy over Kashmir shaped in strategic terms can be understood from the statement made by the former Indian Minister of State for Power, Jairam Ramesh, in the context of the Kishenganga hydro plant: ‘we need to speed up the work on the project as Pakistan is also constructing a power project on the river with Chinese assistance’. Further, Ramesh added that the Kishenganga project had ‘great strategic’ and ‘foreign policy implications’ (Dawn, 2008).

If, however, one analyzes the Indian interest in Jammu and Kashmir meticulously, one could make out the evolving interest is not only in strategic but also economic issues. Thus, one of the growing interests in Kashmir is accessing the hydro-power potential which significantly impacts cooperation between the two states. Hence, investigating the reasons the riparian states have resorted to confrontation over sharing of Indus water, former senior water advisor at the World Bank, Briscoe (2011), emphasizes, that over the past years, India has undertaken a number of major hydro development projects across the Himalaya region for which cooperation on water sharing between the riparian states is threatened. Since ensuring water security is one of the key issues for both India and Pakistan, the perception of the dispute varies considerably. Thus, Briscoe (2011) maintained that ‘India may view Pakistan’s
concern as politically motivated effort to obstruct India’s hydro-electric development programme, Pakistan may believe that the cumulative upstream water storage being created by India constitutes an existential threat to Pakistan’ (Briscoe, 2011, p. 57).

Also, the report of the Committee on Foreign Relations of the United States Senate of 2011 (FRUS) states that due to lack of sufficient access to energy on both the sides there is a drive to meet energy demand through hydropower development and ‘this is particularly true with respect to India, which faces a rapidly expanding population, growing economy and soaring energy needs’ (FRUS, 2011, p. 9). Therefore, to meet the growing demand and cope with increasing electricity shortage, the government has developed plans to expand power generation through the construction of multipurpose dams. Accordingly, the FRUS states, ‘the number of dams under construction and their management is a source of significant bilateral tension’ (FRUS, 2011, p. 9).

In order to understand the circumstances under which India is taking the steps to build hydroelectric dams in and around the Indus river basin, particularly in Jammu and Kashmir, let me briefly highlight the scenario of India’s energy demand of electricity and its policy evolution.

Since the independence of India, electricity remains a concurrent subject, shared by both central and state governments. But with the liberalization of the economy, the Government of India has encouraged and invited private sector investment in the power sector. In this ‘liberalized’ environment, policies were implemented to address the increasing demand for energy. In spite of numerous measures being introduced, the status of India’s energy demand continues to rise, largely linked to the robust economic development of the country. As per the report of the Ministry of Power, Government of India on 31 July 2014, among the sources that produce electricity (see Table 1) thermal energy remains the largest with a total of 69 percent followed by hydropower standing at 16.3 percent, other renewable energy sources total 12.2 percent, and nuclear, a mere 1.9 percent.

As India continues to face a shortage of electricity supply, the Government, in order to fill the gap, has started implementing several power projects in which hydroelectric power generation was found to be one of the great sources in meeting the energy needs. An example of this policy is that in 2003, under Atal Bihari Vajpayee, the Government launched the ‘50,000 MW Initiative’. In 2008, the Ministry of Power, Government of India, announced a policy called ‘Hydro Power Development’. The Policy set four broad goals: inducing private investment in hydropower development; harnessing the balance of hydroelectric potential; improving resettlement and rehabilitation; and facilitating financial viability. Moreover, the initiative also indicated that among all the regions in India with the potential for developing hydroelectric power, the Brahmaputra region remains the largest with a total of 63,328 MW followed by the Indus region with 18,979 MW (Ministry of Power, 2008).

As the hydro-development plan under the 12th Plan (2012–2017), the target was set at 74 dams with a total capacity of 15,202 MW. State wise, Arunachal Pradesh leads with a total of 9,579 MW, followed by Uttarakhand with a total of 6,858 MW and Jammu and Kashmir, with 3,923 MW, stands third (Central Electricity Authority Hydro Planning and Investigation Division, 2008). In yet another report in July 2011 by the Government of Jammu and Kashmir, it was also indicated that hydropower

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2 For example, ‘The New Electricity Act 2003’ deals with laws relating to generation, transmission, distribution, trading and use of electricity. In 2005, the Government of India announced the ‘National Electricity Policy’, aiming to provide access to electricity to all households and per capita availability of electricity to be increased to 1,000 units by 2012. In 2006, the Government also announced the process to fix tariffs, wherein the state regulatory commission is required to fix tariffs in their respective states and also establish the renewable purchase obligation.
will be the state’s key resource and the state government intended to accelerate harnessing its potential for economic development. The report, maintained that the state has harnessed so far only 2,500 MW out of the potential 20,000 MW of hydropower (Government of Jammu & Kashmir, 2011).

