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# Water Management in Pakistan: Roots of Interprovincial Conflicts

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**ABSTRACT**

Increasing water scarcity over the years since independence has caused numerous controversies about water distribution mechanism in Pakistan among its federating units. Pakistan being a predominantly agrarian economy relies heavily on Indus River System where all its units share water of this system for irrigation purpose. Environmental changes, population increase and increase in industrial use of water has led to water scarcity on one hand, while this scarcity has contributed to increase of mutual distrust among the provinces on the question of Water Management System in Pakistan. This paper analyses the present Water Management System in Pakistan in the context of growing conflicts over water distribution mechanism and water apportionment formulae. It has been argued that the present water apportionment practices have failed to resolve issues and controversies surrounding water distribution and management and the situation demands fresh policy initiatives to control further damage in future.

**Keywords:** *Water, Scarcity, Apportionment, Federation, Disputes*

## Introduction

Water management in water scarce countries like Pakistan has become a very challenging task. Disputes over water apportionment, allegations of water theft from lower riparian on upper riparian regions and distrust on state institutions are the factors responsible for the further aggravation of the problem. All this needs serious academic efforts to develop an understanding into different aspects of the controversies surrounding water disputes in Pakistan. This paper is a contribution in this respect in the existing literature on water politics. The paper relies heavily on the existing debates that have so far been generated about water conflicts in Pakistan. The insight taken from various studies is utilized to suggest policy alternatives for dealing with water disputes. To achieve these objectives this paper is divided into three sections. The first section deals with the genesis and evolution of water disputes in the colonial and post-colonial era. The second section deals with a detailed discussion on the controversies surrounding water management practices.

The third section discusses various policy alternatives for the resolution of water conflicts in Pakistan.

**1: Historical Roots of Inter-Provincial Conflicts in Pakistan**

Interprovincial water conflicts in the North Western subcontinent are closely linked with the development of irrigation system during the British colonial rule. During the second half of the 19th century a number of canals and barrages were constructed in Punjab and Sind in order to convert the lands of this part of sub-continent into a fertile region for cash-crop production (Placeholder3; Palijo, 2011). Although a new feudal class emerged in the aforementioned region right after the 1857 war, where lands were distributed among the families loyal to British rule, yet this newly installed feudalism matured and consolidated with passage of time and caused the first ever conflict on water distribution only after 1st World War when the lower riparian Sind and its neighboring states and Upper Riparian Punjab clashed on water distribution where the former accused the later of stealing its share of water. The British government played the role of an arbiter to resolve this conflict. Thus, in 1921 the first major accord for water distribution was signed among Punjab, Baiknar and Bhawalpur states (Placeholder4; Memon, 2002). Since then time and again the water disputes emerged among states in the pre-partition as well as post partition period in the North Western Subcontinent. Following is a list of major accords and commissions till 1991, formed over the years to address the emerging conflicts and develop a consensual water management system in the region:(Hill, 2006)

a) The Tripartite Agreement (1921)

b) The Indus Discharge Committee (IDC) (1921)

c) Anderson Commission (1937)

d) Rao Commission (1945)

e) Indus Water Treaty (1960)

f) AkhtarHussain Commission (1968)

g) Chief Justices Commission (1977)

h) Water Apportionment Accord (1991)

**a) The Tripartite Agreement (1921)**

The Tripartite Agreement was concluded in 1921 for water sharing of Sutlej and Bias rivers. The three parties of the dispute were the province of Punjab and states of Bahawalpur and Bikaner, whereas the British government through its arbitration convinced the contesting parties to sign this agreement. This agreement settled the conflict for the time being.

**b) The Indus Discharge Committee (1921)**

A conflict emerged between Punjab and Sind, when Punjab submitted its proposal for building new water projects keeping in view its increased water demands. Sind contested these proposals. The issue was referred to the Secretary of State in London. The Secretary of State approved two major projects for Punjab i.e. Sutlej Valley Project and Sukker Barrage while handed over the matter to a committee called The Indus Discharge Committee for evaluation and feasibility of other

projects keeping in view the contesting claims of the two provinces. This committee engaged the local stakeholders, marked various points to observe the inflow and outflow of water in the two provinces, and recommended that any future water project in Punjab should be considered only after evaluating its impact on Sind. The Committee published its report in 1930(Hussain, 2002).

