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RESEARCH PAPER

Pakistan's Trans-boundary Water-sharing Issues with India: An Expert View

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ABSTRACT

Pakistan and India share a complex history of trans-boundary water-sharing issues, particularly concerning the Indus River Basin. This research aims to present an expert view on the critical aspects of water availability, water sharing among provinces within Pakistan, and the development of water resources in the context of the Indus River Basin. Utilizing a qualitative research approach, open-ended structured interviews were conducted with Pakistani experts in the fields of water resource management, hydro politics, trans-boundary water governance, water policy, and the its impacts of on water sharing resources among the provinces. The objective is to gain valuable insights into the challenges faced by Pakistan in managing its trans-boundary water issues with India, and to identify potential solutions for equitable and sustainable water allocation and development. The findings provide an in-depth understanding of the complexities surrounding the water-sharing dilemma between the two nations and offer recommendations for effective water resource management and cooperation to address this pressing issue. The study's outcomes are significant for policymakers and stakeholders, serving as a basis for informed decision-making and fostering collaboration between Pakistan and India in managing their shared water resources more efficiently and harmoniously.

Keywords: Climate Change, Dams, Indus Water Treaty, Water Scarcity

Introduction

Water sharing issue takes birth when water is not equally and equitably distributed to one and all. In the case of Pakistan, the water sharing issue is not new to Pakistan as the country is facing this problem since its independence. Pakistan has a stressed economy with rapid growth of population, inadequate utilization of resources, ineffective policy implementation, poor utilization of natural resources and most importantly water scarcity. Rapid growth in population is not the only factor of water scarcity in Pakistan. Reduction in the snow in the areas of Himalayas with quickly melting glaciers results in lower quantum of annual snowmelts that ultimately causes the reduction of water in the Indus River System. Further, this overall reduction of water leads to the scarcity of water for both drinking and agricultural purposes. As Pakistan is an agrarian country in which only 54.4 million acres is under cultivation either through rain or by irrigation out of 77.1 million acres. It means, the remaining 22.6 million acres agrarian lands are still unused because of the lack of water reservoirs. Since its independence, Pakistan has developed a huge irrigation network of water management in the country. In this water management network, multipurpose dams are three, barrages are ninteen, link canals are twelve and independent main canal commands are forty five but imbalance between the demand and supply has created unhealthy competition of scare water resources leading to the environmental degradation and decrease in groundwater level.

In Pakistan, Indus River Basin system is the only single water resource to fulfill the water related needs. According to the United Nations Development Programe, Pakistan is a

water stress state as water availability has reached to 1,090 m3 per capita per year(Memon, 2002). Over the last decades, Pakistan is suffering from severe waters shortage. UN's Food and Agricultural Organization (FAO) measured the water resources in Pakistan by computing the total water departure as a fraction of Total Renewable Water Resources (TRWR). If TRWR value is above 25 %, the stress is considered to be high. According to FAO, in the neighbouring states of Pakistan, India is facing 43% pressure and Afganistan is facing 31% pressure but, compared to its neighbours, Pakistan is facing 74% pressure. United Nations has continuously been warning Pakistan about the worsening water situation in the country especially, according to the UN, the water deficit will be around 100 km3/year by 2025, that is nearly two-thirds of the whole Indus River system's existing annual average flow (Iqbal, 2010).

Since its inception, Pakistan is facing water sharing issue with its two eastern western bordering states; India and Afghanistan respectively. The concern over here is that India is not only controlling the water flow by constructing almost 16 to 17 dams on Jhelum and Chenab respectively but also supporting Afghanistan in various water projects on the tributaries of Kabul River that flow into Pakistan. Pakistan's economy, agriculture and household will suffer badly (Khan, et. al. 2022; Tariq et al., 2020).

