



POLITICS OF WATER: A STUDY INTO DAMS' CONTROVERSY IN PAKISTAN

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Abstract

Water is used for agriculture, industrial as well as domestic purposes throughout the world. Because of poor water management and increase in population, the demand for more water is also increasing. Therefore, it is projected that the future economic development of any state will be seriously affected by expected challenges like food, energy, and water shortages, particularly, if proper development, planning, and management policies are not implemented. To meet the water demand, various states are constructing reservoirs for water storage. However, construction of a reservoir might cause disagreement over water resources between the states and within the states. The state of Pakistan has insufficient water storage capacity and the demand for water is increasing, but construction of Dams has triggered various conflicts between the central and provincial administrations and amongst the provinces in the form of deep distrust.



This paper investigates the various water related controversies and develops a macro theoretical insight of the problem. The key objective of this article is to identify the root causes of the dams' controversy and recommend policy alternatives for resolving water conflicts in Pakistan. The study is qualitative in nature and relies dominantly on the secondary sources for argument development and substantiation.

Keywords: Dams, water scarcity, population, Federal government, Provinces, conflicts

Introduction

Dam disputes threaten national security interest throughout the world. These threats are aggravated by global climate change. Dam disputes happen when upper riparian regions cut short the quantity or quality of water flowing into the downstream regions. When upper riparian construct dams to irrigate fields, control floods, generate electricity or provide drinking water, low riparian often pay the price. While, the profit for upper riparian may be large, the antagonistic effects on low riparian and the political tension created by this construction of dams depict them to be a threat to national stability. Low riparian facing water scarcity is mainly visible to the effects of upstream dams. They become more vulnerable due to rapid growth of population with growing demand of water as more common extreme droughts and heat as well as unpredictable rainfall combines to decrease water availability. Arid and semi-arid river basins rendering to the Intergovernmental Panel on Climate Change are the region's most at risk for increase water stress in the coming few decades, and humid river basins are not far behind. (Intergovernmental Panel on Climate Change. "How Will Climate Change Affect the Balance of Water Demand and Water Availability.") Dams not only decline downriver flow, but also damage the water quality flowing from them. Further water storage reservoir surges the surface area of water, hastening evaporation to make river saltier. The higher salinity poisons aquatic organisms and can make water unusable for irrigation or drinking. (McCully) Affected low riparian have arguably reacted to the construction of dams because dams are a threat to their national security. They have publicly opposed the construction of dams in both global as well as regional settings, contributing to increasing tensions between countries and within countries. The aspects of these tensions differ with the geopolitical dynamics of each dam dispute. As climate change exacerbates water challenges worldwide, the power to withhold or permit water flow becomes a key lever of pressure for upstream country or province to exercise influence over their neighbors, and resolving interstate and intrastate dam disputes becomes an even more vigorous dimension of national security.



Around the world, particularly the developing world, dams and other water reservoir developments endure to be planned, built and functioned to encounter the requirements of human in every aspect. For many states, dams are a vital part of socio-economic development and, as such, they aim to gain noteworthy socio-economic development purposes. In world's utmost dry states, Pakistan is one of them, with an average rainfall of under 240mm a year (Qamar, 2006), is largely reliant on a yearly arrival into the Indus River System. Emerging climatic changes and change in rain patterns in Pakistan demands construction of new water reservoirs. Since decades, Pakistan failed in coping with these emerging challenges. This paper investigates into the root causes of politics of water in Pakistan with special reference to dams' controversy among the federating units. The paper is divided into five sections.