**c) Anderson Committee 1935**

The completion of Sutlej Valley Project in 1932 led to emergence of new conflicts in the region. Bahawalpur, Khairpur, Sind and Punjab started pressing hard for increase in their share of water. The government constituted a new committee in 1935 to address the emerging conflict known as the "Anderson Committee". Punjab, Bahawalpur, Bikaner, Khairpur states and Government of India were represented in this committee along with eight experts.In 1937 this committee submitted its report. The report suggested for increased irrigation supplies for Haveli and Thal projects as well as construction of Chashma Barrage and Thal Canal Project(Khalid & Begum, 2013).

**d) Rao Commission (1945)**

In 1941 Sind filed a complaint against Punjab for the latter's attempt to withdraw an increased volume of water from Haveli and Thal Canals. The government formed another commission to look into the matter. This commission, known as Rao Commission, submitted its report in 1942.This report was rejected by both the contending parties. The chief engineers of the two provinces after three years long process of negotiations were able to settle the issue of sharing of Indus and Punjab rivers in 1945(Khalid & Begum, 2013)

**e) Indus Water Treaty (IWT) 1960**

After partition of India in 1947, the intensity of water disputes shifted from intra-state to interstate level, where India and Pakistan were contesting their water rights against each other. The two states with the arbitration of World Bank were able to conclude a mutually agreed treaty in 1960. Although, this treaty settled the water conflicts between two hostile neighbors yet it became one of the determining factors in the post-treaty inter-provincial water conflicts in Pakistan as Pakistan lost its rights on three eastern rivers namely Sutlej, Bias and Ravi(Biswas, 1992).

**f) AkhtarHussain Committee (1968).**

Serious grievances emerged over inter-provincial water distribution in the post-IWT period as water shortage was observed in Sind Sagar and Chej Doabs. Increasing allegations of being deprived of their water share levied by lower riparian upon upper riparian compelled the government to form a committee under the leadership of AkhtarHussain in 1968 to probe and settle the issue. The committee submitted its report in 1970 but termination of One Unit, elections of 1970 and subsequent disintegration of Pakistan pushed Pakistan into a crisis of national integrity. Thus, the efforts of the committee remained inconclusive.

**g) Chief Justices Commission (1977)**

In 1977 another effort was made to resolve inter-provincial water conflicts by constituting a judicial commission. The commission was to be led by the Chief Justice of the Supreme Court of Pakistan whereas all the four chief justices of the

provincial high courts were its members. The geo-politics of the region shifted the attention of the government from water to regional security issues in 1980's and the report of this commission failed to bring any result.

**h) Water Apportionment Accord (WAA) 1991**

A major development in water management system of Pakistan occurred in 1991. The sharing of information by WAPDA with the Governors of all the four provinces and provincial governments as well as comprehensive negotiations among all the major stakeholders led to conclusion of Water Apportionment Accord(Siddique, 2003). Some of the important features of this accord are as follows:

- It ensures the protection of the existing utilization of canal water in each province.
- It was recognized by all the stakeholders that water scarcity is a challenge for all and there is a need of building new water storages.
- The issue of minimum sea escape below Kotri was also recognized. It recommended for further studies to avoid sea intrusion.
- Through this accord a uniform procedure for sharing shortages as well as surpluses among all the provinces was charted out.
- It was decided to establish an authority for the implementation of this accord. The authority would represent all the four provinces of Pakistan.

**2: Controversies Surrounding Present Water Management**

Although Water Apportionment Accord of 1991 was received with great hopes by all the stakeholders yet trust deficit among the provinces soon manifested in the post Accord period in various controversies and conflicts. It is pertinent to understand these controversies before moving on to suggesting policy alternatives for resolution of water conflicts. Some of the key issues surrounding water management are described as under:

**a. Trust deficit**

Pakistan's failure to evolve sustainable democratic and representative institutions has contributed to colonial legacy of trust deficit among the different stakeholders on various issues including water in present day Pakistan. This trust deficit has greatly hampered the state's ability to come up with a workable solution of water scarcity. The lower riparian had fear of being deprived of their rightful share by upper riparian. The evidence of presence and persistence of this distrust is reflected in the various allegations levied by Sind on Punjab as well as by Baluchistan on Sind. Sind alleges Punjab of water theft while Baluchistan accuses Sind of not giving its share from Guddu and Sukhar Barrages. As a counter strategy Punjab alleges Sind of not utilizing its proper utilization of the share of water which later receives. Punjab refers to 35MAF water wastage in Kotri downstream. The Sind considers this water escape as necessary for environmental protection in its coastal areas whereas Punjab demands for building of new dams and water reservoirs to stop this water escape into the ocean. Similarly, on the issue of Kala Bagh Dam the three smaller provinces refused to submit before the federal government and Punjab. Thus all this has aggravated water management issues in Pakistan and despite various

efforts the state machinery had so far been failing in bridging the gap among the federating units of Pakistan(Rajput, 2007).

### b. Controversies Surrounding Interpretation of Water Apportionment Accord 1991

Water Apportionment Accord was a major step towards resolution of water management problems in Pakistan, but when it came to interpreting the various articles of the accord a new Pandora box was opened by the contending stakeholders. Every province had been trying to interpret the clauses of this accord as per its own interests. The following debate covers some of the major controversies about the interpretation of this accord.

#### b.1: Construction of Additional Storages

The first major controversy emerged over the clause, of the 1991 Accord, that suggested for building of new water reservoirs in order to meet the water scarcity challenges in Pakistan in future. The federal government and Punjab claimed that this clause referred to building of new reservoirs on river Indus including Kalabagh, Basha and Skardu and others. Contrary to this claim of Punjab and federal government Sind and KP expressed not only their concerns on these projects but also passed resolution in their respective assemblies against these projects. KP objected in particular on Kalabagh dam arguing that it may lead to drowning of its cities like Nowshera and fertile lands of Mardan valley. Baluchistan and Sind supported KP's stance on Kalabagh dam. They were skeptic about Punjab's increased ability of withdrawing water from Indus river and may deprive the lower riparian of their rightful share of Indus waters. Though the federal government refuted these concerns of the smaller units yet the controversy is still persisting(Ahmad, 1993).

#### b.2: Fresh Water Escape to the Sea

Another important controversy that emerged in the post Accord period was differing claims on fresh water escape to the sea below Kotri barrage. Although it was agreed by all the parties that each unit would ensure optimum and efficient use of its share of water, yet Sind and Punjab emerged with contesting figures on water escape below Kotri barrage. Punjab claimed that the volume of this water is 35MAF whereas Sind asserted that it was not more than 10MAF(Magsi, 2012). The federal government and Punjab both failed in their efforts to settle this issue with Sind. It was suggested to conduct a study for measuring fresh water escape in ocean, but due to lack of consensus on terms of references of the procedure, this study could not be commissioned.

#### b.3: Disagreements on Water Shortage Sharing

Another important issue in water politics is the absence of a viable model for sharing the water shortages acceptable to all the four provinces. In the post 1991 Accord period Pakistan passed through a number of shortage periods. During the three episodes of shortage periods, in 1994-95, 1997-98 and 1999-2003, Sind and Punjab failed to develop an agreement on their share of water. Though in the Accord, Punjab agreed to surrender 2.7% of its pre Accord share, hoping it would be able to convince other provinces for building of new water storages, yet during the shortage period Punjab claimed its share on the pre-Accord formula. This led to development

of a new controversy. In 1994 a new agreement was signed by an inter-provincial ministerial body. This agreement re-established pre-Accord historical data for devising a water sharing formula. Sind termed it as a theft on its waters.