5. Sources of the bilateral tension

As a result of India’s initiation of several hydro-power projects, bilateral tension between the riparian states has been heightened. Citing the report of the FRUS of 2011: ‘the treaty’s long term stability is threatened by a lack of trust between India and Pakistan’ (FRUS, 2011, p. 9). In the IWT, several procedures have been established to maintain cooperation in the sharing of Indus water. These include, the exchange of data on the flow of water, regular meeting of the Permanent Indus Commission, procedures for the process of settlement whenever ‘dispute’ or ‘difference’ arises, etc. However, on several occasions downstream Pakistan has objected to several of the hydropower project initiatives by India. Pakistan Water Commissioner, Syed Jamaat Ali Shah, claimed that India had ‘reluctance to share information about the water situation in the rivers, which is sad’ (Reuters, 2010)³. Moreover, on some occasions, India has even refused any site inspection when Pakistan has officially requested them, so as to present Pakistan with a fait accompli when Pakistan refers the matter to the Court of Arbitration (The Express Tribune, 2013). Thus, the report of the FRUS underlined that, whether caused by India’s activities in the basin or by climate change, the reduction in water flow magnifies distrust between the two parties. In fact, the report of the FRUS regarding the reasons that led to conflict between India and

³ As a Pakistan official alleged, several request letters had been sent to Indian authorities to share information on the Pakal Dul project, yet India failed to respond completely (Bhutta, 2011). On the question of sharing data on water outflow, in an interview carried out by Dawn, published on 3 October 2014, Pakistan Indus Water Commissioner Baig (2014) claimed that although India is not interested in installation of a telemetry system, over the years the data transmission mechanism between India and Pakistan has improved.
Pakistan is not new. As Gulhati (1973) makes clear, the action of India on 1 April 1948 had made Pakistan ‘highly suspicious of Indian intentions on the rivers of the Indus basin’ (Gulhati, 1973, p. 60). Examining some of the major research and analysis put forth by former Indian diplomats and experts reveals the ground reality about Pakistan’s ever-growing fear and lack of trust with reference to Indus water sharing despite the IWT acting as the guardian between the riparian states. Mehta (2006) former Indian Foreign Secretary, who is credited for leading a successful settlement of the Salal project dispute in the late 1970s, argues two hypothetical situations in Pakistan that have been established in relation to Indus water sharing. The first one concerned the release of water from a non-storage dam. Pakistan was convinced that India could use water as a weapon or cut-off Pakistan’s military forces when war broke out in Kashmir. The second hypothetical situation was more worrisome in that it feared that the dry riverbed, when water is emptied from the dam, would provide an opportunity to India’s armed forces to cross over in an offensive pincer on Sialkot (Mehta, 2006, pp. 204–205). Although Pakistan never admitted the real ‘arrière pensée’ it became evident that the Pakistan team was ‘strongly entrenched’ in the hypothetical fears (Mehta, 2006, p. 207). Thus, Mehta maintained, ‘anything emanating from India was feared in Pakistan having hidden purpose for use in military contingencies’ (Mehta, 2006, p. 204).

Similarly, on the reason why India and Pakistan could not maintain normalized relations, former Pakistani Ambassador to the United States, Haqqani (2014), citing Ayub Khan, stated, ‘only two issues caused friction between India and Pakistan’ in which, the first is the division of Indus water and the second is the territory of Jammu and Kashmir (Haqqani, 2014). Despite the fact that it was the World Bank, backed by the United States, which was able to resolve the conflict over Indus water sharing through the IWT, we see how the Pakistan establishment’s fears continue to run high in the wake of upstream India’s possible action along the Indus River basin. In discussing the reason why India and Pakistan could not have normalized relations, Haqqani (2014) writes that ‘psychological’ factors have held back the relationship between the countries so far. And while Pakistan’s establishment continues to paint India as an existential threat and a permanent enemy in the minds of its people, Haqqani asserts that no Pakistani leader, be it civilian or military, can embrace the Canada-US model in India-Pakistan relations (Haqqani, 2014).