Water Availability and Demand in Pakistan

In the background of serious water crisis for the people, inter-provincial disagreements are taking place. Pakistan, once water-abundant, is now a water-stressed country. The growing inhabitants means per capita water accessibility has dropped intensely: from 5,000 m³/person in 1947 to 1,080 m³/person in 2010. (Pakistan Water Apportionment Accord for Resolving Inter-provincial Water Conflicts – Policy Issues and Options, 2010,) This makes the nation as water-stressed state. In 1991, withdrawal of the existing water was estimated for agrarian determinations 97 percent, and only around 2 percent for native usages and factories. (Water Resources and Fresh Water Ecosystem – Pakistan. Earth Trends Country Profiles, 2003b) State water availability status can be measured by four pointers specified in the subsequent Falkenmark indicator offers connection between available water and population. (Flakenmark, Macro-scale water scarcity requires micro scale approaches: aspects of vulnerability in semi-arid development. Natural Resources Forum., 1989) A water-stressed state is whose per capita water resources are less than 1700 m³. When water accessibility goes below 1000 m³ per capita, the state is water scarce, and when it decreases up to 500 m³/person, the state is a total-water shortage. Rendering to this pointer, during 2005, water scarcity line traversed by Pakistan and, if the condition lingers by 2025, the state will touch the complete water shortage line. (Ashraf., 2016.) Water Resources Vulnerability Index comparability yearly water accessibility with the entire yearly withdrawals (in percent). (Raskin, 1997) If yearly extractions are twenty to forty percent of the yearly water supply, the state is water scarce. If it surpasses forty percent, the state is supposed to be sternly shortage of water.

Water Storage Situation in Pakistan



Poor water storage capability is one of the significant causes of water scarcity in Pakistan. Per capita water storing capacity in Pakistan is very less as compare to further states. The Australia and USA per capita storage capacity is above 5000 m³, Egypt 2362 m³, China 2200 m³, Turkey 1402 m³, Iran 492 m³ whereas in our country store solitary 159 m³. For about 1000 days, on Nile River Aswan High dam has a storage capacity, South Africa Orange River 500 days, Colorado and Murray-Darling Rivers of 900 days, Pakistan only 30 days and India 320 days. (Qureshi, 2011) More than 89 MAF of water in 2010, 2012 and 2014 floods lost by Pakistan because of improper storage facilities also having overwhelming impacts on infrastructure, harvests, cattle and individuals. (Ashraf., 2016.) The current water storing volume of troika main reservoirs is fewer than ten percent of the average yearly influx, which is less than the world's average of forty percent. Because of sedimentation in the Pakistani reservoir, the current volume vanished at the rate of 0.2 MAF per year. Thirty five percent of their storage capacity in 2010 had already lost by the reservoirs. (Ashraf, 2012)

Furthermore, Pakistan has vast hydropower sources with an entire probability of about sixty thousand MW, at existing of which 95 percent would need to hydropower plants in addition of more than fifty MW. Closely 90 percent of the water sources endure harnessed. (Hydropower Resources of Pakistan , 2011) In the four northernmost provinces of Pakistan, most of this potential lies. There remains the petitioned location of Kalabagh, with 3,600 MW, which remains incomplete pact among federating units. The hydropower capability is mainly sited in northern region of state where mountainous terrain and huge waterways with flows determined by mutually monsoon rainfall, glaciers and snowmelt favor the potential for hydropower. In Sindh and Balochistan, there are no large hydropower projects, where the land is lower and flatter and the environment drier.

In summary, with a total installed capacity of 6,433 MW, there are 6 functioning huge hydropower plants. There are 43 large hydropower schemes under operation with an entire of 29,162 MW installed volume of which twenty-four would be situated in Khyber-Pakhtunkhwa with a volume of 11,715 MW; four in Punjab with 1,536 MW including 2 projects retrofitting hydropower into the Taunsa and Jinnah barrages; in Azad-Jammu and Kashmir 12 hydropower plants with a capacity of 4,321 MW and in Gilgit Baltistan (GB) three large schemes, with a total installed capacity of 11,680 MW. More, to these there are an entire of 31 locations where the hydropower potential has been recognized at an entire of 17,425 MW, but no possibility studies have been carried out. Of these, in KP 18 sites are located with a potential of 8,574 MW, in AJ & K 2 sites lie with 854 MW, and in GB 11 sites are located with a potential of 8,047 MW. So, adequate storage of water has been impressed upon as a matter of great national urgency. Dams in particular have seen a great deal of interest in Pakistan, but they all have a limited lifespan. The two largest Dams,



Tarbela and Mangla, are both approaching the end of their life. To date, there are reportedly 164 water storage facilities

(International Commission on Large Dams, Number of Dams by Country Members, www.icoldcigb.org/article/GB/world_register/general_synthesis/number-of-dams-by-country-members.) but these are sadly insufficient to deal with future challenges in water scarcity.

