Pakistan-India Water Conflict: A Causal Analysis

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| ARTICLE DETAILS | ABSTRACT |
|-----------------|----------|
| **History:**    | This exploratory research aims to explore and access the factors which are involved in Pakistan’s water conflict with India and how they are challenging the political existence of Pakistan. As human survival and economic progression are profoundly and directly linked with its accessibility and usability of it. Water is becoming a source of growing distress among nations around the globe. But in this research paper, the water conflict discussed is between the two neighboring nuclear-armed nations (India and Pakistan) with fraught relationships, who have fought three wars, and deeply doubt each other. Both the countries signed a trilateral water treaty with the collaboration of the World Bank in 1961. Though the treaty is usually presented among the few successful examples of water treaties in the world, it is facing threats for the last two decades. This study recommends that government must consider the warning issued by the UN in 2013 regarding the water crisis, Pakistan will face in the coming decade. Government must focus on the timely completion of mega dams and must take all necessary steps required to minimize the domestic and commercial water loses on war footings. |
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| Indus Water Treaty, Inter-State, Intra-State, Pakistan, India, World Bank | © 2021 The Authors, Published by WUM. This is an Open Access Article under the Creative Common Attribution Non Commercial 4.0 |

1. Introduction

“Water, like religion and ideology, has the power to move millions of people. Since the very birth of human civilization, people have moved to settle close to it. People write, sing and dance about it. People fight over it. All people, everywhere and every day, need it” (Mikhail Gorbachev)

Water is becoming a source of growing distress among nations around the globe. Whether it’s the African countries for water rights over the river Nile, or it’s the issue of the river Jordan between Israel and Jordan. Yet these words of Gorbachev are nowhere as true as in the case of Indus river basin states in South Asia. This densely populated region of the world, mainly dependent on agriculture has unfortunately faced critical challenges in water management
and proper river basin management which resulted in a severe water crisis. Both underground, as well as surface water, is bearing this crisis. However, there are even more complexities involved in managing surface water. As river basin is the ultimate resource of maximum water, for domestic use, industry, agriculture, hydro-power projects and receptors of most of the wastewater (Habib, 2016).

2. Literature Review

Strategic analysts have been warning for years, that future conflicts would probably be over one of the fundamental necessities of existence itself like water. According to the World Water Development Report issued by United Nations in 2002, there were 507 conflictive events over water during the last half a century. Around thirty-seven resulted in violence out of which 21 lead to a military conflict. A Series of standoffs in South Asia in the last almost two decades also suggests that these predictions are now turning into a bitter reality, with worrying implications for peace not only in this region but also in the entire world. Both India and Pakistan are water stressed countries and desperately need water; to sustain existing works, facilitate the irrigation potential in the Indus basin, to progress socio-economically. Although Pakistan and India share this sprightly ancient cultural hub of the Indus basin for centuries. Here more than 25 million people reside, but the region has shown the lowest indicators of human development in the world in recent years. Indus Basin water plays a crucial role in the livelihood of the people and nourishes the agricultural breadbaskets of both countries. Yet it has special importance for Pakistan because Pakistan is the world’s largest water stressed nation after china with the least storage capacity. (Qureshi, 2011) Secondly, the Indus river basin is the only basin, which provides water to Pakistan throughout the year, whereas India has some other options like Ganga-Jamna, Brahmaputra, Cauvery System, etc. Pakistan has been warned by the UN, that it is among those states of the world whose political existence has serious threats due to water shortage in the coming decade (Khan, 2016; Afzal, Yaseen & Muzaffar, 2020).

According to the experts, the availability of freshwater per capita seems alarming. Therefore, the urgent political and economic focus in the field of water resources, distribution and management is required on war footings. There are many interstate and intra-state factors that are responsible for the prevailing conditions. However, there are few that neither fall under intra-state, nor under inter-state, yet they have important implications and cannot be underestimated or ignored. Let’s discuss them one by one.

2.1. Inter-State Factors

Since independence, Pakistan and India remained in conflict with each other on most issues including water. Due to many irregularities in the partition plan of the subcontinent by the British, India got the crucial advantage due to its location on the upper riparian over Pakistan which has a downstream riparian location. Along with this all the water tributaries coming to Pakistan have their origin in Indian areas which always remained the source of uncertainty in Pakistan.