4 In the foregoing section, I have put forward a few statements made by several top Pakistani government officials with reference to Indus water sharing. However such statements are nothing new, as from the very beginning when the Indus water sharing conflict commenced, Pakistan’s ever-growing fear and lack of trust was evident. For instance, when India opened Bhakra Canal on 8 July 1954, Pakistan fear ran high. Statements were made by many about Pakistan’s fear on water sharing, from the level of Prime Minister to press media and local societal groups. In this regard, see pages 161–163 in Gulhati (1973). Moreover, even during the period of mediation under the World Bank, Pakistan was nervous to enter into any agreement wherever the Bank formulated any plan. In this regard, see pages 113–114 and 224 in Gulhati (1973).

5 Despite the fact that the IWT obliged both the riparian states to share Indus water equitably for economic development, according to Mustafa (2010), ‘one of the more obvious hydro-political implications of IWT was the capacity of the two governments to build infrastructure with more overt security implications’ (Mustafa, 2010, p. 5). On the other hand, examining the canal infrastructure laid down by both countries, Mustafa (2010) claims that such canal infrastructure serves as a defensive structure in case of military confrontations. Such a case was evident when former Indian Chief of Army from 1962 to 1966, General J.N. Chaudhary, on the prospect of an Indian assault on Lahore on the eve of the Indo-Pakistan war in 1962 commented that ‘all my experience teaches me never to start an operation with the crossing of an opposed water obstacle; as far as I am concerned I have ruled out Lahore or crossing at Dera Baba Nanak’ (Mustafa, 2010, p. 5). And on the India side, the long 649 km of Indira Canal serves both for irrigation and military defensive purposes (Mustafa, 2010, p. 5).
Furthermore, noted Indian expert Iyer (2010), describing Pakistan’s growing fear, also argues that whether in government offices or at the civil society level, one important factor which makes Pakistan worried in relation to Indus water sharing is ‘the number of projects that India is planning on the Western Rivers’ where, in spite of India’s strict compliance with the IWT, Pakistan is concerned that ‘India might, taking all the projects together, acquire a measure of control over the waters of the Western Rivers and might potentially be able to inflict harm on Pakistan’ (Iyer, 2010).

Briscoe (2010), former senior water advisor at the World Bank, describing diplomatic failure on the water issue between the two states, also stated that ‘the lack of transparency is important internally but even more so when it comes to Pakistan’ and ‘it should not be surprised by the Indian lack of transparency and high-handedness on water with Pakistan, because that is the way the Indian water bureaucracy deals with its own people!’ (Briscoe, 2010, p. 31). This lack of transparency and compliance is deliberately aimed at harming Pakistan. Thus, according to Briscoe it is ‘the Government of India mostly adding fuel to the fire’ (Briscoe, 2010, p. 31). After examining the quality of print media on water issues and whether it is based in fact or not, Briscoe also emphasized, that ‘when it comes to Kashmir – and the Indus Treaty is considered an integral part of Kashmir – the Ministry of External Affairs instructs newspapers on what they can and cannot say and often tells them explicitly what it is they are to say’ (Briscoe, 2010, p. 30). Also describing lack of transparency of the Indian bureaucracy on Indus water sharing, consequently sowing fear in Pakistan, and lack of distrust, Verghese (2010) from the Centre for Policy Research emphasizes that

‘the government secrecy between ministers needs to be done away with for good; and that this very problem has led to the downfall of many policy implementation programmes. Also the ideas of water storage need to be made clear, for example, a dead storage where water is stagnant is not storage, but a silt trap’ (Verghese, 2010).

Verghese argues further, ‘India was not being generous, but had an acute problem of refugees post partition.’ Therefore, from the point of rehabilitation, India needed to provide irrigation for the land in question and, as an upper riparian state, India has delivered on the treaty (Verghese, 2010).

Indeed, Pakistan’s growing fear in the wake of India’s action upstream cannot easily be dismissed or ignored by India. Rather, imperative care needs to be taken to honor and follow the IWT, which has laid down several rules for maintaining cooperation between the riparian states. Some academicians, diplomats and those associated with think-tanks have dismissed Pakistan’s concern or fear of water sharing as illogical, although they are quick to prescribe a set of policies so that the riparian states work cooperatively in days to come.

