

Water Security: Challenges of Transboundary Water Issues between Pakistan and India

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Abstract

Water security has a direct impact on human security. It is a multidimensional challenge with complex undertones, as water security is both an increasing concern as well as critical for sustainable development. This paper will analyse water security challenges between Pakistan and India in the background of the Indus Water Treaty (IWT). Mediated by the World Bank, IWT devised a mechanism for an equitable distribution of water between Pakistan and India. However, India has been building a number of dams under the garb of run-of-the-river hydroelectric projects, acquiring the capability to manipulate the flow of water. Unaddressed Pakistani complaints can become a serious source of conflict between India and Pakistan. This paper offers policy recommendations that can lead to an equitable sharing of water and lower the risk of any future conflict in an already fraught relationship between Pakistan and India.

Keywords: Indus Water Treaty, Water insecurity, Riparian politics, International Court of Arbitration, Run-of-the-river projects

Introduction

With the ever-increasing demand for water globally, many believe that water insecurity will become a cause of future wars.¹ In fact, the

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¹ Suzanne Goldenberg, "Why Global Water Shortages Pose Threat of Terror and War," *Guardian*, February 9, 2014, <http://www.theguardian.com/environment/2014/feb/09/global-water-shortages-threat-terror-war>

Water Security: Challenges of Transboundary Water Issues between Pakistan and India

demand for fresh water has already become a major issue for policy makers all around the world.

According to the UN Water (United Nations Inter-Agency mechanism on all fresh water related issues), water security is:

the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.²

A large proportion of world population today is facing water insecurity. According to a United Nations report, one sixth of the world population does not have adequate access to safe water and by the year 2025, half of the countries worldwide will face water stress or outright shortages.³ Climate change, through melting of glaciers, varying rainfall patterns and sudden temperature changes, exacerbates the problem of water insecurity.

The reduced access to fresh water has far reaching consequences like reduced food production, loss of livelihood options, and increased economic and geopolitical tensions, especially in volatile regions like South Asia. Water security problems are particularly severe in the regions where numerous major international river basins lie, and are subject to territorial disputes between various countries. The two countries which exemplify such problems in South Asia are the nuclear-armed neighbours, Pakistan and India. Groundwater is depleting at an alarming rate in both countries, with few feasible options to increase supply. The

² Harriet Bigas, "Water Security & the Global Water Agenda," *UN-Water Analytical Brief* (2013),

http://www.unwater.org/downloads/watersecurity_analyticalbrief.pdf

³ Margaret Chan et al., "Asia's Next Challenge: Securing the Region's Water Future," *Asia Society Leadership Report* (April 2009), <https://asiasociety.org/files/pdf/WaterSecurityReport.pdf>

problem is exacerbated due to poor water management and governance amidst changing demographics.⁴

However, there is considerable historical evidence to suggest that despite the complexity of the water-related issues, these can be handled diplomatically. According to the Food and Agriculture Organisation of the United Nations, more than 3,600 treaties related to international water resources have been concluded since 805 AD, the majority of which deal with navigation and boundary demarcation; however, over the last 50 years, focus has shifted towards the use, development, protection, and conservation of water resources.⁵ There are many examples where legal agreements on water issues between upper and lower riparian countries have been upheld, even though conflicts have persisted over other issues. Cambodia, Laos, Thailand, and Vietnam have been able to cooperate since 1957 within the framework of the Mekong River Commission, and they conducted technical exchanges throughout the Vietnam War. Israel and Jordan have held talks on sharing Jordan river since 1955, despite having less-than-cordial bilateral relations. A framework for sharing the Nile Basin between 10 countries was signed in 1999. The agreement aimed to spur economic development in the region through equitable sharing of water resources.⁶ Any analysis of these agreements will highlight two important elements of inter-state cooperation with regard to water-related issues: the need for effective institutions within a country to develop a process of engagement over time, and involvement of a third party trusted by all concerned parties.

