Hydro Power Politics in South Asia:

A Case Study of India-Pakistan Water Conflict

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ABSTRACT

Hydro Power Politics in South Asia:

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South Asia is geographically very important region of the world. There are two major states in the region, India and Pakistan. Both have different ideology, culture and religions. This study highlights that important regional changes in South Asia are taking place and directly effecting on Pakistan's internal and external situation. India and Pakistan have been in conflicting situation since independence. Both states have fought major three wars and the issue of Kashmir is a bone of contention. After the partition of the Subcontinent India stopped the water of Pakistan and water conflict started. Then World Bank interferes in the issue and resolved that conflict and signed Indus Basin Treaty. But after some time India again starts that problem of making dams on Pakistan's rivers which is the clear breach of treaty. Water conflicts have been intimately connected with other issues of a political, ethnic, identity-related or religious nature. And a new type of tension in Pakistan has been emerging because without water Pakistan's agricultural and energy sectors will destroy. The qualitative methodology, we used primary and secondary sources to analysis the outcome of that issue.

Keywords: Foreign Policy, World Bank, Indus Water Treaty, India Occupied Kashmir and International Court of Arbitration.

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List of Selected Acronyms and Abbreviations

AJ&K	Azad Jammu & Kashmir
AJK	Azad Jammu and Kashmir
CBDC	Central Bari Doab Canals
GDP	Gross Domestic Product
IBDF	Indus Basin Development Fund
IBRD	International Bank for Reconstruction and Development
ICA	International Court of Arbitration
ICJ	International Court of Justice
INR	Indian Rupee
IWT	Indus Water Treaty
KHEP	Kishanganga Hydro Electricity Project
KM	Kilo Meter
KPK	Khyber Pakhtunkhwa
LOC	Line of Control
MAF	Million Acre Feet
MW	Megawatt
SAARC	South Asian Association for Regional Cooperation
CENTO	The Central Treaty Organization
SEATO	Southeast Asia Treaty Organization
UN	United Nations
UNSC	United Nations Security Council
UBDC	Upper Bari Doab Canals
WAPDA	Water and Power Development Authority

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Introduction

Water is life and almost 71% area of the earth is surrounded by water. The South Asian region had been most of the time in political upheavals due to rival relationship between two major states of the region; India and Pakistan. Both the states are having nuclear weapons and both fought three major wars in 1948, 1965, and 1971, in addition to countless mini-border skirmishes of very serious nature on Line of Control (LOC). They also have at war in Kargil area in 1999. However, the main conflict between the two states had been revolving around disputed territory of Kashmir and water sharing since partition. When the British left the Subcontinent they distributed only territory, but no other assets like rivers. Since water is a major issue between both India and Pakistan. Over 300 million people of two countries depend on six main rivers. Three rivers flow through Jammu and Kashmir to India and then Pakistan. After partition India stopped that river's water because India wanted desertification of Pakistan. The situation turned worse and Pakistan has been fighting for its right which India was exploiting. The issue was resolved through a temporary agreement signed between both states with the arbitration of World Bank known as Indus Basin Treaty or Indus Water Treaty (IWT).

According to that agreement India will release sufficient water and in return Pakistan will pay its dues on annual basis. The World Bank made a permanent Indus committee to observe both the countries. Treaty divided six rivers, western rivers (Indus, Chenab, and Jhelum) allotted to Pakistan and eastern rivers (Beaus, Ravi and Sutlej) allotted to India. Although Pakistan in owning western rivers, but treaty allowed to India to construct projects that don't store water like hydroelectric projects. But eastern rivers were completely awarded to India. According to treaty both states will share data on project operations, extent of irrigated agriculture and so on. India is an upper riparian state and it can't build huge storages on western rivers. But Pakistan is lower riparian country and treaty relaxes to build dams on western rivers. According to the treaty contribution of India in western rivers was the first step where from Indian exploitation started.[1]

[1] Saif-ur-Rahman, "Water Wars and Navigating Peace Over Indus River Basin," *Monograph of NDU* 4 (2010): 4.

Water resources are under stress due to climate change and low maintenance. It is a serious issue in international politics because scarcity of water resources may lead the world into another era of conflicts. South Asia is also getting vulnerable due to intensive clash between India and Pakistan over water distribution. The conflict is further aggravating because of India's construction of dams on rivers Chenab and Jhelum. India's Kishanganga project on Jhelum River is 268 meter long, 75.48 meter high concrete dam. They diverted Jhelum River's water to the Wullar Lake through 22k.m long tunnel to produce electricity. This is having complications for Pakistan's Neelum Jhelum Power Project. Baglihar dam on the river Chenab is constructed by India that is another violation of IWT. But with the interference of World Bank, India amended its design but the conflict can be resolved only if the provisions of IWT are properly implemented.[2]

India builds 33 new dams on Western Rivers, seventeen on Chenab, and sixteen on Jhelum. India further building four hydro power projects on Western Rivers and their capacity will be 1,716M.W. Pakistan raises its voice in the International Court of Arbitration (ICA) for this Indian violation But ICA rejects Pakistan's objection and maintain India's right to divert water from the Kishanganga River to generate power. It helped India to generate 300 M.W power and affected Pakistan's 969 capacity of the Jhelum hydroelectric power project. India is planning to do new violation of IWT to make new hydropower project of 1,380 M.W on the Chenab River and it also became the cause of damage to environmental stability in the region. Basic commodities like access to clean and fresh water for drinking purpose which will effect population of million but will lead them to fight over this vital resource.[3]

India is justifying this IWT violation with the claims of making new dams on the Western Rivers with the lame excuse of just saving water. Kishanganga Hydro Electricity Project (KHEP) is an example of breaching IWT. Kishanganga dam will destroy not only Pakistan's agriculture, but it will harm its Neelum Jhelum hydroelectric project. KHEP will divert the water of Neelum Jhelum through 21 kilo

[2] Grant Atkins, "Dams over Troubled Waters for Pakistan and India: Violating the Indus Water Treaty," *Asian Politics* 14 (2014): 57, accessed on July 5, 2016, https://grantatkins.com/2014/03.13dams-troubled-waters-pakistan-india-violating-indus-water-treaty/.

[3] Manish Vaid and Tridivesh Singh Maini, "Indo-Pak Water Disputes: Time for Fresh Approaches," *South Asian Journal of Peace Building* 4 (2012), accessed on March 12, 2017, http://wiscomp.org/pubn/wiscomp-peace-prints/4-2/Indo-Pak-water-disputes.pdf.

Meter (Km) long tunnel toward the Wullar Lake to generate electricity and it is the breach of IWT and harmful for Pakistan's Neelum Jhelum project which intends to produce 969M.W electricity.[4]

India has two reasons for making new dams. First is that India blames Pakistan for wasting water to flow down water into Arabian sea and they are making new dams to save humanitarian concern, another reason is that India claims for building dams for utilization of the people of occupied Kashmir for hydropower and irrigation system. India always tries to damage Pakistan through several ways but water exploiting is unbearable, no one should be allowed to play with it as it is matter of life and death for Pakistan and it may become the cause of war and instability in the region. Pakistan should introduce new methods for agriculture to save water, because the 2011 Economic Survey also highlighted the wastage of water from the irrigation system due to the improper lining of waterways.[5]

India is upper riparian state and it is making new dams on Indus basin for hydro power but that projects are violating IWT. Because their design of dams is unjustified and due to these designs they can get control on water flow in Pakistan. India is also making dams in the Jammu & Kashmir (JK) for hydro power, like Chutak, Nimoobazgi and Dumkar. These dams are in Ladakh region that is not only violation of IWT but also violation of environment of Ladakh.[6]

The customary international law, declarations, Helsinki rules and United Nations (UN) convention on the subject establishes two important principles for all river basins: one, that the first right over the water of the rivers is that of the people living in the basin, and the second that the shared waters could neither be stopped nor diverted without the consent of the other riparian state. For the Indus rivers water, therefore, established international law prohibits India as an upper riparian to stop or divert waters of the

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[4]Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *A Research Journal of South Asian Studies* 2 (2013): 108, accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

[5] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 265-267.

[6]Dr Shaheen Akhtar, "Emerging Challenges to Indus Water Treaty: Issues of Compliance & Transboundary Impacts of India Hydro Projects on the Western River Focus," *Regional Studies* XXVIII (2010):105, accessed on March 12, 2017, http://www.irs.org.pk/f310.pdf.

rivers to the detriment of the people of Pakistan without the prior and explicit approval from Pakistan beforehand.[7]

Pakistan is facing water crises and that may harm Pakistan's economy because India is building new dams on Western Rivers. Dispute over water conflict became the cause of tension between the countries. India is starting new hydro projects on Pakistan's rivers. Baglihar Dam is on river Chenab and Pakistan has an objection on it due to its storage capacity, spill ways, and power intake tunnel. But after World Bank's interference India changed dam's design.[8]

Indus Commission is not working properly to implement IWT. All problems have solved by the Court of Arbitration and that was much expensive. Treaty has also some omissions that climate change and water management is not discussed in it. Mr. Kaka Khel former Deputy Executive Director of United Nations Environment Program (UNEP) said in his presentation "that this was not water sharing treaty but a water division agreement."[9] Treaty is silent about flood related issues, climate change, quality of water which being affected and contaminated due to toxic of industrial wastage. Pakistan's agriculture is depending on surface and ground water and ground water is depleting and polluted by saline water. Glaciers are melting due to climate change and we have no proper maintenance to save our water resources.[10]

As Pakistan and India had been through series of talks and agreements but they failed to reach the common ground and issue remain as it is. Long standing water dispute between India and Pakistan will be a factor determining the future of Indo-Pak relations. If the relations between states remain sore as they are then the peace and stability of region will be at stakes. The availability of water per person is expected to drop further low in future because of the factors like increase in population and this will impact both states in worst way. As both countries are dealing with the issue of water shortage and

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[7] Faheem Zaman, "International Law on Water Rights," *DAWN* October 31, 2016, accessed on March 04, 2017, https://www.dawn.com/news/1293406.

[8]Robert G. Wirsing and Christopher, "Spot Light Indus River Diplomacy: India Pakistan and Baglihar Dam Dispute," *Asia-Pacific Center for Security Studies* 34 (2006): 45, accessed on March 15, 2017, https://apcss.org/Publications/APSSS/IndusRiverDiplomacy.Wirsing,Josparro.pdf.

[9] Maleeha Hamid Siddiqui, "Indus Commission has not Played an Effective Role," *DAWN*, March 21, 2015, accessed on March17, 2017 https://www.dawn.com/news/1170910.

[10] Siddiqui, Indus, "Indus Commission."

security so it will be in best interest of both states to solve the issue and bring prosperity and peace to the region.

Statement of the Problem

British exit and unjustly partition of subcontinent keep India and Pakistan relations in tussle and keep them fighting over resources. Of these resources, issue of fresh water resource remains severe and unsolved. Factor worth noting is that issue of water dispute didn't get initiated after the signing of Indus Water Treaty but already had deeps roots in pre-partition era. India is at more strong position and able to create hegemony and at any given time can block water access to Pakistan and start a water war against Pakistan. Being an upper riparian nation, India is at advantage of holding and controlling of water flowing into Pakistan. Due to this upper riparian position of India, Pakistan is bearing great economic and agricultural loss. As a result of this hegemony created by India, relations between both countries remain sore and intense all time till the signing of Indus Water Treaty.

Of the many studies of hydro politics of India and Pakistan have been published to date, few have specifically examined the deterged content of this knowledge. The water crisis as of now spinning between India and Pakistan. India is violating Indus Basin Treaty by constructions new dams on western rivers and those dams are destroying Pakistan's agricultural, industrial, and energy sector. The issue of water between India and Pakistan is thus becoming a new cause of conflict between India and Pakistan.

Significance of the Study

Conflicts and disputed have been a common phenomenon in international politics. But the geo-strategic position of the region/country where conflict exists is more important to understand the intensity and vulnerability of the conflict. South Asian region is having significance in international politics for many reasons. The two major nuclear states, India and Pakistan are not having good cordial relations and the bilateral conflicts between the two states are intensifying day by day. Water conflict between both the countries is enhancing the risk factor. Indian violation of Indus Water Treaty is creating many repercussions for Pakistan's water requirement. There are two major projects India is constructing over western rivers: the Baglihar and Kishanganga which is nearly opposed by Pakistan. Pakistan raised the objection about the design of dam

violating the criteria of IWT. Both the countries have many bilateral talks over the issue. Pakistan has been highly concerned about water security since, signing of IWT and is among the water stress countries of the world. The lack of proper initiative for effective water management may lead the country towards extreme water scarcity but may also increase the country dependency upon India which have no cooperative and positive attitude over the issue of water sharing despite signing IWT with Pakistan in 1960.The study aims at identifying the factors which have contributed to conflict and accommodation over the issue of Indus water resources in Indo-Pakistan relations. The study also analyzes different factors which enhanced its intensity. This study discusses and critically analyzes the actions taken to resolve the conflict by states themselves and through international involvement. The aim of the study is also to elucidate future prospects to further resolve the issue for regional peace and stability.

Objectives of the Study

The objectives are following:

- To analyze Indian intentions to violate IWT against Pakistan
- To find out the factors responsible intensifying the water dispute between India and Pakistan to a risk level
- To highlight and analyze the ineffectiveness of necessary measures taken in order to resolve the conflict
- To find out future prospects for drawing up a pragmatic approach for resolving water conflict between India and Pakistan

Research Questions

1. How India has been violating Indus Water Treaty against Pakistan?
2. How India - Pakistan water conflict can create vulnerabilities for regional peace and stability?

Theoretical Framework

Theories illustrate and provide basis to investigate the issue in an accurate way. Theoretical framework helps researcher to analyze, understand and investigate the core issue or problem of the study presented by the researcher. Theorists, politicians, military personals and scholars are the prime actors who facilitated to develop these theories. Theorists and scholars analyzed and investigated the past issues in their developmental

phases and come up with a conclusion about them which form basis for investigating issues for current and future studies.

This research is based on theory of Classical Realism which emphasis that states are essentially selfish, security and survival are the basic priority of the states. The theory of classical realism is given by Thomas Hobbes. His views human beings, extremely individualistic rather than moral or social, are subject to "a perpetual and restless desire of power after power, that ceases only in death" Classical Realists say that State is unitary and rational actors. Twentieth century Hans Morgenthau's developed classical realism, he places selfishness and power-lust at the center of his picture of human existence. The insatiable human lust for power, timeless and universal, which he identifies with *animus dominandi*, the desire to dominate, is for him the main cause of conflict. Classical realists see the system as a state dominated. India and Pakistan are striving to obtain their interests. Thus, their every move can be seen in the prism of classical realism. The competition for gaining economic and security goals are visible in the region, amidst the conflicting interests and the nature of relations among states the classical realist theory is applicable. Theory of classical realism is predominant among the likeminded states. This theory is based on real politics where states are the primary actor in the theory of classical realism. The exponent of this theory Hans J. Morgenthau says "Political realism believes that politics, like society in general, is governed by objective laws that have their roots in human nature. In order to improve society, it is necessary to understand the laws by which society lives. The operation of these laws being impervious to our preferences, men will challenge them only at the risk of failure".[11]

The idea or concept of interests is largely dependent on the power of states. Pakistan and India to influence each other and the region as well. So, "all politics is struggle for power."[12] "Whatever the ultimate aim of international political system, power is always the immediate aim or mean to an end".[13] Struggle for power in South Asia where India and Pakistan are rival, giving birth to complex situation to acquire regional powers interests.

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[11] Hans J. Morgenthau, *Politics among Nations: The Struggle for Power and Peace* (New York: Alfred A. Knopf, 1978), 4-15.
[12] Morgenthau, *Politics, 4-15.*
[13] Paul R. Viotti and Mark V. Kauppi, *International Relations Theory* (Longman, 2006), 110.

Classical realism puts more emphasis on the role of human nature in International Politics. It argues that power lies in human nature, as the laws that govern politics are made by men and also emphasizes that International Politics is a struggle for power which emanates from human nature.[14] The theory states that people are greedy, insecure and aggressive and they also competes for scarce resources, so this makes them to attack one another for gain. So, India is constantly trying to violate the IWT as water in this region is becoming scarce. The lust to possess power and selfishness of individuals are considered to be the causes or bases of conflicts that emanates amongst the individuals. In addition to that, Hobbes identified three principal causes of conflicts which are fundamental to human nature; competition, diffidence and glory.[15] The present Indian Prime Minister, Modi, has war-like nature. He tries to make the region vulnerable to be destroyed as the Indian forces always ready to make the situation worse on the LOC in his tenure.

Due to the desire to maximize their gains, human beings are likely to act irrationally as they are naïve, gullible and can be easily manipulated. People want to achieve their own interests and in so doing, they are prone to irrational behavior as they become simple minded and likely to be controlled and used. India is behaving irrationally as it trying to indulge Pakistan into war. Both Pakistan and India are nuclear power and a minor mistake may be fatal for the regional peace.

Classical realism is a state level theory that argues that all states seek power, which is driven by desire to achieve national interests. Power is the key concept for realists and they argue that to survive, states must increase their power by internal development such as in the economic system, technological, diplomatic and military means.[16] India want to control the total resource of water and want to make Pakistan economically weak as Pakistan has an agriculture based economy and highly depended on water. The theory argues that states seek to increase their power and decrease the power of their enemies and everything they do is in the name of power accumulation. States in this theory see others with power as enemies, because power when is not in your hands is threatening.

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[14] Hans J. Morgenthau, *Politics among Nations: The Struggle for Power and Peace* (New York: Alfred A. Knopf, 1978), 4-15.
[15] Thomas Hobbes, *The Leviathan* (1651), Part I, chs.13.
[16] Paul R. Viotti and Mark V. Kauppi, *International Relations Theory* (Longman, 2006), 110.

Classical realists also argued that the basic structure of International politics is one of anarchy because each of the independent sovereign states consider themselves to be their own highest authority and do not recognize a higher power above them. International relations is about survival rather than pursuit of "good life".[17] Nations are trying to maximize their own interests and therefore they do careless about others as there are no overarching rules and procedures binding them to do so. As nations gains power, they strive for more power which end up causing war.

Due to selfish concerns, power, fear and immoral motives amongst human nature and human affairs, there is no such thing as "Justice" in the International System, rather the more powerful will always take advantage of the weaker, and will give the name of law and justice to whatever they lay down in their own interests, in order to exploit them. Foreign policies therefore, are formulated based on what nations can gain, thus on how far they can achieve their interest.

As mention earlier that according to classical realism every state tries to maximize its power and security, Pakistan also tries to secure its water resources according to the 1960 IWT. However, India is constantly trying to dominate Pakistan and want to gain hegemonic position in the region. It always try to manipulate the IWT such as in the case of Kishanganga and Wullar Bridge hydro projects. Any such kind of move of India is the violation of water treaty between Pakistan and India under the World Bank.

Literature Review

Khalid (2002), highlights that issue of water in South Asia has become a major aspect in shaping the relations of states with each other. These states are stressed due to water related problem. The Regions Rivers are significant source of water supply but to share these rivers develop a severe hydro politics where expiation of water by few domination players has resulted in Tran boundary disputes over sharing rivers. As result of this spreading hydro politics, conflicts over water sharing in the region tend to pose a severe threat to region's security. South Asian River shave major source of water for the co riparian states as India, Pakistan, Bangladesh and Nepal. In South Asian states water

[17] Martian Griffiths and Terry O'Callaghan, *Security Intonations Relations the Key Concept* (London: Rutledge, 2002), 289-291.

sharing has been a major factor of tension. India is major character of this water politics; it seems that India wants to enhance it hydro hegemony.

Both countries Pakistan and India are among water stressed; apparently it has been observed these countries faced severe water related problem water availability and continuity bother the both countries. There is severe competition between the two countries related to control and utilization of water resources of Indus delta.

Rahman (2010) said that fresh water is in under huge threat due to inadequate maintenance, climate change, and politically motivated actions. Usage of water is increasing greatly day by day but water supply is decreasing speedily and that thing is becoming hot topic in international politics throughout the world. IWT was signed to resolve India and Pakistan conflicts but now India is breaching that treaty to make new dams on Jhelum and Chenab and this violation of IWT is leading both countries to tensions repeatedly that can emerge as a full fledge war at any point, any time. India is on third number after United States and China in making dams to store maximum water capacity.

India, in a clear violation of IWT, making dams on Chenab and Jhelum like Kishanganga, Baglihar and Wullar Barrage. After huge and continued struggle, now Pakistan got succeeded to stop working on Wullar Barrage and now it is redundant. Rehman beautifully explains that this water terrorism by India can lead the region and the world as well to an Armageddon at any point. International community must immediately come forward to resolve this potential threat between the two nuclear states and India must be under a strict check to keep it in the light of Indus Water Treaty. World needs to know that water can be a major reason of conflict in current politics. India is not only violating IWT that can harm peace but it is also disturbing climate equation by not providing the due share of water to Pakistan that can lead this country to have great amount of barren lands.

Haddadin (2013) describe that Jordan River basin become the cause of fight between Israel and other Jordan River's riparian states. Because Zionist organization chose Palestine to establish a national home for the Jews from late 1800. They prepared water plans on Jordan River from 1899 until Israel was established and those plans become the cause of scarcity for other states (Jordan, Syria, Lebanon, and Palestine) and these states did not accept Israel as a state. And Hashemite kingdom of Jordan also tried to

make water plans to face shortage of water. That period was the cold war era. And U.S did not want to Middle East go under the influence of U.S.S.R so that's why they send envoy under the authority of ambassador Johnston to Middle East with water plans to resolve their problem because that crises reached to border fight. And he conducts four rounds of his Shuttle Diplomacy and convinces them to amend their water plans. And in return U.S gave king Abdullah canal to Jordan and Tiberias Beit Shean project and national water carrier project to Israel.