For instance, Sinha (2010) mentioned ‘Pakistan will never acknowledge the fact that India has been supplying water flow data to Pakistan free of cost even though the treaty does not force India to do so’ (Sinha, 2010, p. 669). However, the IWT’s articles VI and VII (2) have clearly established the provisions for the exchange of data and information. Menon (2010), Secretary of the Indian National Committee on Irrigation and National Drainage, in the wake of the terrorist attack on Mumbai, strongly advocated that

‘there is one option which can hurt Pakistan that of announcing India’s intent to withdraw from the IWT… if India walks out, the collapse of this Pakistan-biased treaty would trigger a serious problem
of water shortage there since India would then be having the option to divert and use its equitable share of Indus waters, which was denied all along due to existing treaty provision’ (Menon, 2010).6

From the statement made by Menon, the IWT, in spite of being called the most successful treaty in the world on water sharing, is biased towards Pakistan. However, if viewed geographically as well as in terms of the IWT, then India has complete advantage due to its upstream position which secures its full rights to the eastern rivers and is ‘holding all cards’ (Mirza, 2008, p. 11).7 The Treaty exclusively gave India the eastern rivers where Pakistan has no rights to have water from these sources. Indeed the Treaty stipulated the Western Rivers to Pakistan, but India, being an upstream state, was given some rights on these Western Rivers which include drinking water, non-consumption use, cultivation and hydropower development rights. Hence, according to one Pakistani research institute, the Pakistan Institute of Legislative Development and Transparency (PILDAT), ‘it was not a just treaty’ (PILDAT, 2011).

Several experts have put forth the conditions that lead to conflict over water resources. Among them, Falkenmark (1986) asserts, ‘in many basins, downstream countries are at the mercy of their upstream neighbours’ and as a result, ‘the location of a country along the river can have a considerable influence on its international relations’ (Falkenmark, 1986, p. 87). From this upstream-downstream approach, the inflow from the upstream countries depends on the nature of water consuming activities in the upstream country. Water consuming activities like irrigation or water transferring out of the basin reduces the inflow to the downstream country and often degrades the quality as well. Thus, where any downstream state is at the mercy of an upstream state for the access to water resources and consequently, if the flow of water becomes scarce, then conflict will arise. Hence, Pakistan, being downstream, is really concerned with what upstream India is doing on the Indus River basin, just as India, being the downstream state in the Brahmaputra River basin, is concerned a lot with what upstream China is initiating along the basin area.8

6 Menon (2012) also expressed the same opinion in another work, titled, ‘How to Share a River’, stating, ‘India is unhappy with the Pakistan-biased treaty provision and is insisting on a review.’
7 Michel (1967) also points out that under the IWT, India not only got full control of (and fully diverted) three Eastern Rivers but also has a potential to control all the three Western Rivers of the Indus River system. The IWT in Article III and Annexure C and D gives India some specified rights (Michel, 1967, p. 238).
8 In the wake of China’s plan to divert the Brahmaputra River water, concern of downstream state India runs high to the extent that the former Prime Minister, Manmohan Singh, was even obliged to issue a statement in Rajya Sabha on 4 August 2011 saying ‘we have been assured that nothing will be done which affects India’s interest adversely’ (The Hindu, 2011). Moreover, Brahma Chellaney, describing the Indo-China water issue on Brahmaputra River, argues that ‘China has always been opaque on its hydro-engineering plans, refusing to share information with neighbours or permit on-site visits. It also has a habit of beginning work quietly on large dams’ (Bhuchar, 2011). On China’s approach and policy over Brahmaputra River basin, see Krishnan (2010) and Chellaney (2011).
the riparian states of India and Pakistan and for the purpose of analysis, two variables that can possibly explain the conflict over water resources – the high rate of population growth and climate change – have been taken into account.

Geographically, Pakistan is a significantly arid country, where the precipitation varies from less than 100 mm in parts of Balochistan and Sindh province to more than 1,500 mm in the northern mountains of Punjab and Khyber Pakhtunkhwa (Food and Agriculture Organization (FAO) Aquastat, 2011). For Pakistan, agriculture is considered the most important sector of its economy. Around 68 percent of Pakistan’s total population is engaged in the agricultural sector. It contributes 21 percent of the Gross Domestic Product and provides livelihood for about 68 percent of the people living in rural areas (Government of Pakistan, 2011). In order to sustain agricultural development, the main sources of water are from the Indus river system where annual inflow into Pakistan territory is an estimated 265.08 km² (FAO Aquastat, 2011). Since the time of British rule, large-scale canal construction was started for irrigation in the Indus river basin, thereby creating the largest irrigation network in the world. But this irrigation system was divided due to partition. After a long process of negotiation, the IWT was signed in which Pakistan overcame several challenges in meeting the growing demand for water by constructing Tarbela, the biggest rockfill dam in the world, on the Indus, Mangla and Jhelum. Despite the progress made, there are still challenges that need to be addressed exigently to help maintain an amicable relationship between the riparian states.