This paper will discuss transboundary water issues between Pakistan

⁴ Gareth Price et al., "Attitudes to Water in South Asia," *Chatham House Report* (June 2014), https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20140627WaterSouthAsia.pdf

⁵ "Transboundary Waters," International Decade for Action 'Water for Life' 2005-2015," October 23, 2014, http://www.un.org/waterforlifedecade/transboundary_waters.shtml

⁶ Rongxing Guo, *Territorial Disputes and Conflict Management: The Art of Avoiding War* (New York: Routledge, 2011), 224.

and India and their mutual grievances with regards to the water sharing mechanism under the World Bank-backed Indus Water Treaty (IWT). The study will also show how a suitable joint framework can ultimately lead towards equitable sharing of water between Pakistan and India and lower the risk of any future conflict in an already fraught relationship between them.

Background

The Indus Basin system is the major water reservoir in the subcontinent. It comprises six major rivers: three western rivers (Indus, Jhelum and Chenab) and three eastern rivers (Sutlej, Beas and Ravi). It cuts across both Pakistan and India. Given the history of hostile relations between the two countries, any discussion about shared water between Pakistan and India has become increasingly associated with national security. The history of water sharing issues between the two countries can be traced back to the partition of British India in 1947 which led to the creation of two independent states, Pakistan and India. With partition arose the issue of Jammu and Kashmir, a disputed territory in northern India from where the Indus river system originates and passes through both countries. The British left the settlement of water issues to be resolved by the nascent governments of the two new independent states.

The partition in itself was a bloody event and led to the biggest migration of people ever seen, across the newly drawn boundaries.⁷ Furthermore, according to former World Bank Senior Water Advisor John Briscoe,⁸ the partition of India took place on religious grounds and no attention was given to hydrology. The geography of partition was done in such a way that headworks of the rivers entering Pakistan fell within the Indian territory. Thus India emerged as an upper riparian with

⁷ Crispin Bates, "The Hidden Story of Partition and Its Legacies," *BBC History*, March 3, 2011,

http://www.bbc.co.uk/history/british/modern/partition1947_01.shtml

⁸ Kar Lipschutzi, "Global Insider: The India-Pakistan Water Dispute," *World Politics Review*, June 10, 2010, <http://www.worldpoliticsreview.com/trend-lines/5756/global-insider-the-india-pakistan-water-dispute>

control over the canal headworks that supplied water to the province of Pakistani Punjab, once the breadbasket of British India and now a lower riparian. This left Pakistan with a feeling of water insecurity from the very beginning. Pakistan's fears were realised very early on when in 1948 India blocked the flow of Sutlej river into Pakistan, causing severe damage to Pakistan's agriculture. A provisional treaty, the Inter Dominion Accord, was signed between the two countries in May 1948 in which India dictated the conditions regarding the quantities of water and payments demanded for releasing water into Pakistan.⁹ This issue sowed seeds of further mistrust between the two countries which had already gone to war in the same year over Jammu and Kashmir. Many analysts in Pakistan now believe that this was a critical error on the part of the Pakistani government of the time as it set a precedent for India to violate international norms over discharge of water into international rivers.¹⁰

India, due to its location, size and adjoining borders with other South Asian countries, acts both as a lower and upper riparian state, and has been involved in conflict with most of its neighbours on water sharing issues. Apart from Pakistan, Bangladesh being lower riparian to India has also had serious reservations with regard to equitable sharing of water with India. The Ganges Water-Sharing Treaty (GWST) was signed between India and Bangladesh in 1996. Although the treaty resolved the dispute over Farakka barrage built on river Ganges, differences on Bangladesh's share of water during the lean period have persisted.¹¹ Another example is that of Nepal-India relations. Nepal is an upper riparian to India. The two countries signed the Mahakali Treaty in 1996,

⁹ S. M. Burke and Lawrence Ziring, *Pakistan's Foreign Policy: An Historical Analysis* (Karachi: Oxford University Press, 1990), 498.