Rashid (2013) argued that India is violating IWT to make Baglihar Dam on Chenab and Kishanganga on Jhelum to store water and that is a clear breach of Indus Water Treaty. Due to India's unfair sharing of water with Pakistan, both states are moving towards war. India always aimed to stop Pakistan to make new dams even India destroyed Nepal's dam which they were constructed on their side. India's dam's designs will help India to operate the western river with their will. These serious violations are becoming unbearable for Pakistan with the passage of time as Pakistan's need for water is increasing day by day. There should be some permanent solutions to resolve this matter otherwise war can be provoked in a blink of an eye.

India and Pakistan moving toward water scarcity and Pakistan is facing more water crises than India and these crises harming its social and economic matters. Conflict on water resources can become interstate tension between both states. If they utilize and manage the water properly then they have no need to fight. Water resources management is inadequate and less management leads to domestic issues and after some time that thing become the cause of political extremism and terrorism. Increasing need of water by both countries can lead them to war as India is not going to stop its Indus Water Treaty's violations. Indus Water Commissions is needed at this point to resolve these matters at once because these are very harmful for regional and international peace.

Atkins (2014) argued that water disputes of India and Pakistan are from birth because India always violate Pakistan river water to make new dams. In this way, Pakistan's agriculture faces many problems because its economy depends on it. That's why Pakistan's appealing to the International Court of Arbitration to solve their issues.

Both states are agricultural and both need water. He also argued that there should be new approaches to overcome that issue to using other sources like Himalayan glaciers.

He also said that both states should use the platform of SAARC to water management and agricultural issues. And all political leadership, civil society should have confidence with each other and suppress any kind of propaganda and work together to face any kind of water issue.

World is facing the problem of melting of the glaciers and Pakistan and India are the most victim countries and they also facing the water crises due to their mismanagement. They also said that India is violating Indus water treaty trough many ways. They used the term Water Bomb strategy which India used to strangle the Pakistan economy through various ways. They also mention about the merits and demerits of the treaty because India is making new projects on western rivers. And in return, India blames Pakistan that she is wasting the water to flowing down water into Arabian Sea. So that's why India is trying to save the water. All scenarios create mistrust between states. They should adopt mutual measures to overcome that situation.

Maleeha (2015) describes that Indus Water Treaty was signed between India and Pakistan and it has some omissions. It missed some very important and crucial things can reduce the importance of this treaty. When it was formulated climate change and ground water management were not mentioned, and we lose eastern rivers also. Climate change was not a renowned cause at that time but now when I'm writing these lines, the world is celebrating international climate change day. Water maintenance science was also ignored in the treaty that is causing huge problems now. These two issues were even easier to be included later by the both countries into IWT but unfortunately these were overlooked by nuclear-armed neighbors.

Treaty gave the right to India for eastern rivers but no bar on constructing hydro project on western rivers and India is blatantly using this point and constructing dams, barrages and other water conservation means. Indus commission hasn't played a good role as envisaged in the treaty and it lacked its interest knowing it well that both countries can be engulfed into a full-fledged war. Indus Water Commission ignored its core duties to continuously giving suggestions to edit the IWT in the broader interests of both sates. These two most important issues are still unaddressed and resolved even today in the age of fastest communication and management. It is need of the time that Indus Water Commission of the both sides sit together and try to resolve these issues with consensus. All conflicts have been settled by the International Court of Arbitration and that thing

is much expensive for us. There is a need to increase the capacity of commissions of the two countries.

Shaheen (2015) said that Indus Water Treaty in under great stress due to the water scarcity because both countries India and Pakistan facing water crises in current age and both are in dire need to store water as maximum as they can. This is ignorance of Indus Water Commission that India is now trying to make new dams for water and hydropower plants on Chenab and Jhelum. Indus Water Treaty only gives the right to India to make dams which can only make hydro power but can't save water but India is violating these vital rules of Indus Water Treaty and storing water. This is undeniable fact that India did not share information and engineering detail regarding these projects which can be harmful for Pakistan and this is the main potential threat to mutual peace of Pakistan and India.

Those structures allow India to manipulate control to stop water flow into Pakistan and nuclear Pakistan will never bear it when it will come to create chaos in the country due to water crisis. Indus Water Commissions as well as the international community must see these lacking of Indus Water Treaty can endanger the regional and international peace in a second. India must stop violating the IWT rules to give due share to its neighboring country to avoid any misadventure on water issue.

Indus Water Treaty is signed to promote mutual understanding and cooperation between both countries but it seems to be that treaty is proving more fruitful for India as compare to Pakistan. India is able utilize the resources in much more better way that it is able to put hold and secure all water resources flowing into Pakistan. Example of above is highlighted in Khan (2013) who had took the case of Kishanganga dam which is taken into the court of arbitration and court rules the decision in favor of India. Kishanganga project includes the diversion of water which is entering into Pakistan so in a result Pakistan raised severe objections against the project as the project will affect the water supply of Pakistan but still the court favors India. On many number of occasions India is found in violation of Indus Water Treaty. Among these violations the main violations are building of dams on western rivers. The issue of water dispute between India and Pakistan will remain unsolved until or unless India changes its attitude and bring changes in its policy. The water war between India and Pakistan became more intense after India force capture of Kashmir. Kashmir issue continue to

haunts the Indo-Pak relations will be a deciding factor in the relationships of India and Pakistan. One of the main issue not getting solved after series of meeting and long talks is the mistrust developed between the India and Pakistan.

Hussain (2017) blames World Bank for not being so active in Indus Water Treaty that could resolve the water tensions between India and Pakistan once and for all. Water remained a bone of contention between Pakistan and India from the day of partition. Indus Water Treaty of 1960 played a positive role to reduce and pause their tension and it provided a glance of positivity for the future but both under developed states chose to remain in conflict on this issue.

Husssain argues that World Bank along other international organs could play a more vigilant, vital and vivid role to keep their tensions reduced. This is not a regional but international issue as both conflicting states possess nuclear power that can engulf the region in a second due to any aggression born by water issues. World needs to work out on Indo Pak water issue as it is concerned on the matter of Kashmir. These two neighbors need to understand the importance of coexistence and peaceful distribution of water to avoid any tension that can escalate to war.

Mehmood (2018), describes the overall ups and down relationships of India and Pakistan after partition regarding water. Indus Water Treaty was signed in 1960 and it became a hope for the world observers that now both countries can use the water with mutual respect. These expectations became illusions in 1970s when India started constructing water storing projects on the rivers that were allocated to Pakistan in IWT. After seeing the tensions between the both countries, diplomatic means were used to reduce and resolve the tensions but these all efforts went in vein. He elaborates and points out the omissions in Indus Water Treaty such as climate change and underground water. He discusses that these matters were ignored in IWT and nobody bothered to include later on.

India is massively using water share to Pakistan as the kindness of India and Hindu Extremists in India are demanding to stop water flow to Pakistan. They allege Pakistan for Uri and Mumbai attacks and now they threat Pakistan that they will stop sharing water. Mehmood suggests how both countries can prevent themselves to enter into war. Pakistan and India have huge potential of war and it is more painful to understand that both are nuclear powers. Water is emerging as a main source of conflict between the

both countries after Kashmir. It is best for both to resolve and solve water tensions as soon as possible.

If we look up the available history and literature on the relationships of India and Pakistan one of the main reason behind these sore relations is lack of cooperation between two. Water dispute between India and Pakistan continues to be hot topic among many scholars and researchers. After careful examination of the available resources, one may find a missing link that all researchers mainly focused on the water dispute between India and Pakistan and its effect on the relationship of between two. What they failed to realize is the impact of these relations on the regional level in term of peace, stability and prosperity. Also very scholars have focused their study on the environmental effect. Thus through this study, I am trying to place the missing piece of puzzle and will also be discussing the environmental effect and how these environmental changes are more important to tackle than ever before.

Methodology of the Study

This research is qualitative-descriptive study in its nature as it describes different facets and effects of water crises between India and Pakistan. It forms an intellectual debate and investigation of their policies after partition. It takes a deeper insight into the consequences, challenges and drawbacks of these policies.

The main challenge to the present research problem is the large number of possible causal or, in statistical terms, independent variables. This research identifies more than half a dozen such factors, pertaining exclusively to international rivers. The limitation of the study to the non-identity dimension of conflict and a distinct geographical area—namely that resulting from the boundary award which divided British Punjab between India and Pakistan and its land-link to the hydro-strategic territory of Kashmir or the catchment areas of whole of the Indus basin—was instrumental in further reducing the number of conflict factors.

Such an operation as the one undertaken in the study is expected to provide valuable insights into the most significant factor leading to water conflict and accommodation over water resources between enduring rivals. The exercise provides an opportunity to judge the explanatory value of geographical location (in terms of economic value and security imperatives) as compared to other factors. In order to deepen the understanding of the processes leading to conflict or accommodation, the chosen method i.e. that of

tracing and comparing these processes, is not entirely inductive but rather guided by the explanatory factors outlined the background of the conflict, Indus Water Treaty Implications for both states, controversies and the future of treaty.

The data has been collected from secondary sources including books, articles, journals, and newspapers.

Delimitation

Primarily the focus of my research will be on long standing sore relations between India and Pakistan regarding the water dispute. I have chosen the period from the signing of Indus Water Treaty to present time. One point worth noting is that one very few have written books over this issue but many scholarly writings can be found on this issue. Chapters included in this writing are written after the consultation from various books and scholarly articles.

Organization of Study

Organization of the study is as following:

Chapter one is “Genesis of India Pakistan Water Conflict”. This chapter will give a comprehensive historical back ground of issue and methods adopted for the settlement before the implementation of Indus Water Treaty.

Chapter two “Indus Water Treaty: India and Pakistan Implications”. This chapter will comprise on a detailed study and structure of Indus Water Treaty. It will also discuss is implications of treaty on India and Pakistan

Chapter three “Controversies Regarding Indus Water Treaty: India and Pakistan Narratives”. The chapter will shed light on the history and nature of water conflict between India and Pakistan. Also is mentioned in the chapter will be the narratives of both India and Pakistan on the controversial projects.

Chapter four “Indo Pak Relations and Future of Indus Water Treaty”. In this chapter we will see the current relations of India and Pakistan and also how the future of Indus Water Treaty is affected by political situations. Also discuss is the role of climate and population in future of Indus Water Treaty.

At the end there will be a comprehensive “Conclusion” including recommendations both for Pakistan and India to have viable solution to the conflict.

Chapter 1

The Genesis of India-Pakistan Water Conflict

Water is life and almost two thirds area of the earth is surrounded by water. It is evidently clear that water is one of the most important elements responsible for life on earth. Water is essential for the socioeconomic development as well as for sustenance of economy. That's why security of water is a huge problem to many countries of the world, especially those which are developing. The environmental degradation effects and poor management of available water resource have made water one of the scarcest and competitive for resources in many poor economies. Therefor the security struggle of water resources some time become the reason of conflict.

Water conflict of India-Pakistan is an example of conflict arising from struggle from scarce resources. Both the states are having nuclear technology and both fought many wars for border issues. The main conflict between the two states had been revolving around disputed territory of Jammu and Kashmir and water sharing since partition. When the British left the subcontinent they distributed only territory, but no other assets like rivers. Now a day's water is a major issue between both India and Pakistan. Over 300 million people depend on six main rivers. Three rivers flow through Jammu and Kashmir to India and then Pakistan. After partition India stopped that river's water because India wanted desertification of Pakistan. The situation turned worse and Pakistan has been fighting for its right which India was denying. The issue was resolved through a temporary agreement signed between both states with the arbitration of World Bank known as Indus Basin Treaty or Indus Water Treaty (IWT).

In future due to the global warming will raise the issue of shortage of water in most of the world states. On the other hand rise in the population of the world also become the reason of shortage of water. United Nations warned that global warming is causing the melting of glaciers, which will raise the issue of people migration and shortage of water. United Nations warned to India and Pakistan there are glaciers melting rapidly and they face the increase in problem of water shortage day by day. United Nations report warned that water shortage may impose the war between the world actors.

Basis of the Indus Water system is Tibetan Plateau, China. From there the Stream of Indus River is fed with the water of melting glaciers and snow. River Indus continue its

flow into the Gilgit and Hunza region of Pakistan. Indus River got further split into five more trajectories i.e. Jhelum, Chenab, Ravi, Sutlej and Beas, in the mountain ranges of Karakoram, Hindukush and Himalayas. After crossing these ranges and right before entering the plain region, Indus River is stopped at Terbela Dam. Most of Indus Water system is fed the water of melting snow and glaciers which constitute among 70%-80% of water. Rest of the 20% water is fed the torrential and monsoon rains.

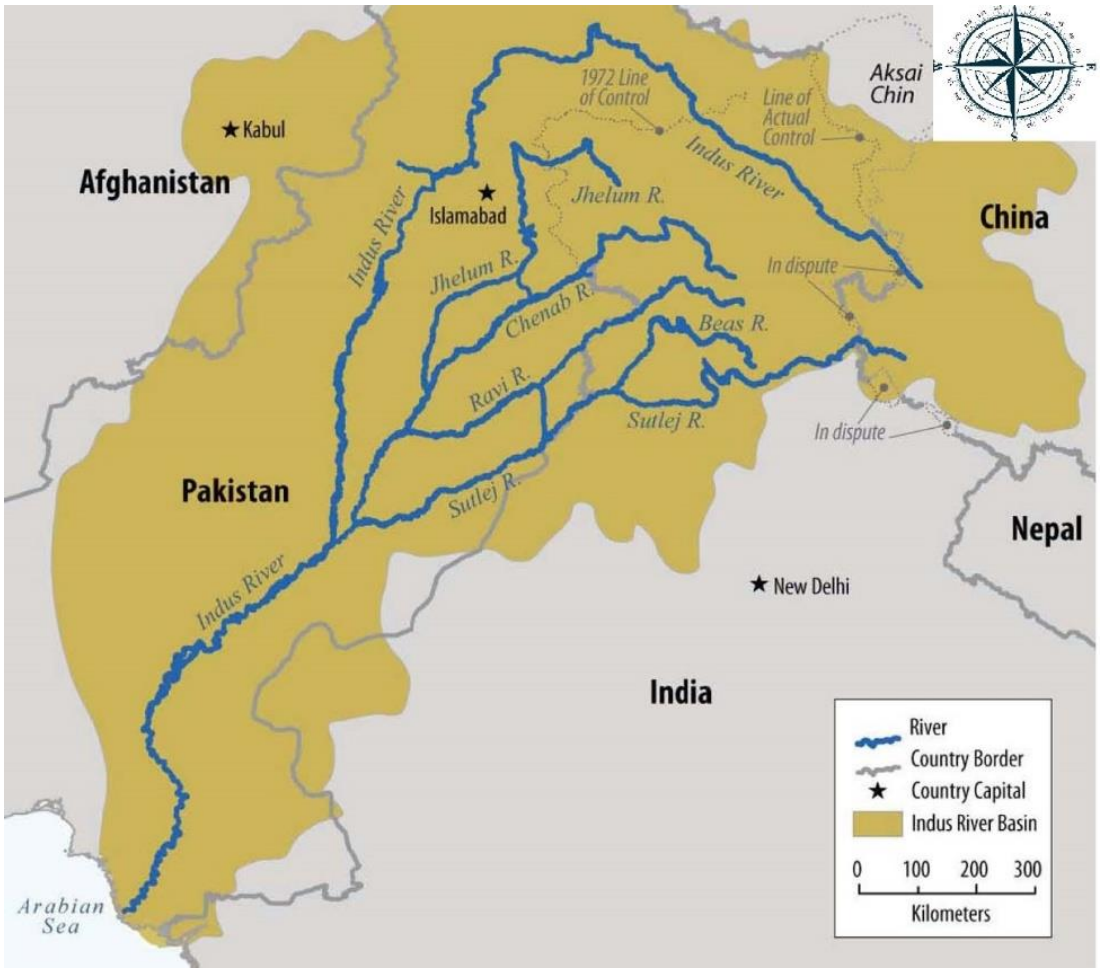

Fig. 1.1: Indus Water System

Source: Navin Sing Khadka, Are India and Pakistan set for Water War, BBC news, 22 December, 2016.

After the partition of India and Pakistan a series of tensions over many issues started between the both states. A major issue facing by Pakistan till to the partition is water crises with India. Origin of water issue can be traced back in history when boundaries India-Pakistan were demarcated and most of the water rich area went in India's shares

which greatly benefited the country as compare to Pakistan. Pakistan had to face and bear great economic lose due the water crisis with India.[18]

1.1 Evolution of Conflict

The Indus River rises in southwestern Tibet Autonomous Region of China and flows through the disputed Kashmir region and then into Pakistan to drain into the Arabian Sea. Indus River System has been used for irrigation since time immemorial. Rivers of Indus system had been used for irrigation since civilization began in the area. Indus River Basin is mainly shared by India and Pakistan. Proximately 190s million people in its basin, 72 percent Pakistan and 23 present live on the India side.[19] In this context water of Indus River System plays significant role because they are mainly dependent on. Indus River and many of its tributaries get usually large flow of waters resulting in carrying silt in alluvial that make the riverine tracks very fertile and productive. Thus the lands across Indus and its tributaries are always considered as productive and vital to the socio-economic development of the region.

1.1.1 British Rule

After the colonization of Subcontinent in 1857, British rulers planned to extension the irrigation land in Subcontinent. The great change started during the British rule, when world largest canal system was constructed to transform the barren and unoccupied lands of Punjab into productive lands. In fact, this credit goes to the British administration and engineers who not only provided the Indus Basin with most extensive irrigation system in the world but also introduced good methods for achieving maximum production. In past availability of river water was more than the requirement. Because as compared to the availability of water in the river the population was small and demand was also less. With the passage of time the demand of water increased due to population, substantially issue stated between upper and lower riparian. When Sindh became a separate province during the British rule, objected to Punjab water project. Because Sindh was lower and Punjab was upper riparian.[20] During British Raj, a

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[18] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimension* (Pakistan: Oxford University Press, 2017), 27.

[19] A. N. Laghari, Davy Vanham, and Wolfgang Rauch, "The Indus Basin in the Framework of Current and Future Water Resources Management," *Hydrology and Earth System* Sciences 16 (2012): 109, accessed on January 5, 2018 https:// www.researchgate.net/publication/307726468_The_Indus_basin_in_the_framework_of_current_and_future_water _resources management.

[20] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences 4* (2012): 269.

commission is found in 1941 which is headed by Sir B.N. Rau. The objective of the commission is to determine the riparian rights of states and provinces for all river flowing under Indus Water System on the basis of law of Equitable Apportionment. As per the law, the upper riparian state or province can't disturb the flow of water which will negatively impact the flow of water flowing towards the lower riparian states or provinces.[21]

1.1.2 Pre-Partition

British Punjab which had an integrated system of irrigation and network of canals became a source of several issues during the time partition when half of it gone to India and other half is given to West Pakistan. Partition of Punjab by then British administration was unfair in many terms. In Radcliff awards the handworks of Ferozepur and Madhupur and canals link emerging these headwork gone under the control and administration of India. At that moment Pakistan was left under the mercy of India as canals like Upper Bari Doab and Central Bari Doab are used to irrigate lands of West Pakistan.[22]

Under the Indian Independence Act the Arbitral Tribunal to be appointed. It was set up on 12 August 1947 and it came into effect on 14 August 1947. After the partition disputes arising could be present before the tribunal until 1 December 1947 or at the chairman's discretion until 1 February 1948. After the appointment few matters were referred to Arbitral Tribunal. But all these matters related to financial adjustments.[23] Because there had been none by then as maintenance of pre-partition irrigation water supplies was agreed upon, that's why no issue submitted to the Tribunal elating to water sharing between India and Pakistan.[24]

To protect the flow of water Standstill Agreement signed by Chief Engineers from East and West Punjab on 20 December 1947. The agreement "bond India to allow pre-partition issuance of water in the basin up to March 31, 1948."[25] Agreement term expired on March 31, 1948 and in April 1, 1948 India stop the flow of water from the canal on its side. India stopped the flow of water from the Ferozepur headwork to main

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[21] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 271.
[22]M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 59.
[23] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers, 1973), 85.
[24] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47(1994): 61.
[25] Azhar Ahmad, "Indus Waters Treaty a Dispassionate Analysis," *Policy Perspectives* 8 (2016): 73–83.

branches of Upper Bari Doab Canal and Dipalpur Canal.[26] That act of India created the Conflicted situation between new borne states India and Pakistan. In the words of Chaudhry Muhammad Ali:

> "… The East Punjab minister and officials was planning a deadly blow against Pakistan and were lulling the West Punjab government to sleep with sweet word. They were waiting for the day when the life of the Arbitral Tribunal would come to an end on March 31, 1948. On the part of East Punjab there was Machiavellian duplicity. On part of West Punjab there was neglect of duty, complacency, and lack of common prudence which has disastrous consequences for Pakistan." [27]

The water issue had prime importance for Pakistan, because the flows of these canals had been the lifeline for the fertile parts of the west Punjab. While India had more option for irrigation, that makes it less dependent on the irrigation water from the Punjab rivers. This act criticized by Pakistan and in the start of May 1948, Pakistan was send a delegation led by Ghulam Muhammad to Delhi for the settlement of water issue.[28]

1.1.3 Inter-Dominion Agreement

In May 1948, Pakistan send its delegation to India for negotiation on water issue. May 4, 1948 the Inter Dominion Agreement signed between India and Pakistan on water sharing issue. India agreed to continue the delivery of water from the Ferozepur headwork to Pakistani canals. That agreement permitting the India to gradually reduce the supply to these canals, thereby giving the Pakistan time to find alternative sources. In agreement India demanded to charge which Pakistan agreed in principle. Delegation of Pakistan which signed the agreement they had much confusion in their mind due to the importance of issue.[29] They drew wrong interpretation and thought that India only demanded transportation, sharing, and maintenance cast. That why the new issue started over the calculation of these charges. On June 1949, Pakistan requested to India to refer

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[26] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 61, 62.
[27] Ibid.
[28] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 221-222.
[29] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4(2012): 272.

the case to the International court of Justice for arbitration. India categorically objected to third party involvement in that issue.[30]

Inter-Dominion Agreement which signed by India and Pakistan did not contain expiry date rather it did call for further discussion for water issue settlement. Pakistan's claim that agreement was temporary for a specific canals. But India refused the Pakistan's claim and regarded it as an international agreement.