The report carried out by the World Bank team, Briscoe & Usman (2006), points out that these challenges are widely evident in Pakistan’s water management policy. Figure 1 indicates that Pakistan is already one of the most water-stressed countries in the world. India also comes under this category. Indeed, there are several reasons why Pakistan is facing constraints on the availability of water resources. The work carried out by Shahid Ahmad argues that in the earlier days, the practice of agriculture was based on ‘low cropping intensity’ where crops like wheat, maize, pulses, and oilseeds were grown that require lesser amounts of water (Briscoe & Usman, 2006).

But in ‘the last decade, the pressure on water has increased significantly with more competition for quantity and quality of irrigation water within the irrigation sector’ (Briscoe & Usman, 2006, p. 23).
One of the changes in the character of agricultural practices is due to the emergence of a new class of farmers known as ‘progressive farmers’ who are interested in growing high-value crops for both domestic and export markets. The water requirements for these crops, in which water plays a role not just in meeting the evapotranspirative requirements but also as a mechanism for delivering fertilizer and pesticides, is substantially more than in traditional agricultural methods. However, because of the new style of practice in Pakistan’s agriculture, a substantial increase in employment has been realized (Briscoe & Usman, 2006, pp. 23–24).

Another major challenge for Pakistan is the result of a changing demographic landscape. The growth of population is very high. In the work carried out by Siegmann and Shezad, the projected population of Pakistan will be 230 million in 2025 which is an increase of 80 million people from the year 1980. As a result, the demand for water has increased sharply and will continue to do so (Briscoe & Usman, 2006, p. 24).

A further challenge that will affect or impact the riparian states is climate change. Several research institutions, individual teams, non-governmental organizations (NGOs), and international organizations using different models, techniques and/or methodologies have initiated research studies on the impact of climate change on the Indus river basin. The common picture painted by the research points to a grim future regarding the availability of water from the Indus river basin to meet the growing needs in the subcontinent, paving the way for potential conflict between the riparian states.

The Indus river basin, which is considered the largest river system in the world, lies in the north-western part of the subcontinent. The Indus and all its major tributaries arise from the Himalayas (which means ‘snow storehouse’), the major sources of water for the basin rivers are from snow and glacier melt in the Himalayas. In a study carried out a decade ago by the National Institute of Hydrology of Roorkee, estimates were made of the snow and glacier melt’s contribution to one of the Western Rivers of the Indus basin, the Chenab River. The team, using satellite imagery, concluded that, on average, about 70 percent of the area of the basin is covered with snow in March/April and this is reduced to about 24 percent in September/October. Thus, the team found out that the average snow and glacier runoff contribution to the annual flow of the Chenab River at Akhnoor was estimated to be about 49 percent (Singh et al., 1997).

In another study, the research team of Walter W. Immerzeel et al. (2010) used the ‘Normalized Melt Index’ over the period 2001–2007 to quantify the importance of melt water from the upstream areas on the overall basin hydrology of the Indus, Ganges, Brahmaputra, Yangtze and Yellow rivers. The team found that the ‘upstream snow and ice reserves of these basins are likely to be affected substantially by climate change, but to what extent is yet unclear’ (Immerzeel et al., 2010, p. 1382). Further, indications are that for the present-day climate change, melt water plays an important role in the Indus and Brahmaputra river basins. The Indus is most reliant as the discharge by snow and glacial melt is 151 percent of the total discharge naturally generated in the downstream areas. For the Brahmaputra basin the total

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9 Often, at public meetings and academic works, the meanings of ‘Climate Change’ and ‘Global Warming’ have been misused. In the report, prepared by the United States Environmental Protection Agency, 2012 (EPA), a distinction has been made on these two concepts, where ‘Climate Change’ implies significant change in temperature for an extended period caused by factors like burning fossil fuel, deforestation, and changes in ocean circulation. Global warming implies ‘an average increase in the temperature of the atmosphere near the Earth’s surface’. Consequently, global warming is just one aspect of global climate change (EPA, 2012). Several consequences will follow climate change, which according to the EPA have been summarized as primary effects of climate change for water resources and include: air and water temperature increases; changes in level and distribution of rainfall and snowfall; storm intensity increases; sea level rise; and change in coastal and oceanic characteristics.
discharge amounts to 27 percent whereas the contribution of snow and glacier water to the Ganges is 10 percent. For the Yangtze it is 8 percent and for the Yellow River it is also 8 percent (Immerzeel et al., 2010, p. 1382).