¹⁰ Huma Baqai, "New Trends and Paradigm Shifts in Pakistan and Pakistan-India Relations: Pakistan and India's Perspective," *Journal of International Relations and Foreign Policy*, 1:1 (June 2013): 55-68, http://jirfp.com/journals/jirfp/Vol_1_No_1_June_2013/5.pdf

¹¹ Dhanasree Jayaram, "India-Bangladesh River Water Sharing: Politics over Cooperation," *International Policy Digest*, December 12, 2013, <http://www.internationalpolicydigest.org/2013/12/20/india-bangladesh-river-water-sharing-politics-cooperation/>

yet the tensions between them over water sharing continue to simmer, primarily on the part of the Nepalese who believe that the water treaties are biased in India's favour due to lack of transparency in decision making during the signing of the treaty.¹²

The IWT between Pakistan and India is different from other troublesome water sharing treaties signed between various countries of the South Asian region as it addresses specific water allocation issues and provides unique design requirements for dams to ensure the steady flow of water and generation of hydroelectricity.

Indus Water Treaty

India being the upper riparian state held a position of strength vis-à-vis Pakistan as it could at any time stop the flow of water coming into Pakistan. After the initial treaty of 1948, policy makers from both sides actively engaged to come up with a framework to reduce the risk of any future conflict between the two countries. As both countries were poor and underdeveloped, it was in their best interest to resolve the burgeoning water issue. Initially India was against any third party mediation, but when the World Bank indicated interest in helping the two South Asian neighbours solve their water dispute, India did not show much resistance. Eugene Black, the then President of the World Bank, played a key part in bringing out a meaningful resolution to the water crisis. Black's interest in resolving the Indo-Pak water dispute had stemmed from his realisation that it could act as a serious threat to the economic progress of the newly independent states.¹³ The World Bank allayed India's concerns by making it clear from the outset that it would not adjudicate the conflict, but only act as a moderator to bring about a suitable agreement. Pakistan was not happy with the stance taken by the World Bank, but as it was negotiating from a position of weakness it had no option but to agree to

¹² Santa B. Pun and Dwarika N. Dhungel, eds., *The Nepal-India Water Relationship: Challenges* (Washington DC: Springer Science & Business Media, 2009), 492.

¹³ Robert E. Asher and Edward S. Mason, eds., *The World Bank Since Bretton Woods* (Washington DC: Brookings Institution Press, 1973), 915.

this stance. The only positive for Pakistan was that at least the intervention by the World Bank into the matter had brought India to the negotiation table, which it was unwilling to do previously.

Yet, after nearly two years of intense negotiations, the two sides were nowhere close to finding an appropriate solution to the water sharing problem. It was then that the World Bank offered, in 1954, its own proposal going beyond the limited domain it had initially assigned to itself by forcing both sides to consider a tangible plan for the future use of the Indus Basin and its tributaries. According to the proposal, India was offered the control and use of three eastern tributaries: Ravi, Beas and Sutlej, whereas Pakistan was given the use of three western tributaries: Indus, Jhelum and Chenab. Storage reservoirs like canals and dams were to be constructed to divert water from the western rivers to replenish the eastern river water supply lost by Pakistan.¹⁴ The financing for the construction of the storage facilities which would transfer water from the western rivers to Pakistan was the major stumbling block, which hindered the signing of the agreement. To resolve the impasse, the World Bank came up with an external financing plan backed mainly by the United States and the United Kingdom. In 1960, after almost 10 years of tedious negotiations, both sides came to an agreement and the Indus Water treaty was signed by Pakistani President Ayub Khan and Indian Prime Minister Jawaharlal Nehru. Under the terms of the treaty, the water use of three eastern rivers, which comprised almost 20 per cent of all water in the Indus Basin, was given to India, and the use of the western rivers was allocated to Pakistan. Two further provisions were added regarding the allocation of limited water for consumptive use in Jammu and Kashmir, and allowance for India to use water from western rivers for hydropower generation.¹⁵

¹⁴ Arshad H. Abbasi, "Indus Water Treaty between India and Pakistan," *PILDAT* (2012), http://www.pildat.org/publications/publication/FP/IndusWaterTreatybetweenPakistanAndIndia_PakIndiaDialogueIII.pdf

¹⁵ Iram Khalid, "Transboundary Water Sharing Issues: A Case of South Asia," *Journal of Political Studies*, 1:2 (2010):79-96.