1.1.4 Consequences of Inter- Dominion Agreement

The Inter-Dominion Agreement created a situation having long-term consequences for Pakistan. It created new hopes, worries and problem for future. Aftermath the Inter-Dominion Agreement Pakistan started digging a new channel from the right bank of the River Sutlej to circumvent Ferozepur headwork. But India protested immediately and demanded to stoppage of work on the channel upstream of the Ferozepur headwork. India was not supplied the water from Eastern canals. When Pakistan logged the complaint, India agreed supplying the water after the payment of transportation charges by Pakistan. Pakistan also stopped the work on the channel upstream of the Ferozepur headwork.[31]

Pakistan requested India to immediately provide confirmation the water supply to continue for Rabi 1948-49. India fix the seigniorage charges which the Pakistan had to pay for three to six months advance to the Rabi season.[32] Inter-Dominion Agreement had no expiry date and Pakistan justifiably regarded it as temporary. India did not comment upon the interpretation but assured Pakistan continue supplying the water as per request.[33]

In October, 1948, then Indian Prime Minister Mr. Jawaharlal Nehru sent a telegram to in which he demanded that the arrangements of May 4 to be recognized as the right of East Punjab and water supplies flowing to west Pakistan will be diminished according and progressively. He further added that meeting between the officials of East and West Punjab will solely be on the recognition of West Punjab. A warning tone is also used by him by in which he states that the other party has full right to abolish the contract if

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[30] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 220-223

[31] M. Nasrullah, "Wullar Barrage Issue*," Pakistan Horizon* 47 (1994): 66-67.

[32] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 323.

[33] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 66-67.

one party shows unnecessary delays.[34] This warning from the Indian Prime Minister interpreted as a potential threat by the Pakistani government. Chaudhry Mohammad Ali gave his critical views on telegram from Indian Prime Minister that Pakistan until or unless quickly accepted the proposal of India, India would cut off the supplies flowing towards Pakistan again. It would be like giving up of legal rights for Pakistan to India. Pakistan should consult to International Court of Justice, a proposal which India denied.[35]

India offered that both countries should make a tribunal of judges, how well keenly observe and study the meter and find the solution. India wanted to solve this with Pakistan. India did not like the involvement of third party on that issue. Pakistan conceded India was doing it deliberately to prolong this process and meanwhile it could fulfill the plan of river diversion build new dam. That's why Pakistan rejected the proposal of India.[36]

India was still working on it proposal and formed a government body to analyze the base of the issue and to formulate a better plan for future. The newly formed body is headed by the then Deputy Secretary of Ministry for Works, Mines and Power. The committee also include senior officials from East Punjab Government. The first task of the body is to work on the challenges of on-coming inter-dominion meeting which was scheduled in August, 1949, Delhi.

The meeting in Delhi was considered failed as both India and Pakistan failed to make any substantial progress except to meet again. The date for meeting was finalized as 27 March, 1950 and the venue will be Karachi.[37] The meeting was held as per schedule with the focus on promoting mutual development and understating for the better management of the region. Both nations appear to be better prepared for the meeting this time as both India and Pakistan presented their technical options and ideas to solve the problem. Pakistan propose that existing use will be met with existing source and to cater the demand for new supplies, water storage facility should be built on River Sutlej, Ravi, Beas and Chenab. Also the cost for building these facilities will be shared by India and Pakistan. India proposed that water of Sutlej should be exclusive use for India

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[34]Nasrullah, "Wullar," 66-67.
[35] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 321.
[36] Muhammad, *The Emergence* 321.
[37] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 32.

while showing will to share the water of Ravi, Chenab and Beas with Pakistan to meet its existing use with some adjustments mainly in favor of India. Also a link canal will be constructed on River Chenab to supply water to Pakistan and in case of any deficiency, a water storage facility will be built on River Chenab to meet any shortfalls. Pakistan and India both agreed to study each other's plan in detail and to collect relevant data which will be presented in the very next meeting to be held in May, 1950.[38]

By May, 1950, India stance was completely changed as it wanted the exclusive control of three eastern rivers i.e. Sutlej, Ravi and Beas and also wanted to divert 10000 cusec of water from River Chenab through a tunnel at point Marhu. This demand of India came as a shock to Pakistan as these rivers are used by irrigating million acre land of Pakistan. Pakistan rejected the proposal of India as it was unacceptable.[39]

Duration of agreement from 4 May 1948 to 23 Aug 1950 was somehow period of tension for Pakistan. Because on that time India assign the task to its engineers immediately to develop the irrigation field. India planned to construction of the Harike barrage to confine the Sutlej River's flow to the Indian Territory. It planned to complete that project immediately. India wanted to take the maximum control on the water, so it want to build a tunnel at Marhu on the Chenab River to divert it. India also build some new channels in East Punjab.[40]

During the agreement time period Pakistan also work started on the water securing project. Pakistan was undertaking construction works to ensure the Central Bari Doab Canal and Dipalpur canal from the River Chenab and to ward off against any future threat to its water supply from India. Pakistan selected a site at Mangla on river Jhelum and started the construction on it without any foreign aid. But it stopped at that time due to the dispute with India.[41]

1.1.5 The Deadlock on Charges

A series of discussion and talks started between India and Pakistan to resolve the issue of water supply and seigniorage charges. Pakistan had agreed to pay India the water charges under the agreement of 1948, but there was dispute regarding the final amount.

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[38] Ashfaq Mehmood, *Hydro-Diplomacy: Preventing Water War between Nuclear-Armed Pakistan and India* (Pakistan: IPS Press, 2018), 37.

[39] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 34.

[40] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers, 1973), 85.

[41] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 65-66.

It was decided that Pakistan will deposit an amount in reserve bank of India, after that the final amount of the agreement will be transfer to East Punjab and the remaining money will remain in account until the agreement gets its final form. Firstly it was an agreement only for summer 1948 but letter on it was extended on Pakistan request. India kept giving Pakistan water and charging for that water transferring.[42]

In September 1949, the currencies of many countries devalued due to United Kingdom policy. Pakistan decided not to follow the changes in amount due to United Kingdom policy and India took it as a violation of the agreement. Therefore India imposed economic sanctions on Pakistan. In November 1949 Pakistan wrote India that it conceders the agreement as null and void Pakistan will continue to give money to India as a friendship gift. Pakistan also informed India that it has a right to stop the amount at any time.

Both sides proposed the ideas for the solution of the issue and agreed that the Indian and Pakistani engineers would study the proposals of both side, collect relevant data and present it before the next meeting.[43] In May 1950, the situation totally changed and India demanded the exclusive use of all the waters of the Eastern Rivers and divert the water of Chenab at Marhu. Pakistan totally shocked to the Indian demand, because the water of these rivers were irrigating the mostly area of West Punjab.[44]

There was rational conflict between India and Pakistan, number of decision and actions by taken both countries that was lead to the formal Inter-Dominion Agreement. But Pakistan failing to convince the Indian government for the permanent solution of that issue. At last on 23 August 1950, Pakistan issued a notice expiry of Inter-Dominion Agreement. India replied on 12 September 1950.[45]

1.2 Mediation Process

Newly borne states relation badly damaged due to the war in Kashmir and the crucial water dispute. The dispute was fixed between the both countries on Kashmir and water issue, and both countries concerned their own interest. India concerned to developing

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[42] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47(1994): 71.

[43] A. N. Laghari, Davy Vanham, and Wolfgang Rauch, "The Indus Basin in the Framework of Current and Future Water Resources Management," *Hydrology and Earth System* Sciences 16 (2012): 55-67, accessed on January 5, 2018, https://www.researchgate.net/publication/307726468_The_Indus_basin_in_the_framework_of_current_and_future_water _resources management.

[44] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation,* (Bombay: Allied Publishers 1973), 85.

[45] Gulhati, *Indus Water Treaty, 85.*

irrigation land surrounding the water resources and Pakistan varied about the security of its irrigation need of water. Construction of Bhakra Dam on the River Sutlej by India was harmful to interest of Pakistan. India wanted full-fledge control over the water resources of subcontinent, and that behavior deteriorated the relations of both countries, armies were put on red alert. That situation of India and Pakistan immediately attracted the attention of world community.

1.2.1 Proposal of David Eli Lilienthal

In February 1951, David Eli Lilienthal the former chairman of the Tennessee Valley Authority and the US Atomic Energy Commission visited to India and Pakistan. India already invited him for visit. David Eli Lilienthal came India and Pakistan to write a series of articles on the newly born countries for the Collier's magazine. Lilienthal met the both states Prime Ministers, Jawaharlal Nehru and Liaqat Ali Khan during his visit. He also met Sheikh Abdullah Chief Minister of Jammu and Kashmir.[46]

Lilienthal's gave first preference to resolve the water dispute just to calm down the Pakistan on Kashmir issue. He pointed that Pakistan may win the legal battle against India but it will not solve waste of Indus water and food problem. He informed the both countries that war should be ended now and further suggested that it will be better for both countries to ask their engineers on functional ground. Lilienthal also suggested the India and Pakistan to take functional help of World Bank.[47]

Lilienthal in the favor of whole Indus River System development by both countries like seven states Tennessee Valley Authority system. For the resolution of Indus dispute's Lilienthal suggested three principles:

- The disputants should recognize that there was enough water in the Indus Basin for their existing and future use.
- The flow of Sutlej River alone would not be sufficient for resolution of the dispute, therefor the water of all six rivers of the Indus system should be appropriated.
- Functional perspective should be the best approach for settlement.[48]

[46] VK Sashikumar, "Why the Indus Water Treaty has Stood the Test of Time," *DAWN*, October 28, 2016, accessed August 2018, https://heral.dawn.com/news/1153544
[47] Sashikumar, "Why the Indus."
[48] Sashikumar, "Why the Indus."

1.2.2 Role of the World Bank

August 1951, Lilienthal wrote in his article about the tension on Indus Basin between India and Pakistan. That article internationalized the issue and Eugene R. Black, president of the International Bank for Reconstruction and Development (IBRD) (today known as World Bank) wrote letters to the Indian and Pakistani Prime Ministers, offering its good offices for dispute settlement. IBRD took the Lilienthal principal for resolving the tension between India and Pakistan on 25 September 1951. Pakistan and India both accepted the offer of mediation but India had one condition that Kashmir issue should be separate from water issue.[49] World Bank motivated the India and Pakistan to finding a joint solution of the water dispute that would fulfill the both country's needs. World Bank gave the suggestion that both countries workout the issue solution and submitted their plan separately.[50]

1.2.3 First Plan of India and Pakistan 1953

In October 1953 both countries submitted their plan to World Bank. The India plan allotted to the full control three eastern Indus Rivers Ravi, Beas, and Sutlej, and also demanded the 7% water of western Indus Rivers Indus, Jhelum, and Chenab. On the other hand Pakistan plan allotted full control on three western rivers of Indus system plus 70% water control of eastern rivers.[51]Both countries planed just their own interest that's why both rejected the plans of each other's.

1.2.3 World Bank Proposal of 1954

After realizing that matter is not of pure technical nature, World Bank experts felt the need of considering needs of both India and Pakistan for better understanding and comprehensive plan. So to put forward a plan World Bank started working on the dispute and on 5th February, 1954 put forwarded a proposal considering the general needs while ignoring the local use of Kashmir. As per the plan, three western rivers and

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[49] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *South Asian Studies* 28 (2013), accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

[50] Robert G. Wirsing and Christopher, "Spot Light Indus River Diplomacy: India Pakistan and Baglihar Dam Dispute," *Asia-Pacific Center for Security Studies* 7 (2006), accessed on March 15, 2017, https://apcss.org/Publications/APSSS/IndusRiverDiplomacy.Wirsing,Josparro.pdf.

[51] Saif-ur-Rahman, "Water Wars and Navigating Peace over Indus River Basin," *Monograph of NDU* 4 (2010): 9.

its rights are given to Pakistan while the three eastern rivers were given to India. Following table will provide the insight of the plan presented by World Bank.

	Plan of Pakistan	**Plan of India**	**Plan of World Bank**
Usable Acre Feet (Million)	0118.00	0119.00	0119.00
Cubic Meters (Billion)	0145.14	0146.37	0146.37
Pakistan			
Million acre feet	0102.50	0090.00	0097.00
Total Percentage	**0087.00**	**0076.00**	**0081.00**
India			
Acre feet (Million)	0015.50	0029.00	0022.00
Cubic Meters (Billion)	0019.06	0035.67	0027.06
Total Percentage	**0013.00**	**0024.00**	**0019.00**

Table 1.1: Water Sharing Plans

Nasrullah states that:

"There were disagreements especially concerning 'customary' or 'historical' uses. India agreed only what was actually in use, whereas Pakistan urged for the inclusion of plans envisaged before partition, especially projects for safeguarding and improving water supply in the Sindh province. The only convergent aspect was the premise that the water dispute was independent of the Kashmir issue, and that the current negotiations should not alter the *status quo*."[52]

1.2.4 Restoration of Negotiations

The proposal of World Bank was promptly acknowledged by India and accepted the proposal after month and a half. However in contrast to India's promptness, Pakistan was slow in acknowledging the proposal because Pakistan was looking for a secure and sustainable alternatives to the loss of three eastern rivers to India.

[52] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 84.

Pakistan argued the slowness of response by stating the plan of World Bank didn't gave the clear pointers regarding the diversion of rivers from engineering point of view but rather in proposal they considered the water flows of year 1936-37.[53]

Pakistan hired the services of eminent consultant engineer Mr. Royce J. Tipton to make detailed study on the proposal of World Bank. Detailed study of 10 years was made by Mr. Tipton and his findings were made available to World Bank Engineers. Findings provided by Mr. Tipton was based on the historic water uses of Pakistan which World Bank Engineer's didn't considered at all. To eliminate the reservations made by Pakistan, World Bank Engineer's reworked the plan to remove some of the objections made by Pakistan. The reworking on plan led to some confusions and to remove these confusions in June 1954, a meeting of Pakistan Foreign Minister and Bank Management in which the position of Bank was cleared.

As per the study of Mr. Tipton the waters of western rivers will not be sufficient enough to cater all needs of Pakistan without building any water storage projects. World Bank officials tried to convince the Pakistani government by saying that by signing the treaty Pakistan will have an advantage of river Chenab as India can't interfere the waters of Chenab river, secondly India will pay the cost of construction of projects on western rivers to compensate the loss of structure on eastern rivers and third the right of historic water uses of Pakistan will be protected and compensated during the transition period.[54]

Assurance from World Bank regarding canal network from Sutlej River and historic water uses from eastern rivers will be compensated without building drawing water or disturbing the historic water requirements from western rivers. Also the water required for ongoing Gudu and Sukkur barrage project will not be affected.

Talks on ad hoc agreement started in January 1955 and series of agreements signed from 1955 to 1960 subsequently. However from 1 October, 1957 to 30 September both parties were failed to reach the common grounds and no agreement got signed during that period.[55]

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[53] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 320-25.

[54] Robert G. Wirsing and Christopher, "Spot Light Indus River Diplomacy: India Pakistan and Baglihar Dam Dispute," *Asia-Pacific Center for Security Studies* 7 (2006), accessed on March 15, 2017, https://apcss.org/Publications/APSSS/IndusRiverDiplomacy.Wirsing,Josparro.pdf.

[55] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 84-86.

1.2.5 Aide-Memories 1958

Throughout the years of 1955 and 1956, Pakistan consistently reminded World Bank allocation of water supplies in 1954 plan is insufficient to cater all the Pakistan agricultural supplies especially during the critical periods such as for early winter Rabi crops and late summer kharif crops. Pakistan keep reminding World Bank that it requires water storage facilities to fulfill its agricultural needs. World Bank finally accepted the Pakistan objection after eighteen months and recognizes that supplies of western rivers isn't sufficient to fulfill Pakistan's agricultural needs and issued an Aide Memoire on May 21, 1956. The memoire called for adjustment in the water supplies allocated in 1954 plans. The adjustment was required to ensure the timely and enough flow of water to meet the supplies of Pakistan. The adjustment is possible in two ways i.e. Water from eastern rivers is diverted into western rivers on continuous basis or India will help Pakistan in building up a water storage facility on western rivers. World Bank preferred the second suggestion.[56]

India which had already accepted the 1954 plan whole heartedly was reluctant to accept the new World Bank plan as India is suggesting that beneficiary should bear the cost of project.

"Under the Bank proposal, as clarified by the management of the Bank, and to work out the adjustments in the division of the supplies proposed which are deemed to be required in order to accomplish the objectives envisaged in the proposal. The… issue as to apportionment of water supplies is: How much, if any, water (by periods) should Pakistan continue to receive from the Eastern Rivers?"[57]

1.2.6 1958 Plan by Pakistan

Pakistani government started working on its plan of water transfer for western rivers to eastern rivers to compensate the loss of historic water uses. Pakistan determined that the waters in western rivers during the month of July and August will be enough to compensate the losses of eastern rivers. For that a canal network should be built immediately before the division of water supplies got finalize. Assuming that India agreed to the plan provided by World Bank then the water supplies in the eastern rivers

[56] Nasrullah, "Wullar," 84-86.
[57] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 29.

will be reduced drastically and to supplement that loss water from western rivers will be transferred to eastern considering the cost to build canals would be paid by India.

Studying the plan of World Bank, Pakistan raised four major concerns which as follow:

- What supplies of waters based on historic uses from western rivers will be allocated to Pakistan and projects on those waters?
- What if new engineering projects needed to be constructed?
- Which supplies should be assumed by Pakistan to cater its all water needs?
- What if the projects on western rivers and supplies from western rivers won't be enough to cater the needs historic water use of Pakistan?

In response to Pakistan concerns, World Bank issued an explanation regarding the concerns of Pakistan that the plan is based on pre partition and actual historic water use and in case of any dispute due to the difference of opinions then the pre-partition and actual usage will be taken in consideration to mitigate the difference.[58]

Data collection procedure explained by World Bank as the actual water drawl mentioned in Punjab Gauge and Discharge registers from the period from 16 October 1921 to 15 October 1946 will be considered actual and accepted as true data. The data will be summarized in form of 10 days for the mentioned 25 year period based on water drawl from Indus Water System.[59]

Pakistan after considering all the factors and explanations devised its own cost effective plan known as London Plan and presented it in front of World Bank and India in meeting held in July 1958. In plan Pakistan proposed the plan of building 10 link canals instead of upper Indus link canal and also the construction of dams on Indus and Jhelum River.[60] Terbela Dam will be constructed on the river Indus to cater the needs of Sindh province while Mangla Dam will be constructed on River Jhelum in Pakistan occupied Kashmir to supplement the agricultural needs of Punjab province. Two link canals i.e. one from Kalabagh to Jhelum and other one from Taunsa to Panjnad was also propose. Additionally many small water storage projects were proposed on river Indus, Jhelum and their tributaries.

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[58] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 319-320.

[59] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers, 1973), 85-87.

[60] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 322-325.

1.2.7 India 1958 Plan and Pakistan Response

In 1958 Indian delegation put forwarded a plan in which they have shown interest in building water storage projects on River Chenab in Indian Occupied Kashmir.

India plan was to build two diversion canals which will carry the water from River Chenab to other rivers. India proposed building a water storage dam on River Chenab in Dinagarh by the name of Salal Hydroelectric Project. India also proposed that if Pakistan agree on this project then India is willing to provide the guarantee the delivery of half of replacement needs.[61]

As Pakistan was able to convince the World Bank that without any water storage sites the waters of western won't be enough to cater the agricultural and other domestic needs of Pakistan. Eugene Black noted the Bank plan as unfair and pointed out that Pakistan irrigation system will be deprived of the water. This statement is also got strengthened by study of Mr. Tipton, consultant engineer hired by Pakistan. As per study of Mr. Tipton the distribution of water as per World Bank is not just and didn't satisfy the international law of equitable distribution of the resources like water.

The Bank acknowledges the issue and made slight adjustment. As the per Bank this new plan should have provided the assurance to Pakistan regarding the timely supply of water from eastern rivers or will provide enough water supplies to build water storage on western rivers. The Bank was in favor of building water storage projects on western rivers to ensure maximum usage of water. The issue took four years to get solved and to get both India and Pakistan government on common grounds. Both countries just don't have the issues regarding the division of water but also regarding the finance required to complete the construction projects. As both are nascent states can't incurred the charges laid by World Bank to build the construction projects for the settlement of issues.