The research work carried out by the International Centre for Integrated Mountain Development (ICIMOD) in 2010 on the Indus basin, also emphasizes that ‘climate change is already impacting the glacial regime on the basin’ as there is a general condition of glacial retreat (ICIMOD, 2010). It also maintains that although some cases of glacial advance have been reported in high Karakorum, it is not known if these are the result of accumulation of ice mass or simply reorientation of glacial structure under a changed thermal regime (ICIMOD, 2010).

According to environmental expert Homer-Dixon (1994), due to environmental degradation like global warming and excessive use as well as rapid growth of population, water will become a non-renewable resource. He suggests that ‘environmental changes’ might result in ‘decreasing supplies resources such as clean water… and would provoke inter-state ‘simple-scarcity conflicts’ (Homer-Dixon, 1994, p. 6).

Taking into account Homer-Dixon’s approach on the impact of ‘environmental changes’ on the relationship among the states, indeed India and Pakistan cannot escape from what is known as ‘simple-scarcity conflict’. However, one needs to understand the different categorizations of the concept of ‘conflict’. The Heidelberg Institute for International Conflict Research (HIIK) suggests two types of conflicts exist: Non-violent conflict and violent conflict/war (HIIK, 2005). In the analysis of the Indus water dispute between India and Pakistan, the case can be placed under the category of non-violent conflict in so far as violence has not yet occurred specifically linked to water sharing. However, non-violent means, as in the process of bilateral negotiations as well as third party mediation, have enabled a solution to the problem in a peaceful manner. But there remains the possibility of it transforming itself into violent conflict or even war if the situation compels it.

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10 Indeed, Gurr (1985) maintains the concept of scarcity has many meanings and sources. Despite the differences in definition it can be delineated into two types: ‘real scarcity’ and ‘contrived scarcity’. Real scarcity occurs when there is increased human population and the consumption of resources exceeds the supply. As a result, the resources are depleted faster. Contrived scarcity occurs with political motivation. In the case of Indus water sharing, conflict began with ‘contrived’ scarcity when upstream India cut-off water supplies on 1 April 1948 to downstream state Pakistan. However, it can be asserted that conflict over Indus water sharing by the factor of ‘real scarcity’ is already evident due to the initiation of several hydropower projects along the Indus basin by India in order to meet growing domestic energy demand. Further, in the context of water resources, the UN FAO Water Report of 2012, made a distinction between physical scarcity and economic scarcity. Physical scarcity occurs when there is not enough water to meet all demands, including environmental flows in which the symptoms from such scarcity will be environmental degradation, decline in groundwater etc. Economic scarcity is caused by the lack of investment in water in which the symptoms would be scant infrastructures development in small or large-scale and as a result, chaos is created while accessing water for agriculture and drinking (FAO, 2012).

11 On the meaning of ‘conflict’, see Axt et al. (2006).

12 Critics have pointed out that the mediator was not neutral and/or credible. In the case of the Baglihar hydroelectric project, despite the Neutral Expert (NE) having found that India has violated the treaty in the design of the dam, the final decision delivered by the NE on 12 February 2007 was not credible. Hence, Pakistani disappointment was palpable, when noted expert, Wirsing (2008) had interacted with three members of the Pakistani official team of Baglihar during his stay in Islamabad and Lahore in January and March/April 2007. Substantiating the gap in credibility of the NE, former senior World Bank advisor, Briscoe (2013), after critically examining the decision, announced on 19 February 2013 in the Court of Arbitration on the dispute of Kishanganga Project, ‘the Baglihar decision was wrong and should not be applied to future projects’.
7. Deepening cooperation on Indus water sharing

Five decades ago, Lilienthal (1966), after his first-hand experience in the subcontinent, described his astonishment over the war-like situation that has been persisting between India and Pakistan in the name of Indus water sharing. Evaluating the water–war situation that had been surfacing between India and Pakistan in the early days and the present time, a thorough examination would reveal that the situation remains more or less the same, or indeed one could agree with Lilienthal’s writing which says ‘that there is danger that war will break out any day is neither speculative nor alarmist’ (Lilienthal, 1966). The IWT came into being only after several intensive rounds of negotiation over seven years under the mediation of the World Bank. Therefore, it is unlikely in the foreseeable future that the treaty will be renegotiated. But it is evident that the conflict continues to persist when both countries accuse each other by using phrases like, ‘stealing water’, ‘adopt better water management’, and ‘need to revive treaty’, instead of sitting together to discuss the nature of the issues and working out an amicable solution.