Provinces Opposition to Construction of Dams

The central debate on the construction of new dams is surrounded by many controversies where the federating units have emerged as key stakeholders in this debate. The provinces of Pakistan have very serious differences in the construction of dams and sharing of water resources. Also, in Pakistan water is a key cause of conflict, which is gaining serious magnitudes. As the state hit by scarcity of water, its provinces underway acting like a separated family. Once federal minister for water and power has detailed that Pakistan is greatly in essential of founding new dams in order to overwhelmed states energy issues and overwhelmed load shedding. (Government Desperate to Construct New Dams,, 2010) For the past numerous years, allegations and counter allegations have been a trademark of relation amid the federating units. Kalabagh Dam matter is a traditional instance of conflict amongst federating units about sharing of river's water. The building of this dam is the most contentious problems amongst four provinces of state.

1. Sindh's Standpoint

The utmost vocal opponent of the projects for many reasons is Sindh province because of its lower riparian position. The province felt fear that the KDB reservoir will divert the existing water and irrigate fields in the Punjab at the price of irrigating fields in Sindh. In addition to this they have reservation that construction of dams will further decrease the level of Indus water flow to the Arabian Sea, that is necessary in respect to stop saline water from abolishing seaside mangroves. A projected eighty five percent of the River Indus Delta mangroves, which are vital depositing grounds for fish has been vanished. (Indus River Delta-Arabian Sea Mangroves,, n.d.) In the lower riparian region of the Indus, if present water usage strategies continue, Sindh might be placed in thrilling hazard. Rendering to one professional, if the Vision-2025 is applied as prearranged, nearly no water will get by the lower basin. If the condition is not overturned rapidly and the reservoir and deviation upstream linger, it is not unbelievable to perceive a future environmental catastrophe in the lower basin, in Sindh that would finally generate a scarcity condition. (Altaf Memon, 2004.) Saline water interruption has been noticed as far



as 100 KM inland. Allegedly many villages in districts Thatta and Badin have had to dislocate to the interior of the country as saline water intrusion has reduced their grazing unfeasible. Increase sea level related with changing climate is expected to worsen this already terrible condition. (Altaf Memon, 2004.) Moreover, only in flood years extra water is available with excessive difference. The dams for example Kalabagh, Diamer Bhasha etc., will release a prodigious disorder to this province, for whatsoever extra water is accessible in periods of inundation will be stored in them.

From the KBD many canals have been projected earlier to take out. This again will irrigate the lands of Punjab and will hurt the share of Sindh. The construction of KBD's will affect Sindh Sailaba badly. Sindh protests for its water and blames KP and Punjab for use its share of water. It claims that as upper riparian provinces overuse the water, it does not receive due share, a charge deprived of by KP and Punjab. They say that Punjab and KP are heretical its lower riparian rights contrary to the decrees besides globally recognized practices and strategies. Usually, Sindh alleges high riparian of what it trusts to be stealing of water, somewhat than pointing finger at a real event of robbery. It says that because of its name (Darya-e-Sindh) the Indus River goes solely to it, and historical water rights of province (e.g., Sindh-Punjab Agreement of 1945). Therefore, it upholds that any event of diverting water from Indus River equal to robbery. Sindh grasps that the breach of its lower riparian rights has shaped an enormous water scarcity issue in area, consequential in annoying its financial and agrarian complications. Sindh says that if the circumstances is not overturned then it would ultimately outcome in scarcities and famines and many various problems will hit the province. Sindh's contend that in Punjab the yearly rainfall is 20 to 40 inches and in Sindh only 4 to 12 inches. Besides, in Punjab useable groundwater accessible is 2,500 MAF per year whereas in Sindh only 3 MAF per year.