Literature Review

The year 1947 did not only witness the partition of the sub-continent but also a division of the Indus Basin into many princely states and provinces. Indus Basin ranges from some areas of Balochistan, Indian units of Punjab before partition, NWFP (presently known as Khyber Pakhtunkhwa-KP Province), Sindh, Bahawalpur states, Khairpur, Jammu and Kashmir to the mountainous parts towards north and east of the previous Punjab province. Indus Basin also includes parts of China and Afghanistan (Akhtar & Iqbal, 2017). Just like the irrigation system, canals, railway lines, roads infrastructure and other systems were completely spread in the whole India and the newly freed country Pakistan was so much a part of these systems that it was almost impossible to divide the things and entities equally among the two countries (Afzal, et al. 2020). Keeping in view the gravity of the situation, the colonial Government of India of that time took it quite important to form a Partition Committee and an Arbitral Tribunal to resolve all the clashes coming out of the regional partition. The committee and the tribunal started working on the fair distribution of water and soon it reached an estimation that all the clashes must have been settled and permanently resolved by March 31, 1948 (Khalid, 2010).

When the the Sub-Continent got its long awaited freedom, the line of control was drawn across Punjab with the much advanced irrigation system. Sir (Later Lord) Cyril Radcliff, Chairman of the Boundary Commission mentioned in his award: "I think I am entitled to assume with confidence that any agreements as to the sharing of water from these canals or otherwise will be respected by whatever government hereafter assumes jurisdiction over the headwork concerned."

In 1947, the sub-continent was divided into two states Pakistan and India. The unjust demarcation of boundery lines raised the water controversy amid Pakistan and India. The line amid Pakistan and India was drawn regardless of natural irrigation boundaries and the origins of Beas, Chenab, Jhelum, Ravi and Sutlej rivers. India being upper riparian state, misused its position by cutting off the water supply of Sutlej River to Pakistan in April, 1948. India insisted that Pakistan should accept the right of India over the Indus Basin water. This attitude of India imprints deep effects on Pakistan's agriculture sector (Ranjan, 2012). As Pakistan was an agrarian state and could not survive without water, this situation was not acceptable for Pakistan as almost two million acres' productive land was badly dependent on water for its productivity. India asked Pakistan to enter into a treaty after being recognized as the upper riparian state and getting its right over the flow of river water. In May 4, 1948, Pakistan signed a pro India Inter-Dominion Accord, according to which, India

would discharge an adequate quantity of river water in exchange of yearly payments. Soon, India started violating this treaty and shut off the water discharge from Ferozpur headworks to the Dipalpur Canal. This situation created further mistrust between the two rival states. Pakistan raised its voice on international forums who wree already well aware of the growing tension between the two countries (Salik, 2015; RIVER, 2018). So, the World Bank intervened as a mediator and a long series of negotiations started in 1952. Finally, on September 19, 1960, the IWT was locked between Indo-Pak with the cooperation of the World Bank. The procedural role in settlng down the water sharing conflict between Pakistan and India had also been played by the World Bank(Khan & Rashid, 2020).

This treaty contains 12 articles. It was signed by Field Marshal Muhammad Ayub Khan - Pakistan's President, Mr. Jawaharlal Nehru - India's Prime Minister and Mr.W.A Iliff - representative of the World Bank. Three tributaries in the West which were Indus, Jhelum and Chenab were given to Pakistan while three tributaries which were Ravi, Beas and Sutlej were allotted to India. According to article II of IWT, Pakistan has full right over the western rivers, which constitutes 75% of the whole flow of the water. However, India can use the water of western rivers under specified conditions. The article III of IWT empowered India by allowing it to use the water of western rivers for the internal use, non-consumptive use, cultivation, production of hydro-electric power and for storing work. Under article VI, both countries regularly interchange data of flow of rivers, canals and streams. The Article VIII calls both the parties to establish permanent Indus Water Commission to resolve the water sharing disputes. The article IX sets out the procedure for the settlement of the differences and dispute. This article also declares that disputes between them would be resolved through International Court of Justices. (Treaty, 1960; Miner et al., 2009)