India and Pakistan signed a trilateral Indus Water Treaty (IWT) in 1960 in collaboration with the World Bank after long negotiations, extended over eight years. IWT provided a framework to resolve the water issue between both countries (Lyre, 2002). The treaty gave full control of the eastern rivers to India, whereas the control of three western rivers was given to Pakistan. The treaty survived three wars and many minor conflicts between the two volatile neighbors and is usually presented as the successful model of water treaties in the
world (Abbasi, 2011). Yet the water issue is a continuous source of tension between both countries. Let’s discuss them one by one.

### 2.2. Agriculture Needs

Irrigation is significant to an agrarian economy in the basin. The largest infrastructural project, Indus Basin Irrigation System (IBIS) is contributing up to 21% of Pakistan's GDP. Irrigated agriculture is providing 90% of wheat and small grains, almost 100% of rice, sugarcane, cotton, vegetables and fruits along with meat, milk, and fuelwood to the whole of Pakistan. In Punjab and Sindh irrigation was outstretched under British rule (Mustafa, 2010). The most effective developmental plans evolved along the Indus and the Sutlej rivers, which includes the development of irrigation canals and supporting infrastructure on all these rivers by each province. This meant that the works were mainly focused on the western areas of the Punjab province using the Sutlej River. Partition in 1947 divided the province of Punjab between India (East Punjab) and Pakistan (West Punjab), and the province's irrigation with headworks (structures controlling water flow) in upstream India, and the dependent canals in downstream Pakistan. This unfair and biased partition plan made Pakistan handicapped and the geographical location of Pakistan was left with the Indus river basin, as the ‘only water option’ for the needs of an entire country. Whereas, India has a number of other river systems, like the Ganges-Jumna system or the Cauvery River. Secondly, the agricultural outputs of Pakistan (chief economic income) are heavily dependent upon irrigated agriculture in the Punjab and Sindh directly dependent on the Indus river basin. As Iliff 1961 pointed out, “If Pakistan was deprived of her canal water from the Indus system, the whole of West Pakistan would become a desert” (Iliff, 1961).

### 2.3. Trust Deficit

History of the uneasy relationship leads to trust deficiency among both nations. According to Pakistan, they have every reason to be worried due to multiple reasons. The suspension of water for 18 days by the provincial government of Indian Punjab in March 1948 (just one year after independence) seized Pakistan’s perception as evidence of an Indian yearning to dominate Pakistan. Although the supply was resumed later and it was named a bureaucratic mix-up by the Indian authorities, in Pakistan, the bitter memory lingers. This brief episode of the suspension of water supplies alarmed Pakistan that India can use water as a weapon against Pakistan at any time under any critical circumstances.

### 2.4. Dam on River Kabul by Indian Investment:

The Kabul river is a potential source of hydropower for both Afghanistan and Pakistan (KPK). As it is one of the most developed rivers it joins the Indus river later. Around 23% of Afghanistan's population lives in the Kabul river basin. On Pakistan’s side, the river is a crucial irrigation source in the distant and mountainous areas of Pakistan’s KPK province. India has completed the feasibility and detailed engineering of 12 hydro-power projects with the help of Afghan authorities on the Kabul river. Completion of these 12 projects will affect the three major canal systems of KPK by squeezing the flow of water reaching Pakistan as these projects have the capacity of storing 4.7 million acre feet of water (AQUASTAT Survey, 2011). The three systems irrigate around 72,000 acres of land in Pakistan. According to the chief engineer (the K.P.K Irrigation Department) Mujahid Saeed, Pakistan will suffer the most if Kabul constructs dams and irrigation projects over the common rivers. It would further reduce Pakistan’s storage capacity which is already just 30-days.

### 2.5. Different Interpretations of IWT by Both Sides
Treaty provisions resulted in cross-border disputes as it provides room for multiple interpretations. So on a number of occasions, experts from both sides interpreted the different clauses of the IWT according to their national interests.

2.6. Baglihar Dam

In the government of Pakistan in 2005, for the first time in the treaty’s history raised the arbitration clause on the design of the Baglihar dam. Pakistan’s objections to the Baglihar were primarily the technical specifications of the run-of-the-river project that is, a river project without any storage dam. Pakistan's view was that India was trying to construct a dam on the Chenab River, whose rights belong to Pakistan under the rules drawn by the IWT. The dispute was a demonstration of the two different interpretations of a treaty by the engineers of both countries. The fact is that Islamabad’s technical objections to Baglihar projects are related to security apprehension, such as the potential ability of India to impound water during the dry months of winter or the excessive release of water during summer high-flow months to cause damage or flooding Pakistan. Though, World Bank appointed an expert, gave a binding decision in 2007 on the Baglihar dispute and addressed the valid and essential Pakistani concerns by restricting India to change the design objected by Pakistan (Siyad, 2005).