Even in the current scenario, diplomats and academicians have dismissed or ignored Pakistan’s growing fear on the flow of water. At the same time, several political leaders have made provocative statements only to add fuel to the fear fire\textsuperscript{13}. In a public rally in Jammu and Kashmir, candidate Narendra Modi (now Prime Minister of India) expressed his disappointment that the state government was always begging from the central government, ‘the ruler here (Jammu and Kashmir) developed a habit of begging before New Delhi. They know well that there will be no accountability fixed for the money they loot here.’ In order to make Jammu and Kashmir a self-reliant state, not a beggar, Modi then declared ‘the government has only one mantra, which is development for all’ (The Economic Times, 2013). Despite Narendra Modi’s accusation of the state government always having a ‘begging bowl’ in hand and neglecting development, the former Indian Army Chief, General V.K. Singh, now the Minister of Development of North East Region under Modi’s government, confirmed that since independence, the army has paid money to all ministers in the state and everyone in the system, including the Defence Minister, knows. The reason why money was paid to ministers by the ‘Technical Support Division’ through an NGO based in the state, V.K. Singh declared, is to ‘ensure that the people are kept together’ as part of a stabilizing factor of Jammu and Kashmir (The Indian Express, 2013).

Former Chief Minister and Minister of New and Renewable Energy, Farooq Abdullah, expressed his disappointment with the constraint that the IWT places on the state of Jammu and Kashmir in

\textsuperscript{13} Lack of appreciation of Pakistan’s growing fears on water sharing, especially by the upstream academician, is widely evident. Such experience I have witnessed while carrying out my research program at Jawaharlal Nehru University. On 21 February 2010, during a centre meeting for getting approval of my PhD synopsis at the Centre for International Politics, Organization and Diplomacy (CIPOD) office chamber, a member of the National Knowledge Commission and also the President of the India Association of International Studies, Amitabh Mattoo, commented, ‘India never cut-off water supplies to Pakistan, and India has no intention to use water as a weapon against Pakistan. This is the problem with the INP (International Politics) division. Too much focusing on theories.’ However, in the causal explanation, the ‘condition’ of scarcity is one factor that leads to conflict over water resources, and in the case of Indus water, conflict commenced when India cut-off water supplies on 1 April 1948. Moreover, in the wake of diminishing water supply to Pakistan canals from October 1952, it only increases Pakistan’s fear. On the other hand, in the wake of increasing construction of dams by India along the Indus basin, V.G. Hedge, Legal Officer at the Legal and Treaties Division, Ministry of External Affairs, Govt. of India claimed that by conceding to India’s construction of several hydrological projects, Pakistan has in effect given its consent ‘to develop the very structure that could one day harm her’ (Zawahri, 2009, p. 5).
harnessing its potential for hydropower in which he says ‘we are unable to harness our immense hydro power potential’ (The Hindu, 2002). Speaking in the same tone as his father, the previous Chief Minister, Omar Abdullah stated that despite Pakistan and India benefiting from the IWT, ‘the state of Jammu and Kashmir has been put to a disadvantageous position’ (Business Standard, 2014).

No doubt, the immense potential of hydropower in the Indus basin, as well as in the state of Jammu and Kashmir, has been identified but the interest of the downstream state under the framework of the IWT must be recognized in order to maintain cooperation in the sharing of Indus water. Moreover, the ecological sensitivity of the Himalayan region must be considered before carrying out hydropower projects, as it comes under a high seismic earthquake zone.

On the ground, where Kashmir valley was flooded in 2014, the worst in the past 60 years, scientists, experts and research institutes have delineated multiple causal effects. For instance, New Delhi based research institute Centre for Science and Environment, director general Sunita Narain, linked it to the combination of unprecedented and intense rain, mismanagement, unplanned urbanization and lack of preparedness. Further, Narain added that the floods were a manifestation of an extreme weather event linked to climate change (The Hindu, 2014a). Y.V.N. Krishna, director of the Indian Institute of Remote Sensing, connected the flooding in Kashmir Valley to ‘man-made mistakes’ as there has been illegal occupation on Dal Lake (The Hindu, 2014b). Thakkar (2014) from South Asia Network on Dams, River and People, also underlined multiple factors, which include institutional failure of the Indian Meteorological Department, the Central Water Commission and the State Department of Irrigation and Flood Control. However a ‘major intervention’ that has caused unprecedented destruction is the increasing construction of a series of hydro projects along the rivers of Jhelum and Chenab. The large scale construction of power projects on these two rivers increases the risk of flooding as several projects involve the construction of dams, water storage, tunnels, blasting, diversion of rivers, deforestation, construction of roads and colonies, and mining of materials on a large scale, and dumping of millions of cubic metres of debris from each large project (Thakkar, 2014).