Both parties agreed on the condition that World Bank will provide the financial assistance and also insurance from friendly states like USA, Canada, England, New Zealand and Germany and had an agreement in September 19, 1960.[62]

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[61] VK Sashikumar, "Why the Indus Water Treaty has Stood the Test of Time," *DAWN, October 22*, 2016, accessed on August 2018, https://heral.dawn.com/news/1153544

[62] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 325-328.

Summary

Indus water dispute had highlight the possibilities of conflict to claim the rights of water. India being an upper riparian state was at advantage and can exploit the weakness of Pakistan being a lower riparian state. Sense of insecurity is created by India in mind of Pakistani government that India at any given point can cut off the water supplies flowing into Pakistan.

Both countries locked in to several negotiations and failed to reach the common grounds and heat between the two countries get intensified as both states claim their rights as just and lawful.

Rising tensions and heat between the both states got the attention of other countries and third party finally intervened to settle the disputes the issues between both states. World Bank became the intervener and invited both states for dialogues. The bank gave assurance to Pakistan that India won't cut off the supplies until an agreement is reached. Finally with the assurances from friendly states like England, USA, Canada, both India and Pakistan decided to sign an agreement. The World Bank assumes the role of facilitator and promoted the friendly communication between both states. Meditation process between the India and Pakistan was slowly took over by World Bank and present its own plan for the settlement of dispute.

Chapter 2

Indus Water Treaty (IWT): India and Pakistan Implications

Two new states emerged at the globe just after the fall of British Rule in subcontinent. As like many of the newly born countries, Pakistan and India also faced the hardcore issues regarding the partition of resources. Besides other intense issues, the issue of water was major reason of tension between the both new states just after the partition. Most of the water generating areas were given to India and it made Pakistan unhappy from day first. The partition authority made Standstill agreement for both states regarding water sharing that was bound to be followed till 31st March 1948. For few reasons, the Standstill agreement could not be extended between the two parties and resultantly India halted the water supply from 1st April 1948.[63] With this discontinuation of water, Pakistan immediately started talks with India that got successful on 4th May 1948. The new water sharing settlement was called Inter-Dominion Agreement. The agreement was relatively weak because there was no third party as a guarantee which could force the implementation for a long period. The other flaw in this agreement was cost issue between Pakistan and India. Pakistan remained uncomfortable throughout this agreement and sent a notice of termination Inter-Dominion agreement on 23rd August 1950 which was responded by India on 12th September 1950.[64]

International intervention was greatly needed during the Indo-Pak water tension and World Bank came forward as a mediator and played a huge positive role in resolving tension. The attention of World Bank was brought to the issue by famous American attorney and public administrator David E. Lilienthal who visited India and Pakistan to write a series of articles for a magazine. His first article was published in August 1951 and World Bank invited the leaders of both countries for negotiation in September 1951.[65] Due to World Bank's sincere efforts, the series of talks between Indo-Pak leadership started. The World Bank suggested the both countries to bring the proposals

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[63] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 61, 62.
[64] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers, 1973), 85.
[65] Robert G. Wirsing and Christopher, "Spot Light Indus River Diplomacy: India Pakistan and Baglihar Dam Dispute," *Asia-Pacific Center for Security Studies* 7 (2006), accessed on March 15, 2017, https://apcss.org/Publications/APSSS/IndusRiverDiplomacy.Wirsing,Josparro.pdf.

to resolve the water issue. Pakistan and India presented few proposals but not a single one was adapted by the both states. The World Bank also brought its suggestions during the talks but those were also refused by Indo-Pak leaders.

After the unending and continuous efforts of a decade by the World Bank, an agreement between the two states were finally signed on 19th September 1960.[66] The new agreement was named as the Indus Water Treaty (IWT) which was signed by the Indian prime minster Pandit Jawaharlal Nehru and Pakistani president Ayub Khan at Karachi. With the ratification of this treaty the decade long water tension of India and Pakistan resolved. The Indus Water Treaty is believed to be one of the most successful treaties in the world today that resolved the tension between the two countries. Although there were many issues seen regarding the water sharing between Pakistan and India but no major conflict or war was fought. This shows the successfulness of the IWT.

Fig. 2.2: Indus Water Treaty Signing Ceremony

Source: World Bank Group Timeline

Left to right, Prime Minister of India Jawaharlal Nehru, President of Pakistan Ayub Khan and the World Bank Representative David E Lilienthal (19 September 1960).

[66] Saif-ur-Rahman, "Water Wars and Navigating Peace over Indus River Basin," *Monograph of NDU* 4 (2010): 12.

2.1 Structure of Indus Water Treaty

The Indus Water Treaty comprises of three sections: The preamble, twelve articles and eight annexures A to H. The treaty attempts to deal comprehensively with the issue of water distribution and the flow of water in the Indus basin, and mechanisms to deal with disputes. The fundamental aim of the agreement is increasing the water availability to the both parties India and Pakistan.

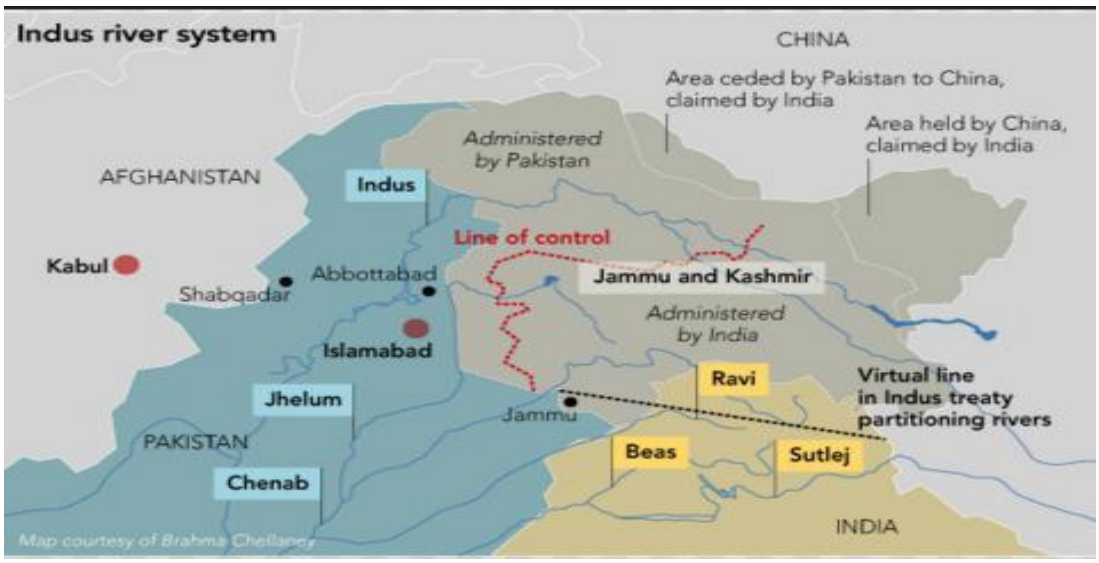

Fig. 2.3: Indus River System

Source: Brahma Chellaney, Nikkei Asian Review, Rivers of conflict between India and Pakistan August 19, 2016.

The agreement distributes the Indus Basin water resources equitably to them. During the tension period on water issue both parties (India and Pakistan) were demanding their water share by interpreting water law of "absolute rights" and "historic use". The agreement tried to find a better solution that was driven by the principles of water engineering and economics relatively than legal principles.[67] The Indus Water Treaty divided the Indus River System between the both parties India and Pakistan and gave them independent control and regulation of supplies within their area.[68] The main principles of the Indus Water Treaty are:

[67] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003): 130, accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf

[68] Salman M A Salman, "The Baglihar Differences and its Resolution Process-a-Triumph for the Indus Water Treaty," *World Bank Paper* 8448 (2007): 147.

2.1.1 The Principles of Water Sharing

As per Indus Water Treaty, the rivers flowing in Indus System is divided between India and Pakistan i.e. three rivers to each state. The river system divided in Eastern Rivers and Western Rivers.

- Article II of the Indus Water Treaty permit India unrestricted use all the water of Eastern Rivers which comprise Ravi, Beas and Sutlej. Pakistan was permitted by way of exception to take water for domestic, non-consumptive and certain limited use of agriculture.[69] The Annexure B gives details of agrarian utilization of 45500 acres from tributaries of Ravi River which have been allocated to India.
- Article III (1) of the Indus Water Treaty permit the Pakistan unrestricted use all the water of Western Rivers which comprise Indus, Jhelum and Chenab. The annexure C in which India is under commitment to flow and will not allow any obstruction with these water aside for the domestic, non-consumptive, agriculture, generation of hydroelectric power and water storage.[70]

A huge debate occurred to discuss the Indian use of western rivers which were allocated to Pakistan. After the long sessions of detailed discussions, India was permitted to use calculated and limited water resources out of the western rivers. India was allowed to use a calculated quantity of water for agricultural, storage and hydropower. Annexure 'C' belongs to the limitation and usage of water of western rivers by India.[71] The details with facts and figures are given below:

India was allowed an agricultural use of water from western rivers as much as 1.3 MAF. This means that India was given the authority to use the water from western rivers for around 13, 43,477 acres while India is currently using the water to irrigate merely 7, 92,426 acres. It means that India is still having the opportunity to extend approximately 45% of its irrigational usage.[72]

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[69] R.K Arora, *The Indus Water Treaty Regime* (New Delhi: Mohit Publication, 2007), 9.
[70] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf
[71] Salman M A Salman, "The Baglihar Differences and its Resolution Process-a-Triumph for the Indus Water Treaty," World Bank Paper 8448 (2007): 177.
[72] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 277-279.

Annexures 'D' and 'E' are related to the rules and regulations regarding the water storage on western rivers. India was allowed to store a total of 3.6 MAF for flood storage, power storage and general storage. Moreover, India was allowed to build the hydroelectric plants with the condition that these plants will never restrict the water flow.[73]

Articles IV (2) and IV (6) both are clearly define that India can use the water of its limit but there should be no material damage or diversion of water, or any hurdle in way of independent flow of water. The treaty also suggested a condition for India for limited use of its water for 10 to 13 years, so that Pakistan could build the infrastructure for the storage of its water. Pakistan constructed 2 dams, 9 link canals and 6 barrages for the storage of water coming from India.[74]

2.1.2 Principles of Cooperation

Articles VI and VII suggested the two great inputs that enhanced the importance of the treaty. These two major articles were 'exchange of date' and 'future cooperation' between the two countries to keep the treaty active and influential.[75]

The 'date exchange' was further explained to avoid any misunderstanding between the two parties. This article suggested that every party should share the date of the following developments on daily basis:

- Daily data of gauge and flow of water
- Daily extraction of water from the overall flow
- Daily withdrawals of water from the heads of canal
- Daily left-over water from the overall flow, and
- Daily deliveries of water from the link canals

The all above data was supposed to submit monthly by every party with each other.

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[73] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *South Asian Studies* 28 (2013), accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

[74] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580(2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf

[75] World Bank, *"Indus Waters Treaty 1960"*, Article VI, VII, accessed on June 18, 2017 http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf

As far as the article of 'future cooperation' was concerned, the following recommendations were given by the World Bank to keep the treaty active and alive:

- Cooperation will be ensured by the both parties in case of installations of any hydroelectric project.
- There will be a cooperation on any project of drainage works by the two parties
- In starting of any engineering work, the cooperation will be safeguarded

Both, articles VI and VII, are very ideal and positive in sense of strengthening the treaty and these were suggested to increase the goodwill between the both states. The sense of including these articles was to enhance the understanding and cooperation between the two signatories of the treaty. As much as the data was shared, the understanding of problems will be increased.

The 'date sharing' and 'future cooperation' would helped decreasing the mistrust and misunderstanding of Pakistan and India but unfortunately both the articles could not be implemented or practiced with true spirit by both stakeholders.[76]

Pakistan and India could not share the data and could not build the environment of cooperation suggested by the World Bank in their actual wisdoms. This lack cooperation and understanding led both countries to the situation of mistrust and misunderstanding.

2.1.3 Principles Dispute Resolution

The Indus Water Treaty (IWT) is the most successful and active treaty of arbitration in the contemporary world. It has many unique points in it that can be discussed in quite detailed way but in the following lines, a bird eye glance is provided on the unique segment of the treaty that suggests a bunch of dispute resolving methods.[77] Here are the few suggested mechanism or principles to resolve the future deadlocks:

- Indo-Pakistan Permanent Indus Commission
- Two governments talks or negotiations
- Neutral experts to resolves the matters, and

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[76] World Bank, *Indus Water Treaty 1960* Article VI, VII, accessed on June 18, 2017 http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf

[77] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf

- Court of Arbitration

These conflict resolution methods were briefed and suggested in Article IX in a detailed way that how PIC and other methods can be used to come out of the disputes and deadlocks that are hurting the true sense of cooperation. It is undoubtedly one of the best part in the treaty, but unfortunately like the other parts, it was not practiced in its true spirit to resolve and avoid the misunderstanding between the countries. The all suggested bodies of dispute resolution could not perform their roles in magnificent way because of the day first tension and mistrust between the two countries.[78]

2.2 Indus Water Treaty Implications

The Indus Water Treaty proved to be magical as it ended the decade long tension between Pakistan and India on water issue. It was highly cherished by the international community for its major role of conflict resolution and it was considered to be the best example of the water dispute resolution. The Indus Water Treaty made the Indus Basin worthwhile for both of the states on political and economic basis. This treaty established a new sense of cooperation between the two states to utilize Indus Basin more efficiently. It was the start of new friendship era between India and Pakistan which became possible after the signage of the treaty.[79]

2.2.1 Implications for India

Pakistan and India, both were relying majorly on agriculture on the time of partition. The importance of water initiated the dispute which resolved by Indus Water Treaty. Both states tried to build as much infrastructure as possible to capture and cater more water for the purpose of irrigation. India as a first passage of these waters tried to use more water for its irrigational purposes. Pakistan was the second passage of water after India but this country also needed the water for its irrigation. Equal need of water made both countries possessive for water which initiated a dispute between both of them.[80]

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[78] World Bank, *Indus Water Treaty 1960* Article IX, accessed on June 18, 2017 http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf

[79] J.S. Mehta, "The Indus Water Treaty: A Case Study in Resolution of an International River Basin Conflict," *Natural Resources Forum* 12 (1988): 69.

[80] A. K. Jain, and Raj Kumar, "Water Management Issues- Punjab, North-West India," Paper Presented at Indo-US Workshop on Innovative E-technologies for Distance Education and Extension/Outreach for Efficient Water Management, ICRISAT, Hyderabad, India, accessed on November 24, 2017. http://akicbifasufl.edu/upload/proceedings/jainakwatermanagement .pdf

By the signage of Indus Water Treaty in 1960, India got success in expanding its irrigation system. These plans were made in May 1948 which were unable to be implemented due to the water dispute of both countries. It was Central Bari Doab Canal (CBDC) scheme remained unsuccessful due to the tension on water issues. Just after the treaty, India started working on a project of interlinking canals from Beas, Sutlej and Ravi rivers. This interlinking canals project increased the area of irrigation for India manifolds. This project of widening the irrigation made India greener and brought a revolution in food production. This project enhanced the food production of the country.

Beside this interlinking canals projects, India started many other schemes for the promotion of irrigation throughout the country. Upper Bari Doab Canal, Sirhind Canal and Rajasthan canal systems were introduced just after the success of Indus Water Treaty. The huge water project named Indra Gandhi Canal was also started in the same era with same high passion and concentration. These canal systems were linked with Bhakra Nangal, pond and Harike Barrages in India which revolutionized the overall agriculture production in the country.[81]

The Sutlej River was used for Bhakra and Nangal dams whereas the Harike barrage was built on the union of Bias and Sutlej rivers to irrigate the larger agricultural fields of Rajasthan and Ferozepur areas. The major project was Nangal project which was built on the aim to irrigate approximately 1.46 million hectares in the states of Punjab, Haryana, Chandigarh and Rajasthan.

This constructions of these projects enhanced the irrigation capacity of India in the states of Punjab, Haryana, Chandigarh and Rajasthan. These projects brought a new success in the field of irrigation in the above mentioned states. These projects added 6.8 million hectares in irrigation circle of India from 1960 to 1996. This definitely increased their agriculture production at large scale. Due to the above discussed agricultural projects of interlinking canals, dams and barrages the production of wheat and rice in the Bhakra area. It was eight time more in 1996 than 1960. More than 60%

[81] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation,* (Bombay: Allied Publishers, 1973), 357.

area was increased after the Indus Water Treaty. India was using 22 million hectares of Indus Basin in 1947 which increased to 55 million hectares in 2000.[82]

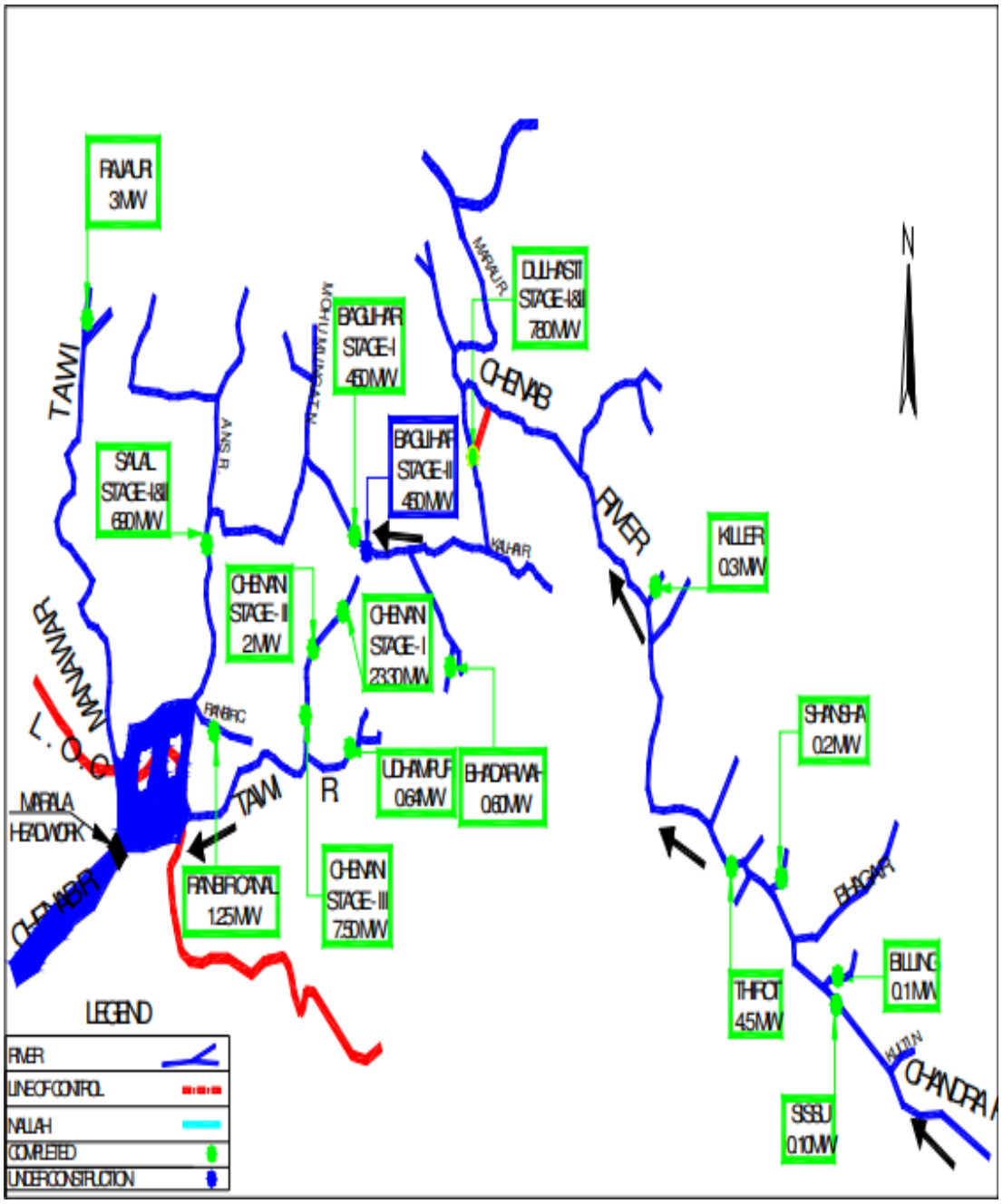

Fig.2.2: Location of Indian Commissioned Project on River Chenab

Source: Indus Waters Commissioner Pakistan January 2011. Maps are drawn free hand. The aim is merely to give an idea of the location of the projects.

[82] India: Report on Economic Impact of Interlinking of Rivers Programmed, National Council of Applied Economic Research, India, April (2008): Xiii, accessed, 26 November 2012, http://www.ippan.org.np/library/sc andoc/MISC-003.pdf.