Water Security: Challenges of Transboundary Water Issues between Pakistan and India

A dispute-resolution mechanism was added to the IWT, which relied primarily on bilateral negotiations, but in case of failure a clear external mechanism was also provided to deal with any future disputes. According to Article IX of the treaty, a permanent Indus Commission was set up to deal with conflict resolution through inspection, exchange of data and visits through regular meetings, and in case of disagreement, a neutral expert would be called in for mediation and arbitration.¹⁶

The signing of the IWT can be seen as a watershed event in the history of water sharing between Pakistan and India, telling a tale of unique cooperation and recurrent conflicts over the interpretations of the water sharing that forms the foundation for this cooperation. According to Briscoe, the IWT is widely considered to be the most important water treaty in the world, and has endured despite more than five decades of hostility between India and Pakistan.¹⁷ The IWT offers a viable framework for resolving water disputes between Pakistan and India, and remained neutral in its overtones by neither upholding India's claim of exclusive rights over the rivers passing through its boundaries, nor Pakistan's demands for the restoration of pre partition *status quo* of unobstructed access to the waters of the rivers of the Indus Basin. The IWT therefore enjoys the support of governments, experts and civil society within and outside the South Asian region.¹⁸

Pakistan's Concerns

Pakistan is increasingly becoming a water-scarce country. There has been a depletion of its fresh water resources because of increasing population, which is growing at a rate of 1.6 per cent per annum, and

¹⁶ Shaheen Akhtar, "Emerging Challenges to Indus Waters Treaty: Issues of Compliance & Transboundary Impacts of Indian Hydroprojects on the Western Rivers," *Regional Studies*, vol. 28, no. 4 (Autumn 2010): 3-66.

¹⁷ Lipschutz, "Global Insider: The India-Pakistan Water Dispute."

¹⁸ Shafqat Kakakhel, "Reimagining the Indus Waters Treaty," *SciDev.Net*, September 1, 2014, <http://www.scidev.net/south-asia/governance/opinion/reimagining-the-indus-waters-treaty.html>

adverse climate variations like draught and erratic monsoon patterns.¹⁹ Pakistan's largely agrarian economy is dependent upon the Indus Basin and its tributaries. The Indus Basin emerges from Jammu and Kashmir, which is a disputed territory between Pakistan and India. In fact, the Jammu and Kashmir dispute and water dispute are interlinked. According to Pervez Musharraf, the former President of Pakistan, the Jammu and Kashmir dispute was primarily based on the distribution of the waters of the Indus and its tributaries between India and Pakistan and if one of the two were resolved, the other would not exist.²⁰ Being upper riparian, India is in much better position vis-à-vis Pakistan as it has complete control over the water resources, placing Pakistan in a very precarious situation.

The question of utilisation of water for hydropower generation and commercial irrigation in the disputed territory is a matter of great concern for Pakistan. Pakistani policymakers are concerned that India is not only fast building dams on the western rivers, it is simultaneously engaged in activities aimed at stopping Pakistan from building storage dams on these rivers by controlling the supply of water by filling water in its dams in clear violation of the IWT.²¹ Pakistan, which is a single basin country, relies heavily on the Indus Basin water to meet its domestic, agricultural and industrial needs. Indian projects on the rivers allocated to Pakistan including the Wullar Barrage, Baglihar and Kishenganga dams in Indian Occupied Kashmir have rung alarm bells in Pakistan. Pakistan's apprehensions arise out of increasing water scarcity in Pakistan as it is dependent on fresh water supply from the western rivers. Moreover, being a lower riparian country makes it vulnerable to increasing number of Indian water projects in Jammu and Kashmir. The IWT includes

¹⁹ Akhtar, "Emerging Challenges to Indus Waters Treaty: Issues of Compliance & Transboundary Impacts of Indian Hydroprojects on the Western Rivers."

²⁰ Pervez Musharraf, *In the Line of Fire: A Memoir* (New York: Simon and Schuster, 2006), 352.