**b.4: Greater Thal Canal Project(GTCP) and its Surrounding Controversies**

Another controversial issue that became a source of contention during the past two decades among various federating units is that of construction of new canals in Punjab. Greater Thal Canal project with an objective to supply water from Indus to Thal desert like Jhang, Khushab, Bhakkar, layah and Muzaffargarh, Rainee-Thar Canal in Sind and Kachi Canal in Baluchistan as well as CRBLC in KP were objected by different stakeholders, where each canal is seen with suspicious eyes by other provinces except its own project. The most controversial among all these canals is that of Greater Thal Canal which is objected by Sind and Baluchistan. Although Punjab claimed that this canal will be fed by the excessive rain waters, Sind and Baluchistan alleged that this project will enable Punjab to steal Indus waters. Keeping in view these reservations Sind has already passed a unanimous resolution against the construction of this canal in its provincial assembly. Sind substantiated its argument by questioning the approval process of this project. It argued that due process was not followed by Punjab and the federal government in approving Greater Thal Canal Project and violated the Water Apportionment Accord in its letter and spirit that showed the ill intentions of the two(Rinaudo, 2001).

Punjab and federal government in their counter argument referred to the installation of an effective telemetry system to monitor water withdrawal for each canal as well as presented IRSA and Executive Committee of the National Economic Council's approval for the project. But all this failed to convince Sind government further leading to politicizing of the issue where mass protests were observed in Sind against this project (*Ibid*).

**b.4: Chashma-Jehlum link Canal Controversy**

The roots of interprovincial water conflicts and ineffective water management system could be traced into Pakistan's external water disputes. One such example is that of Chashma-Jehlum link Canal Controversy. As per Indus Water Treaty (1960) Southern Punjab was deprived of water supplies due to establishment of Indian rights on the eastern rivers. To tackle water shortfall in Southern Punjab two link canals were constructed; Chasma-Jehlum and Tounsa-Panjnad. These canals supplied water from Indus to Southern areas of Punjab. These canal were constructed without framing any operating rules. When Water Apportionment Accord of 1991 was concluded it gave birth to a new controversy. Mahmood narrates that(Mahmood, 2016):

*''In case of water shortage in tributary rivers i.e. Jhelum and Chenab there is a way to transfer surplus water in Indus to those areas through these link canals. However, if there is inadequate supply of water in Indus Zone and is surplus in Tributary Zone the reverse should follow. But we can't follow the reverse process in transfer of water through these link canals as the level of Indus Zone is higher than the Tributary Zone.''*

Water Apportionment Accord (1991) determined the water share of each province; where Indus Basin was divided into three zones i.e. the Indus Zone, Jehlum-Chenab

Zone and Tributary Zone. It was agreed that Indus Zone would draw water from Indus River only, Jhelum-Chenab Zone from Jhelum and Chenab rivers whereas Tributary Zone from both Indus and Jhelum Chenab rivers. Punjab claimed its right on Indus waters as per paragraph 14e of the accord whereas Sind declared it as misinterpretation and argued that Punjab could not withdraw water from Indus in times of water shortage in Sind. Thus this controversy on interpretation of the Accord has also led to serious water management and distribution issues among the two federating units that also has its implications for the third i.e. Baluchistan.

Along these controversies silting of existing water reservoirs Tarbela, Mangla and Chashma has further aggravated the problem. Losing water storage capacity, resistance to building of new reservoirs and environmental changes as well as continuous increase in water demands due to multiple factors like population growth, reliance on conventional irrigation techniques and industrial usage of water may have serious consequences for the stability and economic development of the state. All this demands a serious effort on the part of the federal government and federating units to reform the present water management system and keep water as topmost priority agenda on policy making. Serious academic research and all-inclusive debate is call of the day to timely resolve the issue. Next section offers some broader policy alternatives that could become a first step in addressing this issue and generate a discourse ultimately leading to resolution of the problem.

## 3. Policy Alternatives for Viable Resolution of Water Conflicts

Keeping in view the previous discussion it is pertinent to develop an all comprehensive approach for reforming water management practices and resolving water conflicts in Pakistan. Some of the recommendations are outlined below:

### a. Activating Council of Common Interest

In federal structures and multinational societies like Pakistan the role of such institutions which are representatives of all units is pivotal. Council of Common Interest in Pakistan is one such institution that could effectively provide a platform to all provinces for discussion and resolution of their mutual conflicts and settling down their misunderstandings. It is, therefore, pertinent to empower this institution and allow it to play a proactive role in resolving interprovincial water conflicts. Water management and distribution reforms coming from this body could only enjoy the trust of all stakeholders. Regular meetings of CCI must be ensured in order to tackle the issue seriously.