After signing IWT, Pakistan constructed Mangla and Tarbela Dams, five Barrages and 8 inter river links canal. Western rivers also supplemented already exiting 6 barrages and 35 canals. By misusing the article III of IWT, India violated this treaty by constructing and designing various projects, dams and hydro-electric powers on Western River, as

- Indian has designed 11 projects, 24 are under active consideration on Chenab
- 19 projects are ready to implement and 74 power potential schemes are identified on Jhelum
- 9 projects are under construction on Indus

The 240MW Uri-II Hydro Power project on Jehlum River, 330-MW Kishanganga project, 450-MW Baglihar Hydropower project on Chenab River and Dulhasti Hydropower project 9000 acre feet storage capacity and construction of Wuler barrage are mega project initiated by India(Nabeel 2013). These projects are initiated without informing Pakistan. However these projects did not divert the water but hold the water for 25 - 26 days. It can reason for severe scarcity of water in Mangla Dam, which ultimately causes the shortage of water for irrigation and electricity shortage.

Alongside this, these dams make immense impact on the general social and monetary structure of Azad Jammu Kashmir and GB. *Pakistan had objected the construction of the Kishanganga project earlier this year, arguing it would adversely affect 133,209 hectares of agricultural land in Azad Jammu and Kashmir* Regardless of Pakistan's protests, the Indian government has been effective in finishing the Baghlihar Dam, having a 474m tallness and water pondage limit of 37.5 million cubic meters. The powerhouse will deliver the water through a nullah into the Wullar Lake. Pakistan has been opposing the project on account of its adverse effects for Pakistan's own hydroelectric project in Azad Kashmir on the Neelum-Jhelum River.

Another projects named the Sawalkot and Chutak. Sawalkat project is situated in Doda and Udhampur districts of occupied Kashmir. The most crucial and the biggest of the

five dams is the Sawalkot project with a capacity of 1,200 MW. The Sawalkot dam would be highly vulnerable to earthquake being in the seismic zone of Kashmir Himalayas which could be an environmental disaster for Pakistan as the lower riparian. Chutak project is under construction on River Suru. In case any of these dams collapse or large quantity of water is deliberately released, it will not only endanger our proposed Bhasha dam but also submerge Skardu city and airport(Dandekar & Mehta,2010).

Pakistan also asked India for sharing the transparent data of hydro projects but inadequate data supply by the India further create environment of tension. Due to socio-economic, Pakistan and India both can be categorized in the list of third world countries(Wolf & Newton, 2008; Kokab & Nawaz, 2013). Need of the time is to resolve their hydral issue through mutual cooperation

Material and Methods

Current research based on qualitative research. Under qualitative approach**,** the technique open-ended structured interview were utilized to fulfil the current study's research aims. Total of nine open-ended structured interviews with Pakistani experts in hydro politics, water resource management, transboundary water governance, water policy issues, and climate change and its impacts on water resources (both official and non-official) were conducted, with four conducted via Zoom/WhatsApp and five conducted in person. Purposive and snowball sampling were used to make contact with the interviewees .As a result, a diverse variety of personal and professional experiences with Pakistan's water issue emerged. They were hand-picked for their knowledge of water management in Pakistan and how it relates to the issue.

Discussion

The participants believe in that Indus Water Treaty (IWT) hurts water sharing in Pakistan (A. Islam, personal communication, August 2, 2021). It allowed India to have maximum rights of the eastern rivers. These eastern rives are the part of Indus basin system in Pakistan. The volume of water these rivers receive each year is considered as a significant contribution to the total available water for the whole irrigation system in Pakistan. Due to IWT, the availability of water for the country's irrigation system has declined which has ultimately hurt the sharing of water among the provinces. India often abruptly releases the water downstream which causes serious damages not only to the structures but also to the flood plains in Pakistan (W, Sikandar, personal communication, May 4, 2021).