²¹ Muhammad Rashid Khan, "Crucial Water Issues between Pakistan and India, CBMs, and the Role of Media," *South Asian Studies*, vol. 28, no. 1 (January-June 2013): 213-221.

Water Security: Challenges of Transboundary Water Issues between
Pakistan and India

provisions on a minimum supply of water, but it does not address the question of distribution of water, neither does it take into account demographic developments within each country which change the demand for water. Therefore, it puts Pakistan in a conundrum because while the IWT protected usage at the time of its signing, it does not safeguard each country's water interests in the future.

The IWT permits India to build run-of-the-river projects, which are small-scale hydroelectric projects that require no dam, reservoir or flooding to generate electricity – the natural flow and elevation of a river are used to create power,²² and almost all Indian reservoirs on the Indus, Chenab and Jhelum can be termed as run-of-the-river projects. But these projects can have serious repercussions for the downstream country. There have been apprehensions on the Pakistani side that these projects will let India acquire manipulative control over water flows into Pakistan, and, in the worst case scenario, store water in the dry season and release it in the wet season.²³ Briscoe believes that Pakistan does have a legitimate cause for concern, and, according to his estimates, if India is able to construct all of its planned projects, it could have the capacity of holding up nearly a month's worth of river flow during Pakistan's critical dry season which would be enough to ruin Pakistan's entire planting season.²⁴ This gives credence to Pakistan's fears that India could use the control of water supply as a weapon against Pakistan's agriculture heartland in the future, if it is able to complete all of its hydro projects in Jammu and Kashmir.

²² Andrew Williams, "Run-of-the-River Hydropower Goes With the Flow," *Renewable Energy World*, January 31, 2012, <http://www.renewableenergyworld.com/articles/print/rewna/volume-4/issue-1/hydropower/run-of-the-river-hydropower-goes-with-the-flow.html>

²³ Shahid Ahmad, "Water Insecurity: A Threat for Pakistan and India," *Atlantic Council Issue Brief* (October 1, 2012), <http://www.atlanticcouncil.org/publications/issue-briefs/water-insecurity-a-threat-for-pakistan-and-india>

²⁴ Lydia Polgreen and Sabrina Tavernise, "Water Dispute Increases India Pakistan Tensions," *New York Times*, July 20, 2010, www.nytimes.com/2010/07/21/world/asia/21kashmir.html?_r=0.

According to Pakistan's Commissioner for Indus Waters Mirza Asif Beg, Pakistan's objections to the run-of-the-river projects pertain to violations of the design criteria suggested in the IWT, and the storage projects the Indians are building on the western rivers. Pakistan would not object to reasonable justifications by the Indian side, but will never forgo its rights provided under the IWT.²⁵ Indian projects have also had adverse transboundary effects for Pakistan not only effecting its environment, but also decreasing its power generating capacity like in the case of planned Neelum-Jhelum hydropower project. The present demographic, economic and environmental challenges increase distrust between both countries, and escalate tensions which may lead to a war-like situation and threaten regional stability.

Pakistan has also been frustrated by the rulings of International Court of Arbitration (ICA), regarding the disputes over the design of Baglihar and Kishenganga dams. The overall design of the Baglihar dam being built by India on the Chenab was upheld by Professor Raymond Lafitte, the Neutral Expert (NE) appointed by the World Bank to consider Pakistan's objections to the Baglihar project in 2007.²⁶ The NE in his findings approved the project and found it to be compliant with the bylaws of the IWT, much to the chagrin of Pakistani authorities, which had severe reservations over the storage capacity of the project, which would hinder flow of water coming into Pakistan. In December 2013, the ICA allowed India to carry on with the construction of Kishenganga dam after Pakistan raised concerns regarding the diversion of the waters of river Neelum and the effect it would have on Pakistan's own hydroelectric project under construction downstream of river Neelum. The ICA, however, decided that India shall release a minimum flow of 9

²⁵ Nasir Jamal, "Sound Bytes: 'Scrapping the Water Treaty Is No Solution'," *Dawn*, October 3, 2014, <http://www.dawn.com/news/1135898>

²⁶ Salman Abduhu, "ICA's Verdict on Baglihar Dam is 'Bad'," *Nation*, March 22, 2015, <http://nation.com.pk/lahore/22-Mar-2015/ica-s-verdict-on-baglihar-dam-is-bad>

cusecs into the Neelum at all times.²⁷ These rulings by the ICA have severely harmed Pakistan and increased its water insecurity challenges in addition to providing cover to India to keep building numerous hydropower projects in Jammu and Kashmir.