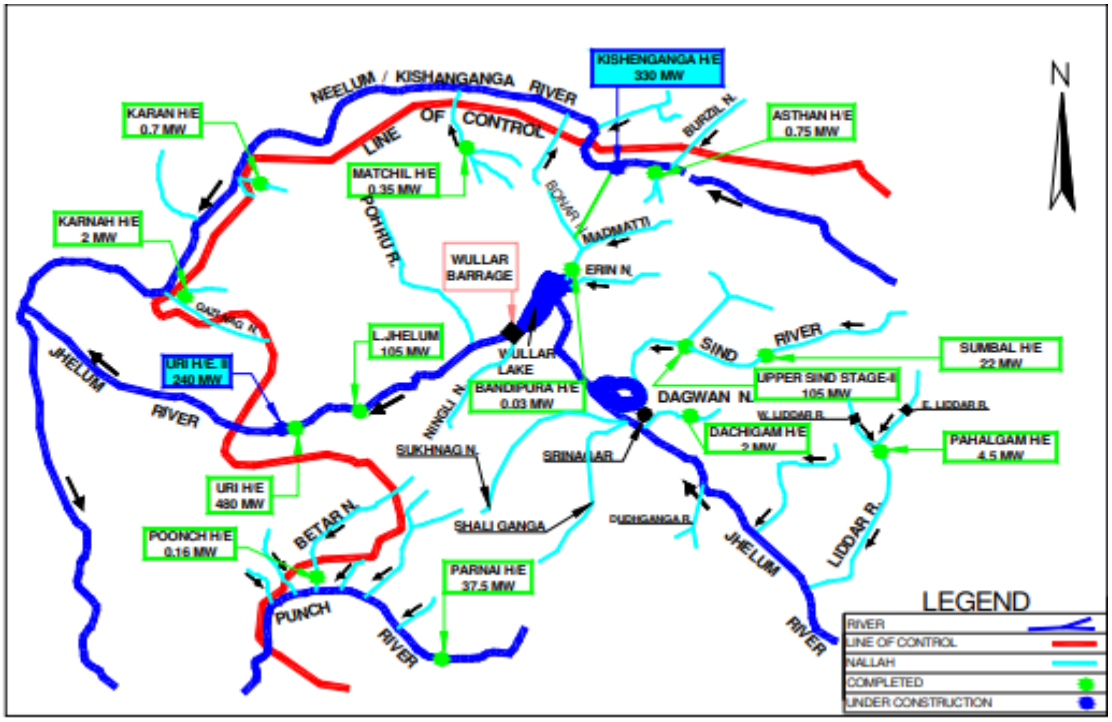

Fig 2.4: Location of Indian Commissioned Project on River Jhelum

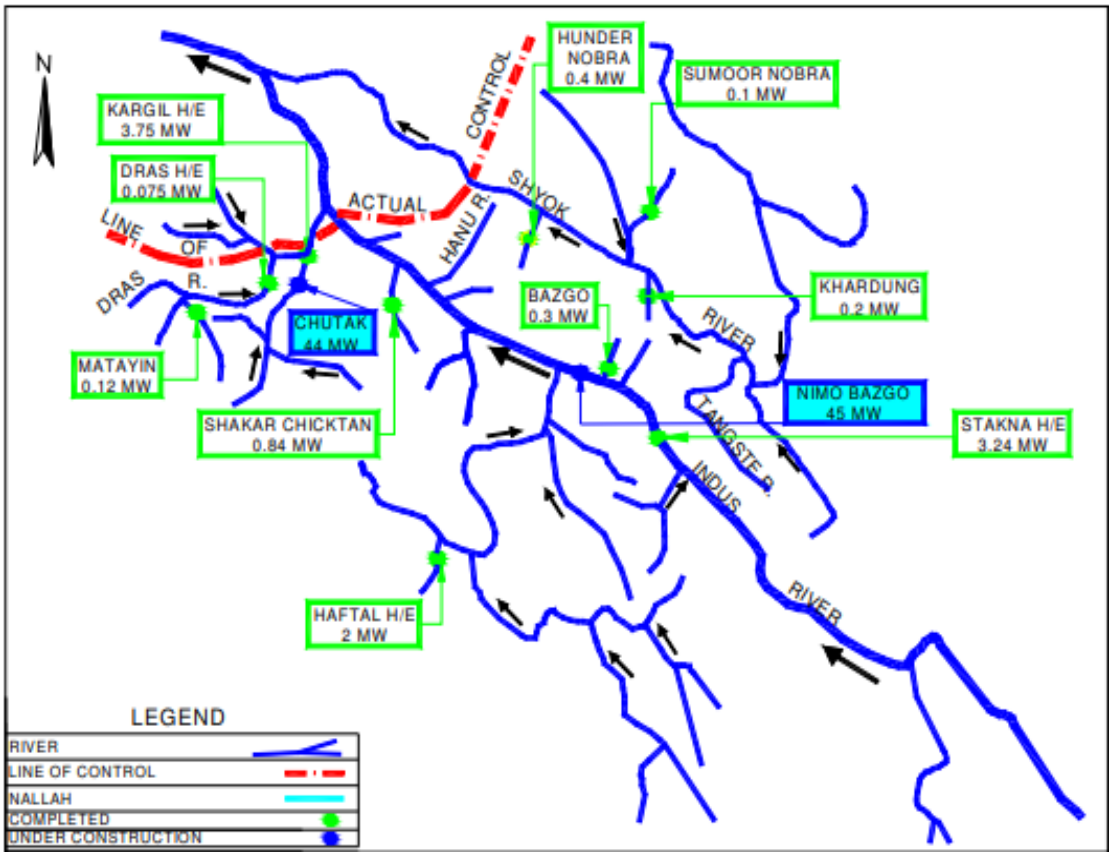

Fig. 2.5: Location of Indian Commissioned Project on River Indus

2.2.2 Implications for Pakistan

After getting independence, assurance of water supply from three western rivers and independent control of water is given to Pakistan under the treaty as previously eastern rivers are used to supply water to canals. In 1961 with modifications and rectifications in treaty led to the development of Indus Basin Development Fund (IBDF). With the establishment of the body, Pakistan started to work on the world largest hydropower projects which enable Pakistan to produce green energy.[83]

Under the treaty, Pakistan was granted access to water by the division of three western rivers to meets its both agricultural and energy demands. Treaty led to the development of several canal links like Qadirabad-Balloki Canal, Sindhani-Mailsi Canal, Rasul Qadirabad Link Canal, Chashma-Jhelum Link Canal, Haveli Canal, Trimmu-Sindhani Canal and Taunsa-Panjnad Canal link.

With the help from World Bank, Pakistan was able to develop a water storage system to meet it's all agricultural and energy needs during the lean period. The system includes large dams like Mangla Dam on River Jhelum, Warsak Dam, Tarbela Dam on Indus River, Jinnah Dam and various small and large canals.[84]

Above mentioned projects were used to generate eco-friendly hydropower which is used for agricultural and industrial need of the country. Pakistan, after signing the treaty built 19 barrages and 43 major canals with total length of approximately 57,000 km on western rivers. Through this network of barrages and canals agricultural need of 40 million acres were met. Also demand of fresh water for 172 million populations was met and energy storage capacity was increased to 33 percent. Through these project needs of area of 8.88 hectare of Indus Basin were met and continuously increasing with agricultural outputs.

At the time of independence Pakistan had the total installed capacity of mere 60 MW to meet the requirement of 31.5 million populations. By 1958 energy capacity got increased to 119 megawatts. Soon after signing the treaty Pakistan significantly increases its power generation by completing the projects of like 3478 MW Tarbela Dam and 1000 MW Mangla Dam. These dams helped Pakistan in meeting its increasing

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[83] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf.

[84] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 280.

energy and fresh water demands. More than 35 major and medium hydropower projects are present in province of Punjab and Khyber Pakhtunkhwa (KPK) and 84 small hydel projects with power generation of less than 2 MW are operational on river Indus and its tributaries in Gilgit Baltistan.[85]

Main development in water infrastructure and growth in economy of Pakistan was due to investment in energy sector by building dams is a fruit of the treaty. The treaty led several important developments like setting up of Water and Power Development Authority (WAPDA) which provided several employment opportunities is one of largest civilian employer. WAPDA was established with the technical and financial assistance from international community. Through these assistances Pakistani engineers got acquainted with the knowledge of water management and constructions of dams.[86]

As India and Pakistan are both developing nations and agriculture states by heart, any growth of Indus Basin with result in the positive contribution in the economy of both states. As both countries had a history of bad relations, the treaty between the both countries acts as a diplomatic bridge and allowed both countries could complete their projects individually without any hassle. The development from both countries had made Indus Basin, a development rich area serving a large number of peoples. These developments have allowed the economies of both sates flourish in positive way.[87]

2.2.3 Negative Implications of Indus Water Treaty

Indus Water Treaty which acts as a peace indicator between countries had drawn positive praise from the society. Also treaty met with negative criticism from both countries. These critics deemed the division of water unfair. Several Indian critics objected to the division of water from Indus River. They consider the 80% allocation to Pakistan as unfair as they think that India should be granted more than 20%. As per several Indian scholars like K. Warikoo, M.S. Menon, S.K. Grag and B.R. Chauhan, all

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[85] A. N. Laghari, Davy Vanham, and Wolfgang Rauch, "The Indus Basin in the Framework of Current and Future Water Resources Management", *Hydrology and Earth System Sciences* 16 (2012): 86-97, accessed on January 5, 2018, https://www.researchgate.net/publication/307726468_The_Indus_basin_in_the_framework_of_current_and_future_water _resources management.

[86] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *South Asian Studies* 28 (2013): 101-105, accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

[87] Power Generation, *Water and Power Development Authority, Government of Pakistan*, accessed on November 26, 2017, https://www.wapda.gov.pk/htmls/pgeneration-hydelpower.asp/

are in the opinion that India should have granted 42.8% share of Indus River on the basis of area of agriculture land, population and drainage area. They believe that treaty had put the financial burden on India by not allowing India fully utilize the potential of three western rivers. As per Indian scholars treaty doesn't provide accurate picture of water division.[88]

These critics failed to understand the real spirit of treaty which is the possession of rivers on western side rather than the equal and just division of the waters. The treaty granted possession of three eastern rivers i.e. Sutlej, Ravi and Beas to India and Pakistan was granted control of River Indus, Jhelum and Chenab flowing through its part and had to share the water with India where the parts (Upper Kashmir) fall in India. India fails to acknowledge the compromised made by Pakistan which she herself is campaigning for. Also Indus Water Treaty fails to recognize the water rights of area and water usage in absence of any viable or alternative source. In addition to that Pakistan has also to negotiate with two more upper riparian states i.e. China and Afghanistan. India wouldn't be able to make such great progress in its Punjab if she had to share the waters of eastern rivers with Pakistan as Pakistan is doing with India.

2.2.3.1 Provincial Disharmonies

British policies in united India was focused on the development of the Punjab and this had created a tussle between the province of Punjab and Sindh. Punjab saw itself as agrarian bucket of the subcontinent thus justifying its use of more water usage and development of water infrastructure. Sindh however felt neglected during the British era as the most of the development is focused on the upper Indus Basin. This resulted in lobbying from Sindh government for convincing British government to start development in lower Indus Basin whereas Punjab government try hard to secure its resources. British government got tired of the tussle between the Punjab and Sindh government and wanted both governments to cooperate with each other but failed to do so.

The water dispute between Punjab and Sindh government got more severe during time period of 1947 to 1960.[89] Also during that period India invaded Kashmir in 1948 and

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[88] Farid Asif Shaheen, "Sustaining Energy and Food Security in Trans Boundary River System: Case of Indus Basin", *Sher-e-Kashmir University of Agricultural Science and Technology* 35 (2005), accessed on June 15, 2017, http://archive.riversymposium.com/index.php?element=SHAHEEN.

[89] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 45, 50.

capture major headwork's and also demanded the exclusive control of three eastern rivers. This water capturing strategy and demands of exclusive rights from India, resulted in signing of a treaty which itself remained as topic of hot debates among political elites. As result of treaty, other provinces blame Punjab for selling out the rivers and developing the water resources on the behest of other provinces. This blame game ignited the sparks of internal and ethnic rivalry. The water treaty between India and Pakistan played a major role and also a thought of school who always see's the water related policies in favor of Punjab contributed to this rivalry. This school of thought wanted the internal destabilization of Pakistan that's why they do politics on water, ethnic and regional topics like Muhajirs, Muslims vs. Non-Muslims, and Punjabis vs. Sindhis etc. This school of thought was mainly responsible for igniting the interprovincial water rivalry and kept fueling it. Slowly population started to realize and several debates raised on the water allocation of Punjab.[90]

First there was concern from Sindh but later on province of Baluchistan and Khyber Pakhtunkhwa also raised their concerns as they are mainly dependent on Indus River and are able to develop the canal irrigation system. The favoritism towards Punjab from British government during pre-independence days had already done a damage to relations between Punjab and Sindh as the province of Sindh felt neglected. Same case followed after independence as people of Sindh feared that Punjab holding major and important positions in Military and Bureaucracy will again suppress their rights.

Although the politicians of Sindh played an important role in heightening the issue of water among the population. The water dispute stand as both ethnic and economic issue among the people of Sindh. Sindh being a lower riparian province and is mainly dependent on the supplies of Indus River thus their survival is mainly dependent on the River Indus. Mistrust between Punjab and Sindh rose to the level that when threatens to stop the water supplies of flowing into West Pakistan, Sindh was concern with the water activities of Punjab. In 1950, even Sindh assembly pass the legislature in which complained that Punjab is taking on the projects which apprehend the supplies flowing into Sindh and is clear violation of 1945 Sindh-Punjab agreement. By 1954, Pakistan federal government assured both provinces that treaty between India and Pakistan won't

[90] Hussain, *Indus Water Treaty*, 45-50.

affect their positions over the domestic water shares and if any issue arises the government will appoint a commission to resolve the issues.[91]

With the imposition of One Unit Act in 1955, the debate for allocation of water for provinces ended the claims of Sindh as concept of provinces was abolished so Sindh's claim rendered baseless. After the abolishment one unit act, the political provincial tension between Punjab and Sindh resurfaced and so does the water dispute become more imminent. Several talks and debates took place in the national and provincial assemblies as the politicians exploited this situation for personal gains and lot technical things got blurred and muddled. This muddled things also got in the offices of provincial water management issues and they couldn't agree on the technical matters and issues. Tension was mounted on politicians as they had used the agenda of water dispute for personal use and wouldn't wanted to give up their stance especially in region of Southern Punjab and lower Sindh.[92]

Arguments over water distribution got heated again after the abolishment of one unit act. Major point of argument is over Punjab vs. other provinces as Province of Punjab is considered as the bread basket of the Pakistan and as per Punjab argument that it's in the national interest of Pakistan to develop a strong and efficient water system in Punjab. Any other province who raises concern on water distribution is then their demand is labelled as threat to the security of Pakistan. Punjab also justifying its more use that it almost meets the agricultural need of entire so its need more water and better resources to manage that need. Punjab have described the demands of Sindh as selfish and against the interest of the Pakistan. The Sindh on contrary, dismissed the claims of Punjab and wanted its appropriate share of water because as per Sindh its development being halted by the receiving the both depreciated quality and quantity of water. Kala Bagh Dam is an example of one of the many disputes between Punjab and Sindh on water.[93]

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[91] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 281.

[92] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *South Asian Studies* 28 (2013): 67, accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

[93] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 50-52.

2.2.3.3 Gulf between East and West Pakistan

The issue of Ganges project got over shadowed during the signing of Indus Water Treaty. Project Ganges was a major issue between West Bengal (India) and East Bengal (East Pakistan). Main reason behind the lobbying of West Barrage project is the economical, commercial and industrial gains. Work on plan of Ganges project was already in works since the partition of sub-continent but India decided to start working on project in 1960 and decided to tell Pakistan about the project in 1961. Worth noting point is that India started work on project four months after signing the Indus Water Treaty.

West Bengal government was keen to start the project at earlier possible and for that it exerted a great amount pressure on central government of India but then Indian minter for Transport told the Indian parliament that the work on project can't be started and the reason for the delay can't be disclosed now. Ganges project can be seen as point of contradiction between West Bengal and East Bengal but also between West Bengal Government and Central Government of India.[94]

For this a high level talks between India Prime Minister Nehru and Pakistan President Gen. Muhammad Ayub Khan held and agreement was signed known as "Nehru Ayub Agreement". Pakistan response on Indian Farraka project can be interpreted in five stages as follow:

i. Cooperation
ii. Technical Exchange of details of Projects
iii. Pressure for holding high level talks
iv. Attempts for involving third parties
v. Threat of Retaliation

Also for the first time Nepal got involved in the matter and needed to revisit its agreements with India Government on project Kosi and Gandak Project both on the upstream tributaries of River Ganges.[95]

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[94] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 65-68.

[95] A. N. Laghari, Davy Vanham, and Wolfgang Rauch, "The Indus Basin in the Framework of Current and Future Water Resources Management", *Hydrology and Earth System* Sciences 16 (2012): 70, accessed on January 5, 2018 https:// www.researchgate.net/publication/307726468_The_Indus_basin_in_the_framework_of_current_and_future_water _resources management.

Also if we revisit the history, we can't find much in the literature regarding the tradeoffs made in Indus Water Treaty on the matter of Ganges project but the people and politicians believe that tradeoffs were made in the Indus Water Treaty. This had also contributed to the separation of East and West Pakistan in to Bangladesh and Pakistan.

2.2.3.4 Alienation of Kashmiris

During the signing of Indus Water Treaty, neither India nor Pakistan did account of views of Kashmiri leadership and historical water uses. Most of the process is kept in secret from the public of Kashmir and both nations. After the signing of the Treaty, massive pressure is imposed on the leadership of both countries by the public especially on Pakistan in which public demanded the liberation/capture of Kashmir state.

Meanwhile the restoration of talks between both countries signaled the settlement of Kashmir dispute which will be resolved in same spirit of settlement of Indus Water Dispute. In this regard the "Bhutto-Swaran Singh" talks were held in 1962-63 which are fully dedicated towards the resolve of the Kashmir Dispute. Both sides agreed on following:

i. Delineation of International Boundary in Jammu and Kashmir
ii. Disengagement of forces of India and Pakistan on in and around borders
iii. Removal of tension elements

Chenab formula was driven from the Bhutto-Swaran Singh talks. As per the formula the riverbank of Chenab will act as a boundary and both countries seems to agree on it but the then President of Pakistan Gen. Muhammad Ayub Khan was worried that this formula will not be acceptable to the people of Pakistan especially to NWFP and Punjab as both provinces wanted whole of Kashmir to join with Pakistan. The sudden death of Mr. Jawaharlal Nehru ended the Chenab agreement and with agreement hope of settlement of Kashmir Dispute also got dissipated. It was the dearest desire of Gen. Muhammad Ayub Khan to settle the dispute of Kashmir along the riverbank of Chenab River.[96]

With the public pressure amassing on Ayub Khan's Government and also support from America after the signing of SEATO and CENTO treaties, Ayub Khan Government tried to settle the Kashmir dispute with force. Operation Gibraltar was launched by Pakistani Government in Indian Occupied Kashmir. The main objective of the

[96] Chaudhri Muhammad Ali, *The Emergence of Pakistan* (New York: Columbia University Press, 1967), 221-222.

operation was to provoke an uprising in India held Kashmir. Pakistan military was under the impression that India would not cross the international boundary but their assumption proved wrong and India attacked Pakistan on Lahore and Sialkot fronts with full might and force.[97]

Pakistan army got massive support from the public as they not only contributed with whole heartedly in the national defense fund but were also supplying the home cook food to the troops fighting on the border. The war ended as draw between both countries and hopes of liberation of Kashmir got away with it. A Tashkent agreement was signed between both nations. Since the signing of Tashkent Agreement to Kashmir Uprising in 1989, no real efforts were made from the government of Pakistan. Pakistan extended moral and political support in the uprising of Kashmir and kept on raising the violence in Kashmir.

In the above particular scenario, the facts like quality and quantity of land under water usage, number of people living in the area and what will be the future demands of water are ignored completely. These questions have played with mind of peoples of both countries living across have to decide on the basis of votes.[98]

One very other end, critics from Pakistan think that India share of 20 percent is more than generous as areas which falls in the India region have historical water usage less than 10 percent so more than generous amount was given to India in Indus Water Treaty. Also the experts of Pakistan believe that India held a strategically important position in Kashmir as it can anytime block the flow of River Jhelum and River Chenab, two very important sources of water supply for Pakistan, thus treaty giving a sense of relief to Pakistan by assigning these rivers to Pakistan.

Treaty was never intended to solve the past, present or future disagreements between both countries. The real purpose for the formulation of treaty is to bring both countries on common grounds and to develop mutual understanding by signing an agreement on give and take basis so both countries can flourish and develop their economies. With respect to changing environment, dropping water levels, more need of water and entry

[97] Ali, *The Emergence,* 221-222.

[98] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 280.

of new upper riparian states (Afghanistan and China) require treaty to be considered and formulated again.[99]

Discontent and regional disparity is another reason associated with the treaty. As people from Azad and Jammu Kashmir believe that treaty is act of discrimination and no water rights of Kashmiri people were considered during the signing of treaty. This had drawn severe political criticism on treaty in state of Jammu Kashmir and legislation was passed in 02 March, 2003 demanding the changes and full review of treaty.

Summary

Indus Water Treaty which proves to be both positive and negative for India and Pakistan but the treaty has produced more complexities in the Indo-Pak relations in a longer run. The treaty had provided temporary relief but will prove fatal in the future due to the permanent division of water Indus Water Basin. As this division will be the root cause of distrust between both countries. Also the treaty had put the Pakistan at verge of danger being lower riparian state as India can any given time can block the flow of three western rivers i.e. river Indus, Jehlum and Chenab.

Separation of Kashmir from Indus water system and being labelled as a separate political issue by India. This move provide both India and Pakistan with enough time to consolidate and strengthened their positions and views on Kashmir. The led to the path of no cooperation between India and Pakistan which is not expected and believed by the meditator i.e. International World Bank at the signing of Indus Water Treaty in 1960.

[99] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *Asian Studies* 28 (2013): 90, accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.