2.7. Kishenganga Dam

Although the Kishenganga dam is legitimate under the IWT, however, the concerns over the timely release of water and its construction design remained there. Pakistan expressed a great concern that water flow can be and will be manipulated by India during the critical planting months if it will be permitted to have the drainage at the very base of the dam flow. According to the water experts, Pakistan has a valid and legitimate reason for its concern. As the real issue is timing, if India chooses a crucial time to fill its dams, it has the potential to ruin Pakistan’s cultivation season. According to a survey report “if India builds all its planned projects, it could have the capacity of holding up about a month’s worth of river flow during Pakistan’s critical dry season, enough to wreck an entire planting season” (AQUASTAT Survey, 2011).

3. Limitations of IWT

Treaty provisions resulted in cross-border disputes as it provides room for interpretations. The Treaty is unable to elaborate on how the water burden would be shared by both the countries during the dry months when water availability reduces to almost half because India’s water quota is determined in the Treaty on a volumic basis. Additionally, the Treaty does not cover the issue of transboundary extraction of groundwater. It also remained unable to answer the environmental issues and their effects on Pakistan’s access and rights to the rivers along with the downstream environmental flows of the eastern rivers.

Secondly, The IWT was a trilateral treaty and was prepared and signed in an atmosphere of substantial mutual suspicion. Mainly in the context of Pakistan’s suspicion about upper riparian India’s ability and intentions to deprive Pakistan of its rightful share of water. IWT was negotiated by the nationalist engineers, and the treaty did not concern itself with more contemporary principles of equitable sharing of water between riparians. The treaty mirrored the political landscape of the time by just dividing the basin between the two countries simply instead of providing the framework for meaningful cooperative management and sharing. As mentioned in IWT, Pakistan was given the rights to three western rivers and India got the three western rivers. Secondly, India was allowed to have limited access to western rivers for
agriculture and electricity-generation projects. Most of the conflicts have been caused by this particular provision given by the IWT to India in the last two decades. Thirdly, the limitations on movable gates structures which have a tendency and prone to manipulation of the storage upstream of Pakistan in any project on the three western rivers of the Indus basin.

3.1. Harsh Rhetoric

Though the Treaty remained unharmed during two Indo-Pak wars, along with many military standoffs it has been noticed on a number of occasions, that Hindu nationalist governments always took it as an opportunity to give tough time to Pakistan without engaging themselves directly in a military conflict. Delhi has announced that they would resume work on a big dam on the river Jhelum, and will consider all other options to maximize the use of water for agriculture and power generation projects (Shah, 2016). During the Indian elections campaigned in 2019, Modi's threats to ‘turn the Pakistani taps off’ sent alarm bells for Islamabad. He proclaimed, that Delhi will explore all options to “exploit to the maximum” at any cost. On the other hand, Islamabad has warned that any effort to abduct the Treaty would not be tolerated and it would be considered “an aggression or an act of war” against them. According to Pakistan’s former Prime Minister Nawaz Sharif’s advisor, Islamabad would approach the UN and the International Court of Justice, if New Delhi will unilaterally abrogate the Treaty. "Pakistan will not accept Indian aggression in any form, and any Indian step for disrupting water flow as an upper riparian state will pertain to considerable risk of war and hostilities".

This is not the first time that Pakistan has faced such harsh and provoking rhetoric from the Indian side. After the attack on the Indian parliament in December 2001 by unknown terrorists, Delhi blamed Pakistan for the attacks and threatened Pakistan that it would unilaterally revoke the Indus Waters Treaty, although there is no exit clause in the IWT.

The survival of IWT is a clear indication of the country's commitment to the Treaty, despite irresponsible statements made by senior decision makers and conjectures in the electronic and print media. Yet the experience from the Indus basin, raised many questions that whether such public statements for a domestic audience are a true indication of a country's intentions to go into violent conflict over shared waters or whether it is just 'a rhetorical public speech'? Whatever the case is it is an undeniable fact that such rhetoric always created an uneasy stressful and uncertain situation for the other side.

3.2. Intra-Sate Factors

The water issue is such a complex phenomenon that it must be unfair to blame the inter-state factors for the complexity as there are multiple internal or intra-state factors involved as well. Let’s discuss them one by one.