The unprecedented destruction in Kashmir Valley due to construction of hydropower facilities is what experts argue is nothing new. In fact, warnings were already made by Pakistani expert, Hussain (1988), when in 1987 India undertook the construction of the Wullar Barrage/Tubul Navigation Barrage (where the dispute is yet to be resolved). According to Hussain (1988), the construction of any size of dam is not suitable for the Wullar Lake site as it would inundate Srinagar and the Valley and because of this, during the negotiation of the IWT, Pakistan suggested to the World Bank restricted use by India of the water of the three Western Rivers. Moreover, it is also alleged that the strategic importance of the site lies in the fact that its possession provides India with a means to intimidate Pakistan, as a dam there has the potential to ruin the Triple Canals Project – namely, the Upper Jhelum Canal, the Upper Chenab Canal and the Lower Bari Doab Canal (Hussain, 1988, p. 2). But India decided to construct the Tubul Navigation project on the Wullar to regulate the flow of the water in Jhelum for navigation in the downstream as the flow of the Jhelum Rivers lowers from 4,000 cusecs to 2,000 cusecs during the winter season from October to February and also for the cultivation of Rabi crops (Thapliyal, 1999, p. 1625).

A well-known 19th century English poet, Tennyson once wrote, ‘humility’ is the ‘highest virtue, mother of them all’ (Tennyson, 2014, p. 279). If the Government of India at least gave a second thought or if a spirit of humility prevailed when Pakistan raised concern for carrying out the project on Jhelum
River, then such unprecedented destruction would not have occurred, as is evident in the current scenario. According to the Associated Chamber of Commerce and Industry of India (Assocham), in the wake of flooding, the ‘initial estimate loss’ to the state government stood over Rs. 5,400 crores (Rs. 54 billion ($10^9)) which includes trade, hotels, horticulture, roads, bridges, railways, power and communication (The Hindu, 2014c). In order to avoid such a catastrophe in the Indus river basin in the name of water sharing, both states need to remind themselves about the need for cooperation and strengthening the existing IWT.

8. Conclusion

Aided by the method of Erklarer and Verstehen, the analysis throughout this paper reveals that the fundamental factor contributing to why conflict reoccurs between India and Pakistan over Indus water despite the IWT is the ever increasing number of hydro-power projects constructed by upstream India coupled with its failure to share information in a timely manner when requested by Pakistan to do so.

It must be acknowledged that the treaty allowed India, with conditions, to carry out water-related projects on the Western Rivers. And therefore, government officials have avowed that India has the ‘right’ to carry out any water-related projects and does so in compliance with the treaty. Nevertheless, from the study above, the fact remains that India has violated the treaty on several occasions thus sowing the seeds of fear and distrust with Pakistan, its partner in the IWT.

Indeed, during the time of signing, neither party to the IWT anticipated that critical challenges affecting an amicable relationship in regard to water sharing would surface. These challenges include: increasing demand of water due to rapidly growing population, the ever increasing need for hydro-power energy, the impact of climate change on the sources of water, political posturing, and the quest for economic growth. And although the IWT has not specifically mentioned these challenges, it has clearly laid out a procedure of cooperation between the two countries in order to overcome them.

Article VII establishes a protocol that addresses the ‘future cooperation’. It states, ‘The two Parties recognize that they have a common interest in the optimum development of the Rivers, and to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent’ (IWT, 1960). The IWT has also shown a robust flexibility in order to meet the changing dynamic of the increasing demand of water. Article XII (3) clearly states, ‘The provision of this Treaty may from time to time be modified by a duly ratified treaty concluded for that purpose between the two Governments’ (IWT, 1960). The obvious way forward is for the riparian states to make the IWT work in an atmosphere of cooperation towards an equitable prosperity for all involved.

Thus, in the context of the Indus water conflict, researchers and policymakers, in order to achieve desired ends of maintaining cooperation on water sharing, must monitor and understand the social reality and thereby suggest the right mechanisms to address the challenges associated with sharing this vital resource. This process cannot be based on ‘hyper-nationalism’ and ‘jingoistic’ policy. In other words, without understanding the ground realities and the multiple and complex factors causing them, it will not be possible to prescribe valid and balanced policies to overcome the challenges that are surfacing on Indus water sharing.
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