Chapter 3

Controversies Regarding Indus Water Treaty: Narratives of India and Pakistan

Indus Water Treaty which was signed in 1960 after a decade long time hardships to end all the disputes and for better understanding between two countries by sharing technical details and mutual sharing of waters and other resources. The treaty was followed to full spirits until late 1970's. In early 1980's the treaty got in jeopardy of multiple conflicts due to rapid increase of populations of both countries which reflected huge in water consumption levels and also due to climate changes which results in scarcity of rains continuous decrease in ground water levels.

Today the treaty is in hold of multiple intense controversies that it could undone all the efforts of many years. The main cause of these controversies are the hydro Projects started by India which are against the Article III (2) (d) of Indus Water Treaty[100]. As per this article, India is allowed to build run-of hydro project on western rivers with twice as much of pondage level required for the power generation without any sort of live storage. Pakistan objected to these projects as Pakistan believe that India is in violation of the mentioned article but India believes that they are well in the jurisdiction of the clause.[101]

3.1 Controversies

3.1.1 Salal Hydroelectric Project

The first controversial project was Salal Hydroelectric project started in Indian Occupied Kashmir by India. Construction decision was taken in 1970 and details regarding storage capacity and design were share with Pakistan in 1974.[102] Pakistan

[100] World Bank, *Indus Water Treaty 1960* Article III (2) (d), accessed on June 18, 2017 http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.

[101] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf

[102] Farid Asif Shaheen, "Sustaining Energy and Food Security in Trans boundary River System: Case of Indus Basin," *Sher-e-Kashmir University of Agricultural Science and Technology* (2005), accessed on June 15, 2017, http://archive.riversymposium.com/index.php?element=SHAHEEN.

raises serious objections regarding the project design as Pakistan believe that flow of water will be disturbed or will cause flood in Western Pakistan. Later in 1976, another round of talks were held in which India agrees to modify the design and Pakistan also show some flexibility in its stand. Later in 1978 both India and Pakistan agreed to the common grounds by signing a treaty. This treaty proved to be the first major breakthrough in the series of conflicts between both parties.[103]

3.1.2 Dul Hasti Hydroelectric Project

Dul Hasti is two stage project located in district Doda on River Chenab with 390 MW power generation capacity. Pakistan objects on the pondage level as Pakistan considers it as dam which will serve irrigation needs of India.

The project was inaugurated in 1983 by the then Prime Minister Ms. Indira Gandhi with an estimated cost of 34 billion Indian Rupee (INR).[104] A gravity base dam will be built on upstream of river Chenab. Pakistan stand on this project was not as strong as compared to Baglihar and Salal project because the storage capacity of project was of max two days but stance was taken by Pakistan to discourage India for future endeavors.

3.1.3 Uri-II Hydroelectric Power Project

Uri-II is the extension of Uri-I project located on river Jhelum in Baramulla district of Iok. From 2002 to 2005 Pakistan made repeated request to India for project details and information. However in 2006 Pakistan sent a team of experts to monitor the project.[105] In 2007 India started the construction of project without taking Pakistan into confidence. Pakistan objected to this move of India and threaten to take the matter to World Bank for resolution but India continue to work on the project with slight alterations in the design of the project and the project is set to be completed by 2011.

3.1.4 Nimoo Bazgo Hydroelectric Project

Nimoo Bazgo Hydroelectric is 45MW project located in Ladakh district on River Indus. In 2009 India shared the design and details of the project with Pakistan.[106] Pakistan

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[103] Kalim Akhtar, "Indian Plan to Build a Barrage on the River Jhelum," *Nawa-i-Waqt*, Sept. 27, 1986.
[104] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012), accessed on March 12, 2017, https://aupc.info/wp-content/uploads/2012/12/V412-2pdf
[105] Akhtar, "Indian Plan."
[106] Dr. Shaheen Akhtar, "Indus Water Treaty: Challenges for Future*", Research Paper NDU* 6 (2017): 57.

after studying the documentations provided by India, raised six objections of which main objection was regarding the disturbance in flow of water. India however told the Indus Water Commission that they cannot provide the further or will argue on design of the project citing that it's not part of the ongoing negotiations. In addition they also didn't allow the Pakistan to visit the project site. In 2014, Indian Prime Minister Narendra Modi inaugurated all three units of the project.[107]

The main reason behind the successful construction of the project by India is the incompetency from Pakistan side to file the case as they lack proper documentations and paper work which allows the India to complete the project.

3.1.5 Wullar Barrage Project

Wullar Barrage Project commonly termed as Tulbul Navigation is the second controversial project of India and the controversy still remains unsolved to date. India aim to build the project on River Jhelum right at the mouth Wullar Lake, a fresh water lake located in Indian occupied Kashmir. India started the project in 1984 without sharing any kind of details with Pakistan. In 1985, Pakistan came to know about the project and raised strong objections against it.[108]

Fig. 3.4: Ariel view of Wullar Barrage

Resource: DAWN, Pakistan and India Begin Talks on Wullar Barrage Project; Distribution of Water, March 28, 2012.

[107] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 282.
[108] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 61-63.

As per Indus Water Treaty, Pakistan is allocated unrestricted access of the waters of three western rivers i.e. Jhelum, Chenab and Indus except with provision of certain uses by India in IoK. No storage project by India can be started on these rivers. Matter was raised in Permanent Indus Water commission for resolution but to no resort. Despite several meetings and objections, India continued to work on project until it got finally suspended in 1987.[109] By 2008, a total of thirteen rounds of talk were held including talks at Secretary Level with no significant results. Currently the work on the project remain suspended as no both parties failed to reach the agreement.[110]

3.1.6 Baglihar Hydroelectric Project

The third project in the series of controversies is Baglihar Hydroelectric Project. This was also the first project of comments of neutral experts were taken to answer the objections and queries of Pakistan. Controversy on the project begins in 1999 as Pakistan raises six technical objections regarding the design which includes gates height, spillways gates, pondage level, intake, height and elevation of tunnels. In 2002 India made details of project available to Pakistan which were both strongly opposed and met with severe objections.[111]

Fig. 3. 5: A view of Baghlihar Hydropower Project

Source: The Tribune, No Surplus Water Flow to Pak, Feb 22, 2019.

[109] A. A. Salaria, "Wullar Barrage: An Explosive Issue," *DAWN*, April 9, 1989.
[110] Ijaz Hussain, "Pakistan and the Wullar Barrage Project," *Regional Studies* 6 (1988): 47.
[111] Robert Wirsing and Christopher Jasparro, "Spotlight on Indus River Diplomacy: India, Pakistan and the Baglihar Dam Dispute," *Asia-Pacific Center for Security Studies* 43 (2006), accessed on November 12, 2018, http://www.apcss.org/Publications/APSSS/IndusRiverDiplomacy.Wirsing.Jasparro.pdf#search=%22wirsing%20baglihar%22.

Pakistan raises concern with Indus Water Commissioner that spill ways of the project will alter the flow of river Chenab which will deprive the irrigation land by 8000 cusec a day and will also weaken the Pakistan position strategically from defense point of view. In this regard Pakistan decided to construct Marala Link Canal to ensure the water levels in two canals that originate from head Marala. Pakistan hold multiple round of talks with India for the loss compensation. In 2009, India admit the claim of drop in water levels but remain stuck with the project and shows no flexibility in its behavior. Pakistan however still believes that India must admit the violation and compensate it with the losses incur.[112]

3.1.7 Kishanganga Hydroelectric Project

Adding to list of controversies, Kishanganga is another project on which India and Pakistan have lock horns. This project is in Court of Arbitration to resolve the issue regarding configuration. Kishanganga is 300 megawatt project located 160 km from Muzaffarabad.[113]Pakistan speculated the project in 1988 but official confirmation came in 1994 from India in which they confirm the details like storage capacity.

Fig. 3.6: Work on Kishanganga Dam in Progress

Source: Anwar Iqbal, Explainer: What is the Kishanganga Water Dispute, Dawn, October 24, 2019.

[112] Sundeep Waslekar, *The Final Settlement: Restructuring India-Pakistan Relations* (Mumbai: Strategic Foresight Group, 2005), 58.
[113] Subrahmanyam Sridhar, "The Indus Water Treaty, Security Research Review," *Security of Water* 14 (2005), accessed on November 12, 2018, http://gurais.wetpaint.com/page/Save+Gurez+Valley

However in May 2004, India announced to seize all on going work on project for the period of six months amid the strong objections raised by Pakistan. A meeting was held between both countries in which India confirms the details like work on foundation and power house. Pakistan raises strong concerns that work on the project shouldn't have begun without removing the objections. Between 2004 to 2005 a total of five meetings were held to discuss the details or project and to solve the concerns regarding it but these meetings came to no avail as both countries were unable to unable to find the common grounds.[114] During these meetings Pakistan raises six concerns of which three were related to design of project, two were regarding water diversion and one was regarding power generation.

The major design issue on which Pakistan raises concern was the diversion of water from River Neelum in upstream to Wullar Lake. This diversion will leave very low water level for 900 MW Neelum-Jhelum project started by Pakistan. India cabinet granted green signal to Kishanganga project and aims to complete it by 2016.[115] Amid this decision from India, Pakistan took the case to the Court of Arbitration for possible resolution. As of now the matter remains still disputed between two countries.

3.1.8 Bursar Dam

It's the largest project of all with storage capacity of over 2 map. It's the biggest violation of Indus Water Treaty as it's manly a water storage project with power generation capacity of 1090 MW. This project will be constructed on Marusudar River, the main tributary of River Chenab. The main purpose of dam is to provide and regulate the flow of water to projects like Salal, Dul Hasti and Baglihar.[116]

The project is severe violation of Indus Water Treaty as well as to International Environment Convention as the project will cause severe deforestation which will result in extinction of different species of birds and mammals. Said project will also cause the water sacristy in Pakistan and will cause the glaciers to melt faster. Also the entire village of Hunzal will get displaced. Pakistan repeatedly made request to India for project details but India didn't comply but made a stance that they will make details

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[114] Sridhar, "The Indus."
[115] M. Nasrullah, "Wullar Barrage Issue," *Pakistan Horizon* 47 (1994): 197-198.
[116] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues," *Abasyn Journal of Social Sciences* 4 (2012): 107, accessed on March 12, 2017, https://aupc.info/wp-content/uploads/2012/12/V412-2pdf.

available to Pakistan as per Indus Water Treaty six months before the construction on project get started.[117]

3.4 Perspective of India and Pakistan on Present Controversies

3.4.1 Wullar Barrage Project

Wullar Barrage is still controversial and unresolved because both India and Pakistan failed to reach the common grounds. Both countries presented several arguments in favor of their stands. Few of these arguments by both countries are discussed below.

3.4.1.1 Pakistan's Objection

The main objection of Pakistan on this project is the violation of storage capacity. Pakistan believes that India is in violation of Article III (4) of Indus Water Treaty, which forbids India from creating any storage capacity project on western rivers.[118] As per Annexure (E) of Indus Water Treaty India is only allowed to build a project with storage capacity maximum 10000 acre feet whereas as this Wullar Barrage has designed capacity of 30000 acre feet.[119] Pakistan also believes that this project by India will also disturb the water flows of the river. Pakistan also pointed out that the project will also affect the triple canal project of Pakistan as it will grant control to India during winter period. Pakistan cited this project as security threat to its sovereignty as it will badly effect Mangla Dam and consider this as India's attempt to change agrarian land of Pakistan to deserts by halting and changing the flow of water.

3.4.1.2 India's Perspective

India claim on Wullar Project is that it's not in the violation of Indus Water Treaty because the said project didn't store the water above the permitted levels and also won't disturbs the water flow. Also project main purpose is to allow easy movement between Baramulla to Srinagar over river Jhelum during the months of winters. Furthermore

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[117] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf.
[118] World Bank, *Indus Water Treaty 1960* Article III, accessed on June 18, 2017, http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.
[119] World Bank, *Indus Water Treaty 1960* Annexure (E), accessed on June 18, 2017, http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.

India claim that this project will be much suitable for Pakistan as it will enhance Mangla Dam power generation capacity and will also help in irrigation during the critical times.

Case was referred by Pakistan to Indus Water Commission in year 1986. After one year the commission failed to resolve the case. Pakistan didn't take the case to International Court of Arbitration as the construction work on dam was stopped by India. Over course of five years i.e. from 1986 to 1991, a total of thirteen meetings were held between two countries to no effect. In 1991, a meeting was held which could have settle the dispute wasn't able to do so. In that meeting India agreed to ungated barrage of 6.2 meters and crest level of 1574.90 meter.[120] India also shows flexibility in foregoing of 300,000 acre feet but in return demanded to attain the full operational level of 5177.90 acre feet. In 1992, Pakistan added another condition that Pakistan will accept the proposal if India let go the 390 MW Kishanganga hydroelectric project which India refused to accept.[121]

Later on this dispute become much more politicized as differences between both countries existed no breakthrough was achieved in meetings of 1999 held in Lahore or in 2001 Agra Summit or even during Secretary level talks held in 2011.[122] Presently, Indus Water Commission failed to exercise its power of settling dispute by creating mutual understanding between both India and Pakistan along with tackling political and security trust issues along with the rising demand of both power and water by both countries.

3.4.2 Baglihar Hydroelectric Project

Another disputed and still unresolved between two countries is Baglihar Hydro Electric Project. Brief stance of both countries is discussed below.

3.4.2.1 Pakistan's Objections

Pakistan major concern on this project was the design of dam. Pakistan's hold a strong stance that the design of project is in violation of Article IX (I) of Indus Water Treaty

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[120] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers 1973), 351-353.

[121] Gulhati, *Indus Water Treaty,* 351-353

[122] A. N. Laghari, Davy Vanham, and Wolfgang Rauch, "The Indus Basin in the Framework of Current and Future Water Resources Management", *Hydrology and Earth System Sciences* 16 (2012): 105, accessed on January 5, 2018, https://www.researchgate.net/publication/307726468_The_Indus_basin_in_the_framework_of_current_and_future_water _resources_management.

and demanded that India should immediately stop all the work on project.[123] Also Pakistan handed a questionnaire to demanded and seek clarifications regarding them. Objections raised by Pakistan are as follow

i. The project is capable of holding water storage way more than described pondage level which is the violation of Paragraph 8 (A) Annex D.
ii. Why gated spill ways when the site is suitable for structure without gated spillways, a violation of Paragraph 8 (e) of Annex D.
iii. 37.722 million cusec capacity defined for pondage operating pool is more than double the capacity pondage water level.
iv. Turbine intakes are placed lower than highest level which are again the violation of Paragraph 8 (f) Annex D.[124]

3.4.2.2 India's Clarification

In response to Pakistan objections India responded that project is well in the accordance of Indus Water treaty and supported the statement by following arguments

i. Project is run-of-the river
ii. Pondage level was kept high to meet the turbine discharge fluctuations.
iii. Course of flow won't be disturbed or changed and will ultimately end in Pakistan
iv. If India will remove the remove the gateways then the project will have zero benefits will and it would mean end of it.

After a heated arguments between two countries, World Bank decided to solve the case by appointing Professor Raymond Lafitte of Switzerland as neutral expert. He ruled the case as matter of differences instead taking it as dispute. India was ordered to make slight design changes like reduction in Dam height. Pakistan appears to be not satisfied by the decision as Pakistan thinks that its objections are not satisfied properly.[125]

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[123] World Bank, *Indus Water Treaty 1960* Article IX (I), accessed on June 18, 2017, http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.
[124] World Bank, *Indus Water Treaty 1960* Annexure D, accessed on June 18, 2017, http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.
[125] Syed Shahid Husain, "Pakistan's Perspective: The Baglihar Project", *South Asian* 23 (2005): 56, accessed on April 17, 2018, http://www.southasianmedia.net/Magazine/Journal/8_baglihar_project.htm/

After close inspection of the decision it was worth noting that the expert has taken in the light of 1969 Vienna Convention and also in the reference of International Commission on Large Dams. Decision was made by using latest research in the field of climate changes, hydraulics, environmental sciences and state of art practices on dams. Initially both India and Pakistan agreed on verdict of neutral expert but this understanding doesn't last long as relations become intense again when it came to the filling of dam as Pakistan objected that India failed to fill the dam in given time frame as defined in treaty whereas India commented that filling was done as per treaty.[126]

Compensation was demanded by Pakistan to balance the losses incurred during dam filling period while India maintain a stance that it hadn't violated the treaty. Series of meetings were held even to the levels of leadership. In 2010, finally in spirit of cooperation and goodwill from both countries, agree to settle the dispute in the meeting of PIC's.

3.4.3 Kishanganga Project

Another project by India, which got into controversy is Kishanganga Project. The main of the objection of the project is by creating diversion of Kishanganga River India will make reduce the flow of Neelum-Jhelum by 140,000 million acre feet. Following are the objections and responses of both countries.

3.4.3.1 Pakistan's Objections

i. Pakistan first objection was that the design of the project is not in the accordance of Indus Water Treaty as mentioned in (a), (c), (e), (f) and (g) Paragraph 11 of Annexure E.[127]
ii. As per treaty, diversion of tributary is not allowed and water dram from it must be returned to the river.
iii. Pakistan deemed that project will have adverse effect on the Neelum-Jhelum hydro power project.
iv. Also water flow in the river will be reduced from 154 million acre feet to 140 million acre feet, a loss of about 8 percent

[126] Tom Roberts, "The Indus—Life Blood of Pakistan", *Asian Affairs* XXXVI (2005): 8.
[127] World Bank, *Indus Water Treaty 1960* Annexure E, accessed on June *18, 2017,* http://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf.

v. This loss in water will cause about 16% reduction in power production capability of Neelum-Jhelum hydropower project which will results in loss of 5 billion rupee.

vi. 27% water of River Jhelum will also be cut short.[128]

3.4.3.2 India's Response

India denies all objections raised by Pakistan. India claim that all water of Kishanganga River will got to Pakistan with no effect on lower stream areas of Azad Kashmir. Also India claims that in fact this project will be beneficial for as diversion will allow water flow in river Jhelum which in turn will enhance the power producing capability of Mangla and Neelum-Jhelum projects during the months of winter.[129]

Pakistan rejected the response from India demanded to stop the work on project. Series of meetings and talks were to solve the disputes and differences. Pakistan remain firm with the stance that India's project is violation of the treaty. In April 2006, India show some flexibility and decided to submit a revise plan in July 2006. In that plan India made the run-of-the river project by changing storage and power generation. However the plan was rejected by Pakistan citing that there are still questionable aspects.

After series of failed meetings and talks, Indus Water Commission decided to refer the case to International court of Arbitration to solve the dispute as it involves techniques and legal issues. This will be the second case reported to International court within a decade. This case is of more importance to Pakistan as Pakistan is also working on its own Neelum Jhelum hydro power project.[130]

3.5 Cumulative Impact of Indian Projects

India build all projects on western rivers stating that they are all run of the river projects as they would have no impact on the downstream flow with no storage or poundage facility. Flow of water is use to generate electricity or in same case a tunnel or canal is use to direct the flow of water. But reality was different as these projects have serious impact on the downstream flow of river especially in the case of diversion through canal and tunnel which leaves the downstream sections empty and dried.

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[128] Nosheen and Toheeda, "Indus Water Treaty and Emerging Water Issues*," Abasyn Journal of Social Sciences* 4 (2012): 283.
[129] Niranjan D. Gulhati, *Indus Water Treaty: An Exercise in International Mediation* (Bombay: Allied Publishers 1973), 352.
[130] Gulhati, *Indus Water Treaty,* 352.

India projects on River Jhelum and Chenab is all classified as the run of the river projects but these projects left Pakistan with serious concerns. Pakistan believe that with collective live storage of these projects, the situation of flood is inevitable and during the lean periods these rivers may run dry. After the raise of concerns, treaty is formulated in such a way that limitations are imposed on India in manipulating the timings of flow in river Jhelum and Chenab. India is allowed with only limited live storage but exploited this vulnerability in the treaty and started filling of Baglihar Dam only at the moment when farmers of Pakistan required the most. Briscoe observe that by India having a large number of Dams and projects, the collective live storage of these projects will be enough to disturb the timings of flow into Pakistan.[131] These projects can have two types of effects i.e. one if filled during the wet season the impact will be little to none but if filled during the dry or lean season the impact will be the most as in case of Baglihar Dam. It's all depend on India when to choose and these projects can deprive Pakistan of by major reduction in water availability. The number of projects India is massive and is sending a wave of huge concern on Pakistan. India plans to build 135 big or small dams of which 77 will be constructed on River Jhelum, 34 will be on River Chenab and 24 will be on river Indus. Pakistan is in the view that India strictly follow the treaty even then India will have a measureable control on the flow of western rivers and will be able to inflict damage to the Pakistan.[132]

With India building so many projects on River Jhelum, Chenab and Indus is likely to destroy the ecosystem of these rivers India and beyond. This will have severe environmental impacts as in the case of Baglihar Project in which the rising level of water in river is seeping under the hills bringing the whole region to brisk of land sliding. Also after the completion of Kishanganga Project, more than 25000 peoples will be displaced from their homelands and many parts of Gurez Valley will be submerged. Pakistan have asked India to share the Environment Impact Assessment of Kishanganga Project in Neelum Valley.[133]

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[131] Muhammad Rashid Khan, "Crucial Water Issues between India and Pakistan CBM and Role of Media," *A Research Journal of South Asian Studies* 28 (2013), accessed on March 12, 2017, http://pu.edu.pk/images/jounal/csas/PDF/15-V28-1-2013.pdf.
[132] Ijaz Hussain, *Indus Water Treaty: Political and Legal Dimensions* (Pakistan: Oxford University Press, 2017), 50-53.
[133] Hussain, *Indus Water Treaty*, 50-53.