3.3. Inter-Provincial Conflicts

In Pakistan and India interprovincial water disputes continue over the division and share of water based on sharing the burden of water scarcity. In Pakistan, the conflict among the provinces over the distribution of water of the Indus Rivers dates back to the mid-nineteenth century with the beginning of the canal construction in Punjab by the British government. The first ever significant interprovincial water distribution treaty was signed in 1945 between upper riparian Punjab and the downstream Sindh. However, Sindh has blamed later, that it is not receiving its allocated share. On the other hand, Punjab has its reservations concerning the accuracy of the data regarding water losses between the barrages of Sindh. A similar
dispute has been faced by the Sindh and the Baluchistan, as on Khirther canal Baluchistan is a lower riparian state of the Sindh. Due to inadequate infrastructure for irrigation, the Baluchistan province is deprived of using its entitled share.

To tackle this situation an agreement named “Pakistan Water Accord” was signed in 1991 but no clear water entitlements were determined in that Accord for special areas, including Capital City Islamabad, Gilgit-Baltistan, FATA and Azad Jammu and Kashmir. In the future, there is a fair chance that these areas would also claim water allocations, due to the rise in water demand by the growing population for economic development.

3.4. Growing Population Needs

The demand for stable water supplies has immensely increased in both densely populated countries, India and Pakistan. The rapid increase in population has stressed not only the water supply for domestic purposes, but also created a serious crisis for power generation, industrial production and irrigation (all of which require their supply). Per capita water availability during the period 1990-2015 fell from 2,172 to 1,306 cubic meters per inhabitant (Qureshi, et al., 2003). Pakistan extracts almost 75 percent of its freshwater annually, thereby exerting tremendous pressure on renewable water resources. Yet 27 million Pakistanis do not have access to safe water and approximately 39,000 children under the five years’ age die from diarrhea due to unsafe drinking water every year (Artaza, 2017). If the prevailing water crisis will continue without any improvement in the existing water infrastructure and the development of alternative water resources, Pakistan would be at high risk of competing for water with the industrial sector and with domestic demand.

3.5. Poor On-Farm Water Management

The key insight presented by many reports is that major water problems in Pakistan resulted mainly due to poor distribution and management of water, but that the consequences of management failures are accentuated, both materially and politically, by international and sub national hydro politics. According to many reports the basin has still enough water for a long time, to support the livelihoods of its residents if it is properly planned, efficiently managed and distributed equitably. More importantly, additional water can be planned, not only through storage but also through intersectional transfers.

According to the water experts the ‘overall irrigation efficiency’ has a potential to be increased up to 55% in a similar system which is currently 41.5 % as waterways are not proficient means for irrigation and lose almost half of the water through transportation like evaporation, leakage, seepage and poor infrastructure (Qureshi, 2011).

3.6. Groundwater Extraction and Impact on Livelihood

South Asia being the water stressed region of the world is famous for pumping underground water to overcome the water shortage for irrigation purposes. According to the estimates on every 2 and a half acres, India has planted an average of 12 to 14 tube wells whereas 3 to 5 tube wells are working in Pakistan on a similar piece of agricultural land. Overall, there are approximately one million tube wells out of which 13 % are functioning through electricity and around 87 % are energized by diesel (Qureshi, 2011). The decrease in the use of electric tube wells is due to high electricity rates. Pakistan has been going through a severe energy crisis for last more than a decade and is unable to meet the growing energy demand on the other hand farmers have no other option but to use diesel operated tube wells due to high electricity rates, voltage fluctuation, consecutive load shedding and power failure.
Although diesel prices are comparatively much lesser when compared with petrol yet diesel prices have substantially increased in recent years and affordability become difficult for the farmers. On the other hand, excessive groundwater pumping has raised major sustainable concerns.

3.7. Nationalist Politics of Water and Lack of Storage Capacity

Pakistan being one of the world’s top water scarce countries is desperately in need to build more water storage. Internally, a significant amount of water loss is due to insufficient storage facilities. Generally, it is a normal practice by the responsible authorities for water management in Pakistan to blame India for the ongoing severe water and energy crisis faced by the masses in Pakistan for last more than a decade. No major dam has been built since 1976 on the ‘Indus Main’ after the Tarbella Dam became fully operational. According to the ex-chairman of IRSA, Muhammad Raqeeb Khan, Pakistan stores just 13% of the total flow of the Indus (145 million acre feet) – enough to last 30 days. Which is extremely low when compared to India’s storage capacity of 120 to 220 days, Egypt’s 1,000 days and the US’s storage capacity of 900 days. In Pakistan, the available per capita water storage capacity is 144 m$^3$ per person, just slightly better than that of Ethiopia, which has comparable water storage through fewer resources (Hussain, 2015).

Serious reservations from three provinces out of four (Punjab in favor) made the construction of the Kalabagh dam impossible, however, the Diamer-Bhasha dam is in the process. An extensive infrastructure with link canals and more storage capacity is desperately required to replace the loss of its eastern river to India.