Indian Viewpoint

The Indian argument has been that the IWT gives it the right to develop hydropower and water storage reservoirs on the western rivers of the Indus Basin. Moreover, India asserts, all the projects being carried out in the Indian Occupied Kashmir are based on the run-of-the-river hydroelectric plants, which will not change the course of the western rivers flowing into Pakistan, and that mass storage would not be undertaken. India also claims that no single completed or proposed Indian project on the three western rivers of the Indus Basin alone has the potential to significantly limit flows of water into Pakistan,²⁸ because, India argues, water flow in the western rivers is dependent upon melting of snow and rainfall, rather than diversion of water supply through its water reservoirs.²⁹

Moreover, Indian authorities maintain, with rapidly increasing population, water preservation is critical for India, and the hydro projects in Jammu and Kashmir, including the Kishenganga dam, are vital for energy generation to propel its growing economy. The Indian government is also working on new water management approaches like

²⁷ Gargi Parsai, "ICA Gives Go Ahead to Kishenganga Project," *Hindu*, December 22, 2013, <http://www.thehindu.com/news/national/ica-gives-go-ahead-to-kishenganga-project/article5486957.ece>

²⁸ Daanish Mustafa, "Hydropolitics in Pakistan's Indus Basin," *USIP Special Report 261* (November 2010), http://www.usip.org/sites/default/files/SR261%20-%20Hydropolitics_in_Pakistan's%20_Indus_Basin.pdf

²⁹ Sandeep Dikshit, "Pakistan for New Measures to Energise Indus Treaty," *Hindu*, March 13, 2010, <http://www.thehindu.com/todays-paper/tp-national/pakistan-for-new-measures-to-energise-indus-treaty/article728004.ece>

rainwater harvesting, basin management and efficient use of resources through community participation in decision making through decentralisation of power. India has been asserting that under the IWT, it can undertake projects on the western rivers for general conservation, flood control, irrigation and hydropower generation by informing Pakistani side before starting of any such projects.³⁰

US Viewpoint

According to a recent report by the US Congressional Research Service, the lack of fresh water in Pakistan due to increase in demand and drought has affected agricultural production and reduced the area of arable land, and has turned out to be a huge problem for a country with such a high population growth rate.³¹ Pakistan has one of the world's largest glacial reserves in its mountainous Northern Areas supplying fresh water to the Indus Basin, the world's largest irrigation system, but according to many UN reports these glaciers are melting at a rapid pace due to climate change and will affect the water resources of both Pakistan and India.³² Many US experts also argue that issues over water are increasing tensions between Pakistan and India, and American policy and foreign security interests could be threatened in the region by the nexus between security and environmental concerns in Pakistan. Another US Congressional Report, for example, argues that water issue when combined with the other socioeconomic and political stresses on

³⁰ Seema Sridhar, "Kashmir and Water: Conflict and Cooperation," *Swords and Ploughshares*, vol. XVI, no. 1 (Winter, 2007-2008), 26-29, https://www.ideals.illinois.edu/bitstream/handle/2142/15473/Kashmir_and_Water_Conflict_and_Cooperation.pdf?sequence=2

³¹ Claude Georges Pierre Rakisits, "Pakistan's Twin Interrelated Challenges: Economic Development and Security," *Australian Journal of International Affairs*, vol. 66, no. 2 (2012), 139-54.