The reason is that there was no agreement upon water sharing formula between the provinces before IWT. The Treaty, however, ensured waters of the Western Rivers to the provinces of West Pakistan. Before that, India had cut the water of Eastern Rivers and the area irrigated by them in Pakistan had suffered badly. The two countries were at the brink of Water War which has been averted by the IWT. However, huge sums of money and time were taken to store and divert the Western Rivers water through dams and link canals to canals of Eastern Rivers in Pakistan (I, Offical, personal communication, August 10, 2021). The some of the participant have the opinion, only Lahore Division of Punjab is affected by IWT. Although efforts were made to transfer the western waters to eastern rivers. Even then, Lahore Division is badly affected. Thanks to ground water that provinces are not much affected due to IWT (R. Iqbal, personal communication, June 19, 2021). T

The mechanism for sharing the water resources among provinces was developed long after the Indus Treaty therefore, impacts of IWT on water resources availability and sharing mechanism have already been incorporated (I. Ahmad, personal communication, August 10, 2021). But some contradicts the notion, they have the opinion that chronologically, the treaty was signed before the signing of the WAA. So, this proposition is not true in my opinion (A. Chaudhry, personal communication, August 2, 2021). After Indus Water treaty, massive water resources development took place in Pakistan to spread the

available water across the country. WAA was signed in 1991, only when cropping intensity exceeded 60%. So, the answer is no (B. Fatima, personal communication, August 7, 2021). "Not exactly. Although Indus water treaty was a compulsion but, after the treaty, we at least have water resources and those are distributed among the provinces" (M, Irshad, personal communication, August 12, 2021). IWT has nothing to do with inter-provinces water sharing. Rather, it determines the water availability for the country. Only issue could be the timings (G. Offcial, personal communication, May 4, 2021).

Finding

- The Indus Water Treaty (IWT) has sparked debates among water experts regarding its impact on water sharing in Pakistan. One major point of agreement is that the treaty granted India maximum rights over the eastern rivers, leading to a decline in water availability for irrigation and affecting overall water resources in Pakistan.

- Another issue highlighted is India's abrupt release of water downstream, which has caused significant damages to structures and flood plains in Pakistan. This further complicates water sharing and management between the two countries.

- Before the IWT, there was no consensus on a water sharing formula among the provinces in Pakistan. The treaty ensured water from the Western Rivers for the provinces of West Pakistan, preventing a potential water war. However, substantial investments were required to store and divert water, leading some to argue that only the Lahore Division of Punjab is adversely affected by the IWT.

- Participants disagree on the chronology of the treaty and the signing of the Water Accord Agreement (WAA). Some claim that the impacts were not taken into account, while others argue that significant water resources development occurred after the IWT, and the WAA was signed considering the treaty's effects.

- Despite its drawbacks, some participants acknowledge that the IWT has provided at least some water resources for Pakistan, distributed among the provinces. They believe that the main issue lies in the timing of water releases rather than inter-provincial water sharing.

Conclusion

Pakistan has called for a review of the Indus Waters Treaty due to several reasons. One of the main concerns is the impact of climate change on the availability of water resources in the region. With changing weather patterns and the melting of glaciers, there is a risk that water scarcity may become a more significant issue in the future. As such , Pakistan has argued that the treaty needs to be revised to ensure that it is more responsive to the changing circumstances and can provide a more equitable distribution of water resources. Another reason for the call for a review is related to the growing demand for water in both countries.

Another reason for the call for a review is related to the growing demand for water in both countries. As populations grow, there is increasing pressure on water resources, particularly in urban areas. Pakistan has argued that the treaty needs to be revised to ensure that it can address these changing needs and provide a more sustainable approach to water management.

There are concerns about the lack of cooperation between the two countries in implementing the treaty. Pakistan has argued that India has not provided sufficient data on

the flow of water in the rivers, which has made it difficult for Pakistan to plan and manage its water resources effectively. As such, Pakistan has called for a review of the treaty to ensure that both countries are complying with their obligations and are working together to manage water resources effectively.

The renewal or review of Indus Water Treaty is critical for promotion stability and economic development in the region. It requires ongoing dialogue and cooperation between India and Pakistan and a commitment to finding sustainable solution that can address the changing needs of both countries in the face of climate change and growing demand of water.

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