3.8. Environmental and Climatic Changes

Environmental and climatic changes have deeply affected and accelerated the water conflict, yet it neither falls in the inter-state or intra-state category. Kenneth Pomerantz, an environmental historian writes, “no other area of the world ‘combines the same scale of population, scarcity of rainfall, dependence on agriculture, the scope for mega-dam projects and vulnerability to climate change as those at stake within the greater Himalayan region’”.

According to the reports, global warming would act as a catalyst for water-conflict scenarios, with decreasing rainfall and increasing evaporation in some areas that have made the regular climate patterns erratic. Irregular phases of floods or droughts causing immense human suffering would further exert pressure on the governments for turning off the taps to their neighboring states. So the debate and context of cooperation over Himalayan Rivers have been transformed by the climatic and social changes. Previously in South Asian intergovernmental negotiations over water sharing assumed that rivers have constant and steady futures and traditional diplomacy was considered adequate for transboundary negotiations. However, these assumptions faced a heavy blow, as global warming affected the glacial melting and challenged the steady and constant flow of the rivers. Rapidly growing Chinese, Pakistani and Indian industrial economies will intensify river water demands from irrigation to hydroelectric projects in dry seasons. A wave of such projects in recent years in the region has raised many genuine concerns.

4. Conclusion

Today water stress is increasingly haunting the South Asian countries, particularly Pakistan and India. In the years ahead, climate change could exacerbate the regional water situation, although currently the glaciers in the western Himalayas (the source of the Indus river basin)
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are much stable and could indeed be growing, in contrast to the accelerated glacial thaw in the eastern Himalayas. Yet the South Asian countries sharing the Indus basin are facing difficult choices on water that demand greater water cooperation.

A balance between rights and obligations is at the heart of how to achieve harmonious, rules-based cooperation between co-riparian states of South Asia. In the Indus basin, however, there is little harmony or collaboration. An immediate collaboration with a transparent strategy is required to deal with this critical issue and the strategy must focus on providing solid opportunities and an effective roadmap to improve water management and water use efficiency by all the states within the Indus basin.

Serious and considerate efforts are required by both the countries to find out better ways to guarantee an adequate supply of water, with sophisticated storage facilities to minimize the water losses within its borders. Whereas India needs to avoid provocation of the anti-Pakistan sentiment which has become a popular fashion in the politics of Indian nationalists to cover their inability in managing water issue in its proper context and must seriously consider the genuine reservations of Pakistan on serious levels. On the other hand, Pakistan needs to resolve its inter-provincial differences and deal with its internal weaknesses carefully rather than just indulging itself in the blame game against India. To deal with all these issues inter country consultations on an urgent basis are required on war footings.

5. Recommendations

Following are a few of the recommendations for Pakistan to deal with this great challenge.

1. A public awareness campaign through electronic and print media along with the educational institutions can be helpful to educate the public that how to save fresh drinking water and how to minimize its losses domestically.

2. Pakistan has to take unpopular and bold decisions for the greater interest of the country. Building mega dams is the only option left for Pakistan to deal with the current situation and building dams would be a real challenge both politically and economically. So to achieve this task unconquerable political will would be required.

3. Pakistan must ensure the timely completion of all the water storage projects as delays are increasing the original cost many times as in the case of the Bhasha dam, which has cost Rs.132bn annually.

4. The government of Pakistan should timely and fairly compensate the people in an appropriate manner, whose lands would be used and people would be displaced for the construction of dams. Government must learn from the past experiences in the cases of Tarbella and Mangla dams, where many of the sufferers have not received the proper compensation even after many decades.

5. Government must discourage and minimize the cultivation of those crops which need more water step by step through public awareness campaigns on media as well as by fieldwork.

6. The government should involve non-controversial water experts, credible journalists, academicians and well reputed politicians from all provinces to develop a consensus for building new water reservoirs among all the federating units. Along with that Pakistan must figure out and strictly handle those elements who are involved in politicizing the mega projects, required for the stability of the country.
7. The government must stop the water corruption, strict rules should be made and implemented to ensure the fair distribution of water within the country and among the provinces. According to many reports, powerful elites are getting more share of the water for their agricultural lands and common farmers are deprived of their rightful share.

8. The government can save more water by improving ‘the overall irrigation proficiency’ which is currently 41.5% and according to experts it can be increased up to 55% in a similar system.

9. Climatic transformations and concerns regarding environmental issues are post-Treaty developments, so IWT needs modifications and up gradation to handle these more contemporary issues.

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