3.5.1Viability of Indian Hydrologic Projects in IHK

Main argument behind the building of so many projects from India is the power generation. This argument is challenged several times as in case of 900 MW Baglihar project India is unable to justify that how could it will maintain the required flow of electricity when the water required to produce that amount is 860 cusecs especially in winter season when flow of water drops below the 50 cusecs in River Chenab. India is unable to answer this question. The combined production of Uri Project and Salal project is unable to meet the requirements of maximum power in Jammu and Kashmir in the season of winter.[134]

Summary

Indus Water Treaty which was signed to settle the disputes is now itself a dispute creator as Indus Water Treaty states that whichever country finishes the project first that country will claim the right of river. This has sparked the contest between both countries as both are trying to build as many as projects with considering other's objection or point of view. This results in numerous disputes between both countries not only on water sharing but on other fronts too.

Projects like Uri II, Dul Hasti, Nimoo-Bazgo etc are not also controversial because of water dispute but also due to security, economic and strategic importance too. These projects have turned great importance towards the dispute solving between both countries.

The ongoing disputes presents great challenges to both nations as both are developing nations are in need of more and more energy. Dropping water levels and exploitation of water till last drop have put serious pressure on Indus water basins.

[134] Iram Khalid, "Trans-Boundary Water Sharing Issues: A Case of South Asia," *Political Studies* 1 (2018): 82-83.

Chapter 4

Indo-Pak Relations and Future of Indus Water Treaty

Trans-boundary water conflicts are harder to deal with the flowing water due to the issues of control, sovereignty and jurisdiction especially shared between states of mutual interest. Important aspects like industrial and economic development, energy generation, human wellbeing and agriculture growth all depend on the fresh water source. This had resulted in resource exploitation which caused escalation and conflict in region or between two nations.

Sharing of water resource is a geographical fact. These issues can be resolved peacefully if these shared resources are managed and negotiated equally in a region. This can lead to harmonious and peaceful growth of economy of the region by signing treaties of mutual interest. However, to the controversy and mismanagement of resources can lead to the unpredictable violent events.

In water conflict resolution between India-Pakistan, Indus Water Treaty had played very important role. The treaty is followed by both states with sight hiccups and had seen the days of two full-fledged wars of 1965 and 1971 and a limited war of 1999 because of water dispute. However, now the future and stability of treaty is in questionable mainly due to lack of cooperation by India. This war threating water dispute can't be ignored due to number of factors like regional politics, global climate and economic changes.

4.1 Water as Weapon in the Kashmir War

In October 1947 India started the invasion of Kashmir State with 1947-1948 one of primary objectives of capturing and controlling all water resources flowing into the West Pakistan. Forces from India faces serious opposition from the local tribes when they tried to capture the Mangla Headwork's over River Jhelum situated in Mirpur District and Marala Headwork's on River Chenab. Indian forces tried with great amount of force to deal with local tribesmen but remained contained and couldn't move forward to Mirpur.[135]

[135] Pervaiz Iqbal Cheema, *Pakistan's Defense Policy, 1947-58* (London: Macmillan Press, 1990), 86.

This fighting continued for months and after failing to advance forward, in April 1948 India cut off the water supplies from Ferozepur and Madhupur Headwork's. Pakistan after realizing the serious threats regarding shortage of water supply, moved her troops in support of the tribes fighting against India. UN got involved and asked both countries for cease fire in 1948. Both countries agreed to plebiscite in Kashmir, a solution provided by UN Security Council resolutions of August 13, 1948 and January 1950. After this incident Pakistan completely lost her trust in India regarding water resources as India had cut off the supply of river Ravi and Sutlej. To settle these issues an agreement was signed by both countries in May 1948 known as The Dehli Agreement. However agreement proved to be short lived and got expired in September 1950 due to the differences on charges levied by Indian Government.[136]

After the end of Dehli Agreement, Pakistan wanted to raise the issue in International Court of Justice (ICJ) and but India didn't agree on that and wanted to solve the issue between them. Pakistan wanted the assurance from third party due to the lost trust and attitude showed by India in 1948 war. Also Pakistan wanted to settle issue as soon as possible because it's new established state with load of millions of immigrants and in dire need of meeting the population demand regarding agriculture and energy. After many rounds of talks, both India and Pakistan agreed to sign a treaty in 1960 known as Indus Water Treaty with World Bank playing as the role of warrantor. The treaty was followed in spirit by both countries for two full decades. Then in 1980's violation started from India which were discussed in earlier chapter. The reason behind these violations is that India wanted to take its advantage of upper riparian state and wanted to create hegemony in the region.[137]

4.2 Control on Region by India being as Hegemon

There are number of reasons why India want to be hegemon in to the region. India knows the Pakistan's complete dependence on the Indus waters and also that it had a large population with agricultural demands. This behavior of India will ultimately push Pakistan towards war as it will be last option for Pakistan for its survival. India is an upper riparian state and taking advantage of its position can turn West Punjab into

[136] Aloys Arthur Michel, *The Indus Rivers: A Study of the Effects of Partition* (New Haven and London: Yale University Press, (1967), 8.
[137] Pervaiz Iqbal Cheema, *Pakistan's Defense Policy, 1947-58* (London: Macmillan Press, 1990), 85-90.

desert. By continuous violations of Indus Water Treaty, India is already depriving Pakistan from its share of 55000 cusecs which is guaranteed in Indus Water Treaty. Availability of water in Pakistan had been fallen by 70% and if this trends continue, Pakistan will be will be water scarce country by year 2025.[138]

India is able to create hegemony due to its superior technical resources. India with a total number of 4079 dams is on third place after US and China in list of countries with most dams. India is expected to build 2500 new dams to carter all its agriculture and energy needs. Most of these projects fall under the violations of Indus Water Treaty and are located in disputed areas. Pakistan had already raised objections on projects like Kishanganga Hydropower Project, Baglihar Hydropower Project and Tulbul Navigation Project.[139]

Part of the reason why India is facing no criticism on International front is that India is quickly emerging as world third largest economy and Pakistan is portrayed as "World's Most Dangerous Place". When international leaders visit India, they see India as leader in the region and want to invest into Asia's third largest economy but when same leaders go to Pakistan they talk about only terrorism. India had garnered the support of international community through lobbying and is continuing building controversial water projects. India is partially shifting its GDP dependence from agriculture to industry. Meanwhile Pakistan GDP is still dependent on agriculture. Pakistan's GDP growth rate fell from 7.2% to 3.3% just because of decline in agriculture from 4.7% to 3%. Main reason behind the decline in Pakistan's agriculture growth is violations of Indus Water Treaty by India.[140]

With the power of being an upper riparian state, India at any given time can block, divert or hold waters of river in Pakistan. Secondly using its diplomacy power powers with US and UK India is trying to convert the AJ&K LOC into permanent border which is against the wish of locals. This had created insecurity in the mind of Pakistani government regarding water scarcity. This bargaining power of India had created a rift

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[138] Sehrish Wasif, "Pakistan may Run Dry by 2025: study," *The Express Tribune*, May 30, 2016, accessed on March 15, 2019, https://tribune.com.pk/story/1112704/pakistan-may-run-dry-2025-study/
[139] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf
[140] Shahid Jived Burki, "How to Avoid a Steep Fall*," DAWN* March 7, 2010, accessed on March 15, 2018, http://www.dawn.com/wps/wcm/connect/dawn-content-library/dawn/inpaper-magazine/economic-and-business/how-to-avoid-a-steep-fall-230

in the region of which John Briscoe who had been water expert for 35 years in subcontinent stated that India needs to be more generous on water issues with Pakistan.[141]

Also India is taking advantages of weak international laws which believes in equitable distribution of water if shared by two countries ignoring the real water usage and other scenarios. India is taking advantage of its bargaining power as it knows the Pakistan's complete dependence on Indus Water Basin which is through the disputed territory of Kashmir. As per the article III of Indus Water Treaty which forbids India from building any water storage facility or diverting the flow of western but in albeit to the clause India is building all major water storage and water diverting projects on these western rivers. From this India is trying to follow the "Harmon Doctrine" which is "Absolute Territorial Sovereignty" to the upper riparian state regarding the usage of water or rivers passing through its land.[142]

India is also involving religion and is using it to claim its right on Indus waters. Kashmir issue is more important than it seems to be as it's a big source of fresh water rivers. India trying to fame Kashmir as holy land and its river into holy waters. A festival of "Sindhu Darshan" is organized by Indian government in this regard which had portrayed as Indus River as holy waters for Hindus. Furthermore, India is increasing its investment in Kashmir by 8.5% which is indirectly used to strengthen its position in Kashmir.[143] This strengthening position of India is creating is considered a serious to Pakistan's sovereignty, of which Pakistan is desperately trying to convince the international community.

In shared water conditions two countries can found themselves in three positions which are (a) sharing, in which both parties agreed to share resources with mutual understanding, (b) consolidation of stronger riparian where cooperation between both states is at minimum and (c) is contested where both states are in race of competition

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[141] John Briscoe, "War or Peace *on the* Indus*," The News*, April 3, 2010, accessed on March 04, 2018, https://johnbriscoe.seas.harvard.edu/files/johnbriscoe/files/108._john_briscoe_war_or_peace_on_the_indus_201004.pdf

[142] Salman M. A Salman and Kishor Uprety, "Conflict and Cooperation on South Asia's International Rivers: A legal Perspectives," *The World Bank Documents and Reports* 25580 (2003), accessed on June 15, 2017, http://documents.worldbank.org/curated/en/249581468325224527/pdf/multi0page.pdf

[143] Ian S. Lustick, "Hegemony and the Riddle of Nationalism: The Dialectics of Nationalism and Religion in the Middle East," *Modern Society & Culture* 1 (2002): 18–44.

and cooperation is no go.[144] Indus Water Treaty which is signed by both India and Pakistan is on option a i.e. sharing basis but if analyze the behavior of India it is quite evident that India wanted to create hegemony in the region is going for option B by taking its advantage as upper riparian state thus leaving no other option for Pakistan except to contest for its right which will results in escalations and violent events.

4.3 Blame Game by India and its Impacts on IWT

4.3.1 Attacks on India Parliament

Serious doubts on treaty was looming from 15 years now. Operation Parakram which was started after the attacks on India parliament in December 2001, India alleged Pakistan for the attacks and considered mulling out of the Indus Water Treaty to assert pressure on Pakistani government. In response to this threat from India, Pakistani government warned India clearly by saying that they would not be afraid to use Nuclear weapons if India intended to stop the waters of Pakistan. A.G. Noorani, a noted lawyer of India stated that India weighted options to pull out of treaty but Legal Entity Division barred India from doing that by saying that treaty cannot be abolished unilaterally as it's guaranteed by World Bank and also as per international laws "Water can't be used as Weapon".[145]

4.3.2 Mumbai Attacks

In 2008 after Mumbai attacks same scenario of 2001 happened. India again put the blame of attacks on Pakistan that these terrorist attacks are being backed by Pakistan. This voices raised in India for pulling out of India Water Treaty were stronger than that of after 2001 Parliament attacks. Indian activist M.S. Menon argued that India have only one way of hurting back Pakistan and that is by abolishing the treaty and by stopping or diverting the flows of river flowing into Pakistan. He also gave a plan of diversion of Indus River into Sutlej by building a tunnel canal and also the diversion of Chenab into River Ravi and Beas. Again this time we can see the weaker position of Pakistan and use of water as politics as well as weapon by India[146]. India objective is very clear that they want to suppress Pakistan by doing politics on water and to hold

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144 J.S. Mehta, "The Indus Water Treaty: A Case Study in Resolution of an International River Basin Conflict," *Natural Resources Forum* 12 (1988): 69-71.

145 Abdul Ghafoor Noorani, " IWT can't be Abrogated," *Kashmir Time*, March 5, 2008, accessed on March 04, 2018, http://epaper.kashmirtimes.in/archives.aspx?date1=02/06/2010

146 Iram Khalid, "Trans-Boundary Water Sharing Issues: A Case of South Asia," *Political Studies* 1 (2018): 82.

back the Pakistan by pressurizing it but these kind of things can bring both atomic nations to or on verge of war.

4.3.3 Uri Attacks

In September, 2016 Indian Prime Minister Narendra Modi while chairing a meeting of India Water Board session said that "Blood and water can't flow together".[147] This statement came in response after the Uri attacks in which 19 Indian Army Personnel got killed by militants. India put the blame on Pakistan that Pakistan is backing these militants and Indian premier while chairing Indian Water Board meeting threaten to scrap the 56 year old Indus Water Treaty. This statement was taken as a threat to sovereignty of Pakistan by government of Pakistan as Pakistan heavily relied on waters of Indus River Basin. As India is trying to achieve the dominance in the by suppressing Pakistan but this move will prove very fatal for the region peace as both India and Pakistan are atomic powers and war between atomic powers not only affect the nations at war but also the countries in region or neighbors.

During that meeting India also decided that water commissioner from India will not attend the meetings of Indus Water commission. India also threaten to restart work on Tulbul Navigation (Wullar Barrage) Hydro Power Project which Pakistan had already consider this violation of Indus Water Treaty. With this project India can choke the water supply to River Jhelum thus affecting the Neelum-Jhelum hydro power project started by Pakistan. India officials also said that they would use their full quota of eastern rivers which India is not using in past and allowing the water to flow in Pakistan.[148]

4.3.4 Pulwama Incident

The issue of Uri haven't settled down yet, another incident happened in Pulwama in which 40 CRPF personnel of India got died. India playing the blame game, held Pakistan responsible for the attack. Indian Union Minister Nitin Gadkari while addressing a gathering in Uttar Pradesh said that India will choke the water supply to Pakistan. He further said that India will divert the water from three eastern rivers into River Yamuna. The escalation after Pulwama attack increased to such level that India

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[147] Hassaan Ahmed, "Blood and Water can't Flow Together*," Pakistan Today*, October 1, 2016, accessed on March 04, 2018, https://www.pakistantoday.com.pk/2016/10/01/blood-and-water-cant-flow-together/

[148] Iram Khalid, "Trans-Boundary Water Sharing Issues: A Case of South Asia," *Political Studies* 1 (2018): 82-83.

threatened to start full fledge war against Pakistan[149]. By doing this India is trying to destabilize the region as both India and Pakistan are atomic powers and war between atomic powers not only affect the nations at war but also the countries in region or neighbors.

India main objective is to get full hold of Kashmir ultimately gaining total control of Indus Basin. To achieve this goal, India is linking every attack of terrorism with Pakistan and wanted to isolate Pakistan in international community so that nobody in international community will restrict India from building hydropower projects on western rivers. If India succeed in building these projects they can put a strangle hold on Pakistan by blocking the waters on which the survival of Pakistan depends. Role of Indian media can't be ignored during these time as they are desperately trying to portray Pakistan as terrorist state and want international community to impose several strict sanctions on Pakistan so that the Pakistan's economy can't flourish and end up being a failed state.[150]

4.4 Climate Change and Its Impacts on IWT

Apart from rising escalations over Kashmir and political differences between India and Pakistan, there is another factor of climate and population which play an extremely important role in defining the future of Indus Water Treaty. With Indian population standing at 1.3 billion and Pakistan's at 197 million, these countries put extreme stress on water resources than any other countries in the world. Water resources are consumed at much faster pace than they got replenished naturally. War due to water resources are directly linked with the climate changes as it's a stress factor. As India and Pakistan both are facing water shortage issues especially in case of Pakistan which is said to be water scarce by year 2025.[151]

Climate changes will prove be severe and harsh for both countries if both countries didn't cooperate with each other. First effect of climate change will be abnormal hydrologic events like irregular and unconventional precipitation cycles and run offs. Run offs from melting glaciers is directly linked with precipitation cycles in winter.

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[149] Khalid, "Trans-Boundary," 82-83.
[150] Pervaiz Iqbal Cheema, *Pakistan's Defense Policy, 1947-58* (London: Macmillan Press, 1990), 85-90.
[151] Sehrish Wasif, "Pakistan may Run Dry by 2025: Study," *The Express Tribune*, May 30, 2016, accessed on March 15, 2019, https://tribune.com.pk/story/1112704/pakistan-may-run-dry-2025-study/

Due to global warming meteorologist have predicted the drought like conditions due to lower rainfalls and also faster melting pace of glaciers due to increase in temperatures which will ultimately result in flooding and destruction of agricultural land.[152]

This faster melting pace of glaciers will also result in decreased renewable water sources and will severely affect the region of lower Indus Basin on which 300 million population depends. The Intergovernmental Panel on Climate Change predicted that the effect will be more severe on fresh water sources and had also predicted the increase in variability of rains. This situation will result in droughts and floods. Pakistan is more prone to these climatic changes because of its main and only dependence on Indus Water Basin. The issue is also critical to Pakistan because 23% percent of economy is dependent on agriculture and also Pakistan's 68% live in this area.[153]

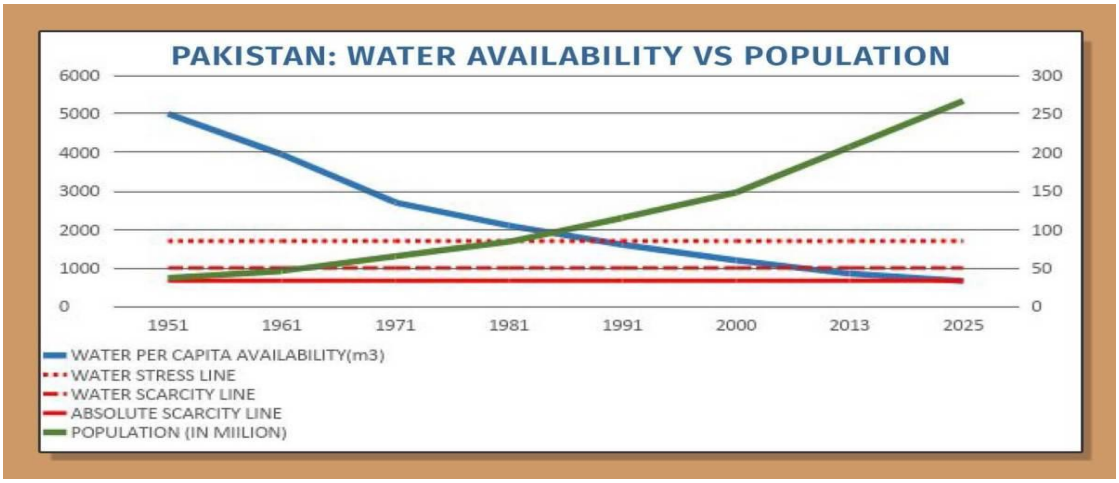

Fig. 4.7: Pakistan is Predicted to Absolute Water Scarce by Year 2025

Source: Lt. Gen. PR Shankar(R) & Maj. CN Anand(R); Why Pakistan is Hurtling Towards Absolut Water Scarcity, Gunners Shot, New Delhi, 12 May 2019.

Environmental scarcity will result in decrease in resources or the quality of the sources. Of these scarcities water scarcity is one of the most dangerous ones as survival and food production is mainly dependent on it. Violent events are the outcome of these scarcities which is quoted in Homer-Dixon that "It often acts as deep underlying stressor of social systems and its produces its effects by interacting with other contextual factors unique in the society".[154] Interactivity of system is very justifiable because all causes are

[152] M. Monirul Qader Mirza and Q. K. Ahmad, *Climate Change and Water Resources In South Asia* (Netherlands: A.A. Balkema Publishers, 2005), 218-22.
[153] Mirza and Ahmad, *Climate*, 220-26.
[154] Natalie A. Nax, "Looking to the Future: The Indus Water Treaty and Climate Change," (A Thesis, University of Oregon Graduate School, 2016): 10-15.

necessary. Things are linked with each other so well that not a single cause can produce itself. Effect of environmental scarcities is often indirect as it acts as stressor and turns events into violence.

India is 2nd largest country by population and Pakistan is 6th largest in the world. Countries with these kinds of population and segmentation will increase the competition among peoples. Due to limited availability of the sources the competition will become fiercer leading to violent events. This will lead both countries to fight for resources not entitled to them. Both countries have history of disbelief between them and are not willing to talk to each other. Considering the previous feud between them this has mounted an additional factor of conflict between both countries. As human life is mainly dependent on the water and continual survival of humanity depends on it.

Risks of floods and droughts are directly associated with the changes in hydrologic cycles, population growth and precipitation. Study concluded by Intergovernmental Panel on Climate Change supported the above statement. The situation for Pakistan is more critical because the agrarian bucket of dependent of the waters Indus Basin. This statement is also proved true by the Pakistan's Economic Survey held in 2011-12. In the survey it was concluded that agrarian economy of Pakistan is heavily dependent on the waters of melting glaciers. Availability of waters for the crops of Rabi and Kharif was around 10 percent in 2011-12 which is 19.2 percent less than the actual quantity required. Also a shortfall of 15 percent was observed in year 2010-11.[155] More details are given in Table 4.1.

[155] Manish Vaid and Tridivesh Sing Maini, "Indo-Pak Water Disputes: Time for Fresh Approaches," *South Asian Journal of Peacebuilding* 4 (2012): 6-9.