On the other hand, in Sindh it would be incredible to do so. This displays that as compare to Punjab, Sindh is more dependent on river water yet Punjab lingers to distract Sindh's waters share. (A. Kazi, 1998) Sukkur barrage was built in 1932 and was the only barrage, before separation, on the Indus River. In the previous 60 years, on the Indus River System, there are now 19 barrages and 43 canal schemes with 48 off-takes, making world's major adjoining man-made system of 61,000 km of canals and 105,000 water passages, watering 35 million acres of area. Mangla on River Jhelum, Tarbela and Chashma on River Indus, with entire storing capacity of 20MAF were built. Furthermore, to divert water from western rivers to eastern rivers or the branches of the Indus River 12 link canals were constructed. Altogether of these building actions other than the 2 extra barrages Guddu Barrage and Kotri Barrage give rise to profit of Punjab. For its profound disbelief, Sindh cites the instance of natural water deficiency, when Sindh commotions for drinking water whereas Punjab crops record and plentiful harvests. It is the sturdiest adversary of the KBD



as it claims that: sediment dumped in the projected KBD would more restrain the water storing capacity of Manchar Lake and other lakes of swamps like Haleji Lake. The Kalabagh site is situated in an extremely seismic region close to a vigorous fault triggering the water reservoir to leak through cracks and release at the deepest point round the reservoir and the River Indus.

2. Punjab's Standpoint

Punjab entreats the potential of the KBD and emphasizes that the demanded 36 MAF water flow, which goes waste by dropping into the sea, could be used. By a storage reservoir, this wastage can be turned into an advantage wherefrom water would be transported to needy regions when they face water shortage. The KBD will support Pakistan pull itself off the power shortage problem, water issues, and inundation crises visiting on the individuals each year. The KBD storage would scarcely leave a little effect on Indus Delta. The intrusion of sea increased with humanoid commotion, plants and wildlife have adapted to the new regime. The biological circumstances have stabilized. At this time, though, Sindh's opinion looks validated, with accurate information, to a huge level. The world's sixth-largest delta, the fan-shaped Indus Delta, for the people of this province has been a cause of bread and butter and similarly has the 6th biggest mangrove woodland system. On this delta, prominent districts Thatta and Badin are located. Nevertheless, dams have construction has largely affected the Delta and has started shrinking. The Indus Delta disappearing, salinity begun intrusion to the basin which would strongly affect the ecosystem of the region. Though, Punjab endures pushing for more decline in freshwater amount unconstrained by Sindh from the River Indus to steady the situation – somewhat at which Sindh has continually complained. Punjab struggles that in case of water stealing or violation by any shareholder, Indus River System Authority should be adequately authorized to execute sanctions. The governing authority desires to be strengthened.

Further, Punjab is not ready to admit any allegation contrary to it by Sindh. Punjab argues that's likewise points out over 14 MAF water losses between Kotri and Sukkur barrages. Under the Indus Water Treaty, Taunsa-Panchnad and Chashma-Jehlum, canals were constructed and functioned which was signed by federal administration, not the Punjab. It additionally claimed that Mangla and Tarbela reservoir were constructed to offer water additional of three eastern rivers, which were given to India under the IWT. This impacted Punjab province 12 canals, which had a total capacity of 57,000 cusecs. Tarbela dam was constructed with a 4.2 MAF replacement constituent as Mangla dam could not meet their requirements. Two link canals were constructed and this water had to be transported to the Punjab. Therefore, the worldwide brokered and documented IWT sure their perpetual



process. Punjab wants additional water to maintain the rising demographic burdens and industrial as well as agrarian demands.