³² Manish Vaidand & Tridivesh Singh Maini, "Indo-Pak Water Disputes: Time for Fresh Approaches," *Peace Prints: South Asian Journal of Peacebuilding*, vol. 4, no. 2 (Winter 2012), 1-14, http://wiscomp.org/pubn/wiscomp-peace-prints/4-2/Indo-Pak_Water_Disputes.pdf

Pakistan, has the potential to further weaken the Pakistani state. Human security issues affect Pakistan more than extremism and political infighting. And as Pakistan is quickly turning from a water-stressed nation to a water-scarce one, such a scenario would make it more difficult for the US to achieve its goal of neutralising terrorism in the region. The report notes that currently this major security issue is receiving little attention from Pakistani policy makers.³³

China's Viewpoint

China figures prominently in the water relations between Pakistan and India. In the Himalayas, China and India are competing for valuable hydropower and water resources on the Yarlung Tsangpo–Brahmaputra river.³⁴ This river is a 2,880 km transboundary river that originates in Tibet, China as the Yarlung Tsangpo, before flowing through northeast India as the Brahmaputra river and through Bangladesh as the Jamuna river.

During his recent visit of March 2015, the Chinese President Xi Jinping announced investment in construction of hydropower dams inside Pakistan as part of its US\$46 billion CPEC project.³⁵ Pakistan has also been holding discussions with China on larger projects – Diamar Bhasha, Bunji and Dasu dams. There is a serious resource competition between China and India relating to mass dam building and diversion plans. China is building multiple dams on all the major rivers running off the Tibetan

³³ Bruce Vaughn, Nicole T. Carter, Pervaze A. Sheikh, and Renée Johnson, “Security and the Environment in Pakistan,” *US Congressional Research Service Report* (August 3, 2010), <https://www.fas.org/sgp/crs/row/R41358.pdf>

³⁴ Palmo Tenzin, “China, India and Water across the Himalayas,” *The National Interest*, July 29, 2015, <http://nationalinterest.org/blog/the-buzz/what-could-start-war-between-india-china-13447>

³⁵ “Damned If You Do: China Avoids Involvement in Pakistan’s Contentious Hydropower Project,” *South China Morning Post*, April 24, 2015, <http://www.scmp.com/news/asia/south-asia/article/1774877/damned-if-you-do-china-avoids-involvement-pakistans-contentious>

plateau, and thus is likely to emerge as the ultimate controller of water for nearly 40% of the world's population.³⁶

China, has rejected the 1997 UN Watercourse Convention (which lays down rules on shared water resources to establish an international water law), and believes in absolute territorial sovereignty over the waters within its borders. On the upper Mekong, China has already built four dams. These dams are being constructed without the approval of downstream neighbours, including the 60 million people in Cambodia and Vietnam who fear these barriers will block fish migration and deprive them of fertile silt for their rice fields.³⁷ According to Indian geopolitical analyst Brahma Chellaney, China-India disputes have shifted from land to water, and water is the new divide and is going centre stage in politics. India is in the weaker position because half of its water comes directly from China. However, both Pakistan and Bangladesh are fearful of resultant Indian plans for water diversions and hydropower generation. Despite Indian concerns, chances of a water war are very slim, as numerous facts indicate Chinese activities won't impact river flow. Chinese dams have been confirmed as run-of-the-river and China has also discarded plans for river diversion due to high economic costs and environmental risks.³⁸

China has so far not built any significant hydropower project on the Indus due to the scarce population and greater distance of Western Tibet from the Chinese economic heartland, rendering it less beneficial. Thus the flow of water to downstream Pakistan is not hampered. On the other

³⁶ John Vidal, "China and India 'water grab' dams put ecology of Himalayas in danger," *Guardian*, August 10, 2013, <http://www.theguardian.com/global-development/2013/aug/10/china-india-water-grab-dams-himalayas-danger>

³⁷ Fred Pearce, "A Global Treaty on Rivers: Key to True Water Security," *Environment* 360, November 19, 2012, http://e360.yale.edu/feature/a_global_treaty_on_rivers_key_to_true_water_security/2594/

³⁸ Vidal, "China and India 'water Grab'Dams put Ecology of Himalayas in Danger."