### b. Role of Senate

Along CCI the upper chamber of Parliament i.e. Senate also have a major role to play. Equal representation of all units in this house along its control on legislation allows it to screen out all major policy decisions. Its demand of the time to form special committees of Senate on water apportionment and management practices ensuring not only provincial but also party representations in all those committees. These committees may seek services of independent experts enjoying confidence of all stakeholders to propose a more legitimate water management system.

### c. Need of a Fresh Water Accord

Its need of the time to bring all the stake holders, CCI, Special Committee of Senate on one platform for negotiating a fresh and all comprehensive water accord. Special

courts or institutions may also be set up for interpretation of this accord consisting of water and legal experts. All issues including water apportionment, day to day management of water resources and building and feasibility of new water reservoirs may be discussed and decided in this new water accord and the verdict of special water arbitration could may stand final in case of any contesting claims among the contending parties. The long standing conflict between Sind and Punjab on water escape issue into Indian Ocean could only be resolved by such court while seeking assistance from independent expert studies.

**d. Improvement in Telemetry System**

Existing telemetry system to record water discharge at different canal heads has failed to win confidence of the federating units. WAPDA claimed to install a modern telemetry system in 2004 at barrages and canal heads but this new system also reflected flawed measurements leading to furthering of trust deficit on the federal government's initiatives for just distribution of water. Water measurement figures attained through this system showed huge differences of readings when compared with readings obtained through manual system. It is, therefore, pertinent to seek technical advice from international agencies and improve the present telemetry system. Only by introducing modern technologies can this issue be resolved.

**e. Water Conservation and Modernizing Irrigation System**

Present conventional irrigation practices are responsible for forty-five to fifty percent of water loss between canal heads and form gates. It is therefore important address to this issue of huge water losses. Effective public awareness campaigns are the need of time to sensitize people about water scarcity challenge as well as adoption of new technologies and training farmers to properly use these technologies in fields in the irrigation seasons could be the vital steps to stop water wastage practices.

**f. Improvement in Meteorological Department**

The efficiency of meteorological department has remained unsatisfactory throughout Pakistan's history. Failure in accurate weather forecasts as well as flood prediction has always pushed Pakistan into vulnerable status against these natural calamities. An improvement in meteorological department by equipping it with new technologies and experts can turn disasters like floods into blessing where Pakistan could store huge amount of water in rainy seasons for multiple uses in normal days.

**g. Improvement in Institutional Structure**

Effective regulatory frameworks are need of time for equitable water distribution and management. Both federal and provincial institutional structures need fundamental reforms and improvements. Only by initiating a wider reform agenda for integrated management of water in sectors such as agriculture, industry, mining, municipal, rural domestic supply and environment would Pakistan be able to address its future water management challenges.

## Conclusion

Keeping in view the historical legacy and evolution of water conflicts one can safely argue that the present water management system in Pakistan has greatly failed in addressing interprovincial water conflicts. A continuity with past would further

aggravate the problem and may become a challenge for the integrity of the state in future. It is, therefore, the right time to review and re-evaluate the conventional water management system and bring broader institutional reforms to restructure a new water management system to deal with the issues of interprovincial water conflicts as well as to address the water scarcity challenge due to environmental changes. The nature of issue demands multidisciplinary researches and dialogues as water, politics and identity have overlapping consequences and separating one from others could bring only flawed analysis. Some particular initiatives that may be helpful in this regard are suggested below:

1. IRSA needs to be restructured, empowered and more representative in its structure as well as decision making frameworks. It should be given directly under the supervision of CCI. Its budget should also be enhanced.
2. Basic infra-structure of canals should be improved in order to avoid water wastage in all the four provinces.
3. An alternative of large dams should be sorted out and policy may be devised to build smaller dams by creating a consensus among all stakeholders.
4. The Indus Basin Mathematical Model needs up-gradation.
5. Research Studies, Conferences and seminars dealing with water issues should be encouraged and funded as well as a university-policy link should be establish to engage all the stakeholders with academia working on water issues.

Past deadlocks and conflicts have proved the fact that only a fresh look at the present water management practices could resolve long standing water issues in Pakistan. It is demand of the time to take more serious and effective steps in this regard.

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