3. KP's Standpoint

The construction of KBD is strongly opposed by KP. Kala (Black in Urdu) for KP and Bagh (Garden in Urdu) for Punjab are eminent mottos for KBD. The major opposition to the dam is voiced by the KP where the dam will be built while the dam's power-producing turbines will be in Punjab region. Hydro-electric power will be generated by the dam. The usual process is claim for royalty for electricity production to go to the federating units. In KP, there is deep anxiety that the province will be deprived of the royalty due to the dam's site on the Punjab-KP border and due to the strategy to location the dam's turbines in Punjab. In KP the anxiety is not of lessened water supply, since the dam will be downriver, but of the physical and environmental effect of the dam itself on the adjacent regions. The rich arable areas would be flooded and large areas of the district Nowshera would be inundated. Dam construction will boost the groundwater table of the fertile land of Swabi, Mardan, Pabi, and Nowshera instigating the issue of waterlogging which will affect the export-making crops. It is assumed that momentous inundating of the said districts comprising the city of Peshawar would have been deteriorated in case of reoccurrence of 1929 inundation. KP does not have faith in the honesty of the central administration concerning its relocation strategies for the huge population who will be displaced for the dam construction. Almost the entire infrastructure in the KP would be strongly impacted. KP also upholds that the federating units' share in income of hydroelectric power produced in province is insufficient.

4. Balochistan's Standpoint

Among the three smaller provinces, Balochistan is one of them that have passed a resolution through their assembly's rejection of the construction of the Kalabagh dam. Furthermore, this project was also rejected by the province as it says that during discussion over this scheme their representative were not consulted. It believes that verdict on KBD along with other main problems starved of the emerging national pact are not acceptable as they will undermine national harmony. Moreover, the project rejects by their individuals as its people look at it as an additional sample of Punjab domination over small federating units. Unlawfully Punjab will divert water to their fields keeping other lands arid, therefore, they oppose the accomplishment of the dam. Their position is impartially vibrant; they want the location of the dam to be relocated from Mianwali district. Directly River Indus does not touch Balochistan; however, nearly 300,000 acres of area of Balochistan waters by the Pat Feeder Canal from Guddu Barrage. It is dreaded that, the Pat



Feeder Canal is part of scheme after reforming it, run of water into the said province will be decreased. People of Balochistan are hereafter opposing the building of KBD, as they assume an additional decline in their share of agrarian water, which is already pretty low.

Recommendations

There is the way out of the troubled situation. The central administration shall frame a strategy for the progress of hydropower and national water sources on a vital basis. Since in 1976 building of Tarbela, no main water reservoir has been built that has given rise to future scarcity situations. The administration shall examine the goal of building key water reservoirs credibly by emerging agreement amongst the federating units. Disdain its possibility the KBD has been politicized which desires to be depoliticized. So as to eliminate anxieties of federating units, related studies will be repeated by impartial international authorities acceptable to the opposite provinces administrations. Secondly, the 1991 Water Accord obviously describes water rights of federating units, until now disagreements as to its clarification and application do arise, particularly with respect to the building of new dams and sharing of deficits in the time of low water accessibilities. By guaranteeing the water rights of the federating units in accordance with the 1991 Water Agreement in its letter and spirit, this issue has to be resolved.

Additionally, rights of low riparian must be documented and proper actions shall be taken to guarantee the accessibility of due share of water to the lower riparian. Increasing the fitting of an automatic hydro telemetric system so that outflows, incursions, canal extractions, and water levels at entirely serious points of the IRS, are accessible to entire the federating units and the concerned federal agencies at all periods, for motives of clarity of operation, and to produce an atmosphere of common trust and understanding. Making of skirmish resolution mechanism for resolution of water problems at numerous levels is important. Moreover, institutional improvements are unavoidable for addressing the quarrelsome problems relating to the water sector in the country. For this determination, devolution of numerous functions of Water and Power Development Authority shall be shifted to the federating units. WAPDA's water wing shall endure doing all inter-provincial water-related activities for example project, building, and operation of huge storing reservoirs and hydel progress under an additional competent and dynamic administrative system. Additionally, with alteration of federating unit administration, irrigation sectors into independent bodies "Provincial Irrigation and Drainage Authorities" must accept further tasks by designing, building, and operating their own water systems. Such actions will make the schemes further effective and maintainable and the organizations additional answerable and answerable.