Period	Kharif (MAF)	Rabi (MAF)	Total (MAF)	Increase/Decrease (%)
Average System Used	**67.1**	**36.4**	**103.5**	**-**
2003-04	**65.9**	**36.4**	**97.5**	**-5.9**
2004-05	**59.1**	**31.5**	**82.2**	**-20.6**
2005-06	**70.8**	**23.1**	**100.9**	**-2.5**
2006-07	**63.1**	**30.1**	**94.3**	**-8.9**
2007-08	**70.8**	**31.2**	**98.7**	**-4.6**
2008-09	**66.9**	**27.9**	**91.8**	**-11.3**
2009-10	**67.3**	**25.0**	**92.3**	**-10.8**
2010-11	**53.4**	**34.6**	**88.0**	**-15.0**
2011-12	**60.4**	**29.4**	**89.8**	**-13.4**
Note: MAF- Million Acre Feet **Source: Indus River System Authority, Economic Survey of Pakistan, 2011-12**				

Table 4.1 Actual Water Surface

Also survey highlighted that most of the water get wasted due to improper management and lining of the waterways and canals. The consequence of this water wastage is being suffered by the agriculture, livestock and fisheries sector of Pakistan. As per reports of World Bank and Need Assessments Report, Pakistan is suffering loss of 1840 million dollars and these three sectors formed up 49.33 percent of these losses incurred. Reconstruction cost is being evaluated at 305.6 million dollars.[156]

World's largest pool of fresh water glaciers are present in Hindu Kush, Karakoram and Himalaya Mountain ranges. These glaciers are the primary source of water of Indus Basin System. Owing to this Indus Water System, Pakistan had developed a world largest irrigation system. But the concerns of faster melting of glaciers raised in 1990. With increasing global temperatures, glaciers are melting at alarming rates. This fact is part of Pakistan National Action Plan of 2012-13.[157]

[156] Vaid and Maini, "Indo-Pak Water Disputes," 6-9.
[157] Natalie A. Nax, "Looking to the Future: The Indus Water Treaty and Climate Change*"* (A Thesis, University of Oregon Graduate School, 2016): 20-22.

In National Action Plan 2012-13 it was also mentioned that irrigation system of Pakistan is under sever threat. Issues like water salinity, water logging, water pollution and dipping water ground levels have transformed into alarming situations. The Plan asked to devise a plan for the better management and to cover the deficiencies present in water management policies. If acted upon recommendation given in the plans, Pakistan can save plenty in agriculture sector thus improving its economy.[158]

It's been admitted in the Pakistan Economic Survey 2011-12 that Pakistan is facing issue of acute water shortages and due to that majority of the population is deprived of clean water is forced to consume unsafe and polluted water for drinking purposes. These issues are the clear indication of weak water management and regulation polices and drastic climatic changes.[159]

Similar to Pakistan, India is also facing the issues of water shortages. According to study of Draft Water Policy of India 2012, the root cause of these issues are due to rapid industrial growth, increase in growth rate and urbanization. Also the quality of water is not up to standards. One such study conducted on the quality of water in Sutlej-Beas revealed increase in municipal waste and hazardous materials from the population and industry located in the skirts of the rivers. Water hardness, increased levels of calcium and magnesium is also found. To keep the water level security and quality should be utmost priority of both India and Pakistan and its interest of both countries to cooperate with each other.

Summary

The treaty had two major flaws. One regarding the placement of upstream and downstream and secondly at the signing of treaty, climatic changes are not taken into account. As per treaty India is placed as upstream country and Pakistan is placed at downstream. Treaty grant permission to both states regarding the building of projects which are in their national interest as long as they don't impose on others. This imposed term is quite confusing as didn't clarify the quality of water as Pakistan being as downstream country will always downgrade quality and quantity of water. By downgraded quality mean that polluted water from India also becomes the part of fresh

[158] M. Monirul Qader Mirza and Q. K. Ahmad, *Climate Change and Water Resources In South Asia* (Netherland: A.A. Balkema Publishers, 2005), 260-265.
[159] M.G Robbie L. Asher, and S. Srivastava, "India and the Asian Economic Community," *Public Policy* 15 (2003), accessed on March 15, 2019, http://www.spp.nus.edu.sg/docs/wp/wp41.pdf

water streams flowing to Pakistan thus affecting the masses who are dependent on these waters. Pakistan already had raised the objection that polluted waters can potentially become the part of water allocated to Pakistan.

Also Indus Water is quite vague in the regard that India can block all the water flowing into Pakistan by building hydroelectric power projects and this will not be the violation of the treaty. As mentioned earlier Pakistan is suffering from serious water shortages and will be absolute water scarce by year 2025. As Pakistan economy is mainly defined by its agriculture production and with India being an upstream country which already possess the enough technical power to alter the flow of waters flowing into Pakistan. This India power over Pakistan had caused the bad relationships between both countries and still poised a threat to the regions security and peace.

Secondly, the treaty is quite problematic in dispute solving scenarios. As per treaty, if any dispute arises between two countries then an Indus Water Commission will be setup for dispute resolution but since 1960 no case had been solved by Indus Water Commission. All disputes after 1960 are either solved by International Court Arbitration or they remain unsolved to date. Also Indus Water Commission is not able to live up it's to the promise of future cooperation as no project after 1960 is signed in this regard. A proper working regarding dispute solving methodology is required so that both India and Pakistan can contribute towards for the stability of region instead of having hostile relations raising alarms in minds of neighboring countries regarding region security.

Additionally, the Indus Water Treaty didn't address the issue of climate and population at all. With increase in population and depleting fresh water resources Pakistan is on fast track to the threats of water scarcity and famine. Populations of both India and Pakistan had skyrocketed during the period from 1960 to 2013 thus putting a huge pressure on resources. Also the facet of climate change remains completely unaddressed by the treaty. Source of Indus waters is the glaciers of Himalayas which contribute to approximately 40% fresh water flowing in the region. With changing climate and lower rainfalls and faster melting glaciers, scientist have predicted the droughts and heavy floods in the region. Pakistan is most likely to be hit by these conditions compared to India. Supply of fresh water will be reduce due to the severe climate change which will lead to the escalations and conflicts in the region. As water

is essential commodity of life, Indus Water Treaty should be modified to adjust the impact of changing climate. Climate change is a forcing factor and the effectiveness of the treaty will be reduced due to the overlook factor of climate change. The authority of the Treaty is greatly challenged by the climate factor because of its unforeseen threats. Thus, the treaty must be modified to adapt the climate change because what may have worked before will not work in the future.

Conclusion

Kashmir conflict has created the new domain in the issue as both India and Pakistan as Kashmir stands an important source of water and had created a state of neo-realistic interest in the favor of riparian state for the ultimate control of resources. The case of India-Pakistan is not very much complicated because control of Indus will give the other state an edge in regional politics, talks, strategic planning and warfare. This highlights the importance of the water sources and its role in international politics as whenever a two fierce rival states compromise on common resource, backdoor to conflict always remain opens.

Shared water resources might be a source of conflicts and soaring relations between two states but they can also promote peace and cooperation if right and correct decisions are taken. The Indus Water Basin have demonstrated similar scenario where the relations can go both ways i.e., either peaceful or hostile. This again cemented the neo-realistic fact that states will adopt the policies and show the character to attain the maximum power in the region by securing the maximum of available sources to gain edge over their adversaries and in international relations and politics.

To accommodate these goals, states often use tactics to hurt other nation's interest to gain the supremacy. India and Pakistan are no more stranger to these tactics and similar approach can be seen in this region. India attempted to take control of all sources by capturing Kashmir while Pakistan reacts to secure the sources. In order to achieve the best possible advantage and political interest, both India and Pakistan should accommodate each other's concerns and forget the political dilemma of Kashmir. However, the accommodations made by both countries didn't contribute towards the peace of the region and didn't present the solution for the Kashmir issue. The issue of Kashmir have remain unsolved and may have got more intensified than ever before because Indian occupied all majors rivers flowing into Pakistan originates or passes through the territory of Kashmir of which most of the part is controlled by India. Moreover, the projects built under the clauses of Indus Water Treaty proved to be more hostile, politically unacceptable, economically not viable and unsustainable by nature.

The roots of regional supremacy can be traced back to pre-partition era of the India leadership. Plans of partitions wouldn't be approved by Indian leadership if road to

Kashmir and control of the rivers weren't place under the command of Indian authority. In partition of Punjab, access to water played a very important role which eventually led to the capture of Azad and Jammu Kashmir in 1947-1948. If the control of Ferozepur and Madhupur hadn't been acquired by India and if the water resources had been allocated properly in Radcliffe boundary awards, the issue of water dispute could have been avoided as both countries will have balanced resources.

Kashmir Dispute can be termed as "Resource War" between India and Pakistan. Indian aggression regarding Kashmir by military intervening in October 1947 to which Pakistan responded in May 1948 was not just any coincidence or reply to India aggression, the move was to protect and safeguard the fresh water life line for the newly established Pakistan also. The armies of both countries were able avoid each other as their main objective was to secure the river infrastructures. The claims of Indian leadership regarding the annexure of Muslim majority state Kashmir would have destroyed the theory of Two Nation Theory on which Pakistan got independence will prove to ideal ploy for India to capture the all resources.

Factors like political thinking, strategic planning and warfare all are affected by the control on Indus resources. India referred the Kashmir dispute to UNSC for dispute resolution under the strategy that the world will see it a sign of secularism and a foundation to the abolishment of Two Nation Theory and secondly India never wanted to settle the Kashmir dispute wanted to take over all the resources. Pakistan is left with no other option except to pursue the Kashmir dispute in UN Security Council. Both states have followed and adopted the roadmaps to pursue their own national interests of power maximization. Instead, they should have accommodated each other as per the treaty.

With passage of time, things got changed especially regarding the control over water. Also intense revolt from Kashmiris against India has resumed from 1989. Kashmiri leaders are demanding independence and don't want to be part of either India or Pakistan. India is happy with the current division of Kashmir and is willing to accept the cease fire line as International Boundary while Pakistan would be more than happy if Kashmir is divided further. Since 2004, both India and Pakistan have reached a number of agreements with making any progress on Kashmir dispute. Still both countries left with deadlocks in certain areas which mainly revolves around the building

of hydro projects mainly in the disputed region of Kashmir. This again highlighted the fact that Kashmir issue and water disputes are inter linked.

Indus Water Basin can also prove to be source of peace and cooperation between both states but the permanent division of Indus Water Basin under the Indus Water Treaty in 1960 have intensified the differences in the region and distrust between two states. Though with meditation and intervention from third parties for the smooth relations can be achieved but their sustainability is not guaranteed due to the ignorance of geographical and political facts. Geographical dimensions like super imposed boundaries and disputed territories have played an important role in the water related disputes between India and Pakistan. Many reason may have resulted in Kashmir dispute but one of main and biggest reasons behind the dispute is the water resources flowing through it. In division of British Punjab, access to water had played a very important role and this enabled India to use water as weapon against Pakistan in 1948 war. This led to enormous fear in the Pakistani Government which considered itself as venerable as long as India had a hold on Jammu & Kashmir. This had caused the loss of Pakistan trust in Indian government regarding the fresh water line and left them with no option but to take a firm land of the Kashmir dispute. Loss of Kashmir for India mean loss of upper riparian status and ability to strangle and threaten Pakistan's existence both economically and politically.

The issue of Kashmir can be understood and termed as competition over the natural resources. As all rivers passes through and can be controlled in Kashmir, this fact had encouraged India to capture the Kashmir in October 1947. This move sparked the retaliation from Pakistan purely on the basis of securing water streams. The roots of Kashmir dispute and Water dispute lies in geography of the region. Pakistan interest of liberating Kashmir and India will to maintain control over Kashmir are all linked to the importance of geography of the region.

The India and Pakistan agreed to solve the issue via dialogue after the use of military force. Countries with large dissimilarity in force often resulted in advantage of the upper riparian state. Though in 1948 Dehli agreement, India didn't make Pakistan suffer for the time but later India used that agreement as claim of three acknowledged by Pakistan. India and Pakistan failed to reach the common grounds as those three rivers were in disputed territory. Another fact of the study is that India and Pakistan both looked for

third part meditator in shape of World Bank to whom both countries applied for loans to complete and develop the irrigation projects. World Bank refused to provide loans on disputed regions and also present itself as negotiator for the settlement of disputes. The World Bank presented the option for both countries to facilitate each other on some disputes. India was bound by World Bank for not starting any development work on disputed waters and should allow water to flow in Pakistan for irrigation purposes until an agreement is reached between both countries. Pakistan readily accepted the proposal of the World Bank while India accepted the proposal but didn't associate the Kashmir dispute with water issue.

Presence of World Bank and also the assistance from USA ensured that India would be able to use the water as a weapon against Pakistan. Although both India and Pakistan both have deployed their military resources to prevent any incident, however, kept on India violating the cease fire agreement with periodic firing on Pakistan military installments and civil area but Pakistan didn't respond by military means. India is in pure power to use its upper riparian status by having full control of three eastern rivers and also in power of blocking western rivers but didn't use this card as described in Lilienthal's article.

Mediators role in this case can also be defined as for self-interest as they work and pursue their specific agendas. The agenda of World Bank is to establish itself as credible financial institute, so it present itself as a mediator between India and Pakistan dispute. Although meditation often results in some kind of agreements between India and Pakistan but it neglects the political issue of Kashmir. Indus Water Treaty is also the fruit of third party intervention. Though the Indus Water Treaty is not perfect but it has guaranteed the very survival of Pakistan in tough times. However, Indus Water Treaty failed to address the very root of India-Pakistan dispute over water resources which is Kashmir.

Salal Dam settlement can be viewed in the context of lower riparian state i.e., Pakistan which is weak at that time due to loss of East Pakistan and is also both politically and financially destabilized. Pakistan's first priority was to gain internal stabilization and to bear minimum damage to economy. India tried to use water as weapon instead of military in 1970's to pressurize Pakistan. With the successful intervention of World Bank, Salal Hydro Project became the first project to be solved under the jurisdiction

of Indus Water Treaty. However, it's noteworthy that Salal remains the first and only project to be solved under the treaty. Indus water treaty failed to solve any other dispute and these disputes keep haunting the Indo-Pak relations.

Although Indus Water Treaty served both countries on many fronts but wasn't able to settle the dispute of Kashmir. The dispute of Kashmir got staged on many areas like human rights, discrimination, political and ideological differences but not a single solution paved way to the decision of plebiscite, a decision of UNSC to resolve the dispute. Emerging situations like Kashmir dispute and dependence of Indus Water System on resolution of Kashmir dispute is very critical and serious. As India and Pakistan are both nuclear states, question of solving Kashmir dispute is unthinkable because of its consequences. Kashmir is a bleeding wound of India and Pakistan relations. Development of Kashmir is at stand still because agriculture is suffering the hardest. As both Indian and Pakistan are not able to start any significant project in the area of both India and Pakistan held Kashmir. Distrust between the Punjab and other regions is the legacy of the treaty.

Water which can be the source of conflict can also be the source of peace among the states. If both India and Pakistan accommodate each other on certain area and don't involve politics then the rivalry between India and Pakistan can come down. The wound of Kashmir can also be solved if both India and Pakistan show will to solve the matter by reaching a mutual agreement. Division of single system resulted in the manipulation of sources and distrust between the both countries. Role of mediation can't be ignored but if that process ignores the geographical, ethical and political differences then the sustainability of these medications can't prove enough in longer run. This will continue be the major flaw of the Indus Water Treaty. One regarding the placement of upstream and downstream and secondly at the signing of treaty, climatic changes are not taken into account. As per treaty India is placed as upstream country and Pakistan is place is downstream. Treaty grants permission to both states regarding the building of projects which are in their national interest as long as they don't impose on others. This imposed term is quite confusing as it didn't clarify the quality of water as Pakistan being as downstream country will always downgrade quality and quantity of water. The downgraded quality mean that polluted water from the India will also become the part of fresh water streams flowing to Pakistan thus affecting the masses who are dependent

on these waters. Pakistan already had raised the objection that polluted waters can potentially become the part of water allocated to Pakistan.

Also Indus Water Treaty is quite vague in the regard that India can block all the water flowing into Pakistan by building hydroelectric power projects and this will not be the violation of the treaty. As mentioned earlier Pakistan is suffering from serious water shortages and will be absolute water scarce by year 2025. As Pakistan economy is mainly defined by its agriculture production and with India being an upstream country which already possess the enough technical power to alter the flow of waters flowing into Pakistan. This Indian power over Pakistan had caused the bad relationships between both countries and still poised a threat to the region security and peace.

Secondly the treaty is quite problematic in dispute solving scenarios. As per treaty if any dispute arises between two countries then an Indus Water Commission will be setup for dispute resolution but since 1960 no case had been solved by Indus Water Commission. All disputes after 1960 are either solved by International Court Arbitration or they remain unsolved to date. Also, Indus Water Commission is not able to live up to its promise of future cooperation as no project after 1960 is signed in this regard. A proper working regarding dispute solving methodology is required so that both India and Pakistan can contribute towards for the stability of region instead of having hostile relations raising alarms in minds of neighboring countries regarding their and region security.

Additionally the Indus Water Treaty didn't address the issue of climate and population at all. With increase in Population and depleting fresh water resources Pakistan is on fast track to the threats of water scarcity and famine. Populations of both India and Pakistan had skyrocketed during the period from 1960 to 2013 thus putting a huge pressure on resources. Also to the facet of climate change remains completely unaddressed by the treaty. Source of Indus waters is the glaciers of Himalayas who contribute to approximately 40% fresh water flowing in the region. With changing climate and lower rainfalls and faster melting glaciers, scientist have predicted the droughts and heavy floods in the region. Pakistan is most likely to hit by these conditions compared to the India. Supply of fresh will be reduce due to the severe climate change which will lead to the escalations and conflicts in the region. As water is essential commodity of life, Indus Water Treaty should be modified to adjust the

impact of changing climate. Climate change is a forcing factor and the effectiveness of the treaty will be reduced due to the overlook factor of climate change. The authority of the Treaty is greatly challenged by the climate factor because of its unforeseen threats. Thus the treaty must be modified to adapt the climate change because what may have worked before will not work in the future.

Recommendations

I. The issue of Kashmir should be solved on urgent basis. To solve the issue of Kashmir three approaches can be taken. In first approach, Kashmir should be left for enough time so that both India and Pakistan are able compromise on Kashmir issue.

II. Second approach can be considered as both India and Pakistan are willing to recognize Kashmir as integral member and importance of its development regarding the hydro power and agriculture economy.

III. The third approach is less realistic as it involves the resolution of issue by bilateral talks. Present framework will provide the required framework for talks. Although both have to work on the rule of give and take and had to facilitate each other. The issue if Indus Water System and Kashmir can't be ignored and is in serious attention.

IV. To cater the issue of water resources, a permanent water commission should be setup in both countries under the jurisdiction of Indus Water Treaty for the insurance of proper cooperation and timely data sharing between both countries. Indus Water Treaty should be made integral institution of both countries. Also experts from Kashmir should be given representation in both India and Pakistan held Kashmir. The mandate and authority of Indus Water Commission should be broad and powerful enough to force the decisions on both countries. The commission will not be influenced by any other and will work on the process of restoration of co-riparian status in form of original bed and streams.

V. The commission should work for the betterment of IWT. Commission should consist of the experts with technical knowledge of research and planning and are able to provide recommendations for the Indus Basin wide development and as well as regarding Kashmir dispute.

VI. Foundation for the better cooperation will be laid by the said commission by establishing a consolidated institute which will provide urgent, practicable and

sustainable source utilization and will guide India and Pakistan for the settlement of Kashmir dispute.

VII. Both India and Pakistan need to acknowledge the issue of climate change. Both need to form a joint research team to study the impact of fast melting glaciers of Himalayas. The factor of water stress is acting as an enforcer and its effects can't be ignored.

VIII. Both India and Pakistan need to form a joint research team to work on this issue of climate change. Climate change is a topic where combine efforts from both India and Pakistan as both are facing the issue of desertification.

IX. Both India and Pakistan need to adopt the modern faring techniques as both are heavily agriculture depended. With help of modern techniques both can save precious agricultural land and will be able to maintain or rise the water ground levels.

APPENDIX

APPENDIX1[160]

INTERDOMINION AGREEMENT, BETWEEN

THE GOVERNMENT OF INDIA AND THE GOVERNMENT OF PAKISTAN,

ON THE CANAL WATER DISPUTEBETWEEN EAST AND WEST PUNJAB

1. A dispute has arisen between the East and West Punjab Governments regarding the supply by East Punjab of water to the Central Bari Doab and the Dipalpur canals in West Punjab. The contention of the East Punjab Government is that under the Punjab Partition (Apportionment of Assets and Liabilities) Order, 1947, and the Arbitral Award the proprietary rights in the waters of the rivers in East Punjab vest wholly in the East Punjab Government and that the West Punjab Government cannot claim any share of these waters as a right. The West Punjab Government disputes this contention, its view being that the point has conclusively been decided in its favor by implication by the Arbitral Award and that in accordance with international law and equity, West Punjab has a right to the waters of the East Punjab Rivers.

2. The East Punjab Government has revived the flow of water into these canals on certain conditions of which two are disputed by West Punjab. One, which arises out of the contention in paragraph 1, is the right to the levy of seigniorage charges for water and the other is the question of the Madhavpur [sic] Head Works and carrier channels to be taken into account.

3. The East and West Punjab Governments are anxious that this question should be settled in a spirit of goodwill and friendship. Without prejudice to its legal rights in the matter the East Punjab Government has assured the West Punjab Government that it has no intention suddenly to withhold water from West Punjab without giving it time to tap alternative sources. The West Punjab Government on its part recognizes the natural anxiety of the East Punjab Government to discharge the obligation to develop areas where water is scarce and which were underdeveloped in relation to parts of West Punjab.

4. Apart, therefore, from the question of law involved, the Governments are anxious to