hand, China is building major dams on the Brahmaputra that has higher hydropower potential for China, thus hampering the flow of water to downstream India and eventually Bangladesh.³⁹ This may increase chances of conflict between the two countries and, according to Saalman, India is already preparing for the possibility of a two front war against China and Pakistan.⁴⁰

Conclusion and Policy Recommendations

The IWT should not be viewed as division of waters as was the case of division of land during the partition of 1947, but rather as a mode of cooperation on water sharing. The IWT has proved to be an outstanding example of cooperation between Pakistan and India over the past five decades, and it seems to moderate the worst impulses of both countries toward each other, and perhaps therein lies its greatest strength.⁴¹ However, due to growing water scarcity on both sides of the border, the IWT is coming under increased strain. Increasing Pakistani needs and the continuing building of hydropower dams by India on the western rivers may further threaten the Treaty, which has no exist strategy. Water issue is a core issue between the two countries because, firstly, it is related to the disputed Jammu and Kashmir issue, and secondly, Pakistan is dependent on a single river basin, which its economy, agriculture and energy needs rely on.

Pakistan being a semi-arid country is facing severe water issues and loses significant amounts of water due to the lack of storage facilities as it has constructed no water storage reservoir on the Indus since the Tarbela dam was built in 1976. There is a need for adequate management of water supplies by Pakistan within its borders by starting work on the

³⁹ Jesper Svensson, "Managing the Rise of a Hydro-Hegemon in Asia: China's Strategic Interests in the Yarlung-Tsangpo River," *IDSA Occasional Paper No. 23* (2012):1-50, http://www.idsa.in/occasionalpapers/ManagingtheRiseofaHydroHegemoninAsia_jsvensson_2012

⁴⁰ Lora Saalman, "Divergence, Similarity and Symmetry in Sino-India Threat Perceptions," *Journal of International Affairs*, 64:2 (2011): 169-94.

⁴¹ Daanish Mustafa, "Hydropolitics in Pakistan's Indus Basin."

stalled water storage projects like the Diamer-Bhasha, Dasu and Bunji dams, which would not only cater to its water needs but also improve its energy generation capacity.

Both Pakistan and India are poor managers of water, even though there is enough water in the Indus Basin to provide for the livelihoods of the people in both countries, provided that the water is managed efficiently and equitably. Water issues can lead to contribute towards a major conflict between both Pakistan and India, if an impartial framework is not formulated by both sides in the near future. Experiences across the globe like the Itaipu Hydel Project between Brazil and Paraguay show that in many situations, rather than causing a conflict, the need for water sharing can generate unexpected cooperation. The following recommendations can be used by the policy-makers on both sides to come up with a suitable resolution to the thorny issue of water sharing:

- The IWT's dispute resolution mechanism should be modernised according to the changing environmental and demographic realities on both sides of the border to bring it more in line with contemporary international watercourse law, which pertains to the use and conservation of all waters that cross international boundaries, including both surface and groundwater.
- There should be an institutional mechanism to exchange data regarding the hydrology of the current and planned projects on the shared rivers, especially the flow data to ensure equitable sharing of water.
- Both countries should use the platform of South Asian Association for Regional Cooperation (SAARC) on issues like water management and agricultural growth with emphasis on greater interaction and cooperation between member countries to seek water management solutions through joint hydropower projects and energy swaps between the countries.
- Strong political will should be demonstrated by both sides to make joint management of the Indus Basin possible without politicising the issue.

Water Security: Challenges of Transboundary Water Issues between
Pakistan and India

- A Regional Centre for Water Management should be set up to ensure efficient use of available water resources. Both India and Pakistan should send their researchers to the Centre to study and deliberate on water issues.
- Water issue should be separated from other outstanding issues between the two countries, and the resolution of water disputes should be made a top priority in any future confidence building measures.

It is high time that India ended its high-handed upper riparian politics, and instead put its efforts towards engaging Pakistan for an integrated Indus Basin management system, as both countries stand to lose enormously from conflict that could arise out of water disputes. Water sharing demands policies of consensus and compromise; therefore, steps ought to be taken towards a new approach to water security, one that focuses on the need for cooperative management of shared natural resources rather than confrontation.