There are also numerous Acts, at the provincial and federal levels, which have been passed with time and again to cover the water-related performing requirements. For example, at the central level, there is the WAPDA Act 1958, IRSA Act 1992, and the Environmental Protection Act 1997. At the federating units' level, there is Punjab Irrigation Act 1873, KP Act 1873, Sindh Irrigation Act 1879, Balochistan Ordinance 1980, Punjab Soil Reclamation Act 1952, Water Users Association Ordinances 1981 and 1982, etc. These regulations were properly ratified to provide for specific circumstances extended over more than a century. There is now the requirement to assess, update, new provisions to cover the much-changed circumstances, and ground certainties. So, in order to advance, efficiency of the system with separate lines of accountability, certain elementary institutional developments are needed. A union of the following institutes will outcome in greater productivity: Office of Chief Engineering Advisor, Part of Planning Organization of WAPDA dealing with unified/complete development (not the Design Cell), Federal Flood Commission. Such institution could be named as "Federal Water Commission", and headquarter should be in Islamabad and report to Water and Power Ministry. To support the apex Federal Water Council, and execution of the national water policy and strategy for the whole secretariat work, the Federal Water Commission will be accountable. Integrated planning of water-related actions is necessary in the fields of drainage and irrigation and works funded by the central administration, in addition to inundation control and hydropower for best and fiscal usage of state water sources.

Monitoring activities relating to central government funded actions in irrigation, drainage, inundation, droughts and hydropower divisions, and supervision the use of water sources at the nationwide level, mainly in terms of sub-sector-wise prioritization. IRSA similarly desires to be authorized to execute substantial drawbacks for water stealing, and it should likewise be carried under the administrative control of the cabinet division. The rights of the smaller federating units should be honored. Utmost of altogether, there is a requirement to re-build the trust of shareholders in the communication and interaction procedure. As a way to take practical steps to mature the trust, the federal administration must address the objections of smaller provinces particularly their apprehension concerning the dislocation of the individuals. At last, a high level inter-provincial eternal body shall be shaped at the central level, consist of part-time members, to be answerable for whole water source problems. This climax body may be chosen as "Federal Water Council". The projected council would be comprised of concerned ministers/secretaries of central administrations, representatives of federating units and shareholders representatives as member and might be regulated preferably by the Prime Minister or his candidate.



Conclusion

This research paper finds that resources of water can cause serious conflicts between states and within states. The harness of water resources by any country through construction of various types of dams, irrigation canals, etc., could be perceived by the local people contrary to their interest. As an outcome, local powers in that specific region might be activated and begin challenging the activities of the country. In sponsoring financial progress, big dam building has fundamentally played a part. In the face of rapid growth of population, building of dams would have to be regarded as one of the finest existing choices to endure upcoming socioeconomic progress. So, large dams would be preferably located in areas that have maximum obtainable water resources and appropriate circumstances of geography for construction of dams. Generally, large dams' building is regarded as an operative way to deal with the fiscal progress issues in the predictable future. UNDP noted that "the input of large-scale infrastructure to human development should not be ignored". (Beyond Scarcity: Power, Poverty and the Global Water Crisis; , 2006)

So, in the case of Pakistan, amongst entirely the other current disagreements between the federating units and the central administration, the construction of dams faced opposition of the provinces. The undemocratic régimes made it further problematic to manage the KBD issue by generating a gap of interest and miscommunication between the federal government and the small federating units through disregarding their demand for provincial autonomy. The ethnic and local political parties in their respective provinces have further politicized the issue. A circumspect investigate the changing aspects of the dam's disagreement in the context of interprovincial skirmish has a record precluding this state since very birth, recommends that the distrust of little federating units has been based on several genuine reasons. Altogether these situations led towards a deadlock position and the actors' trust in the communication has significantly declined, the extraordinary water shortage rings death bells. It calls for inclusive national policies of water and strong leadership to beach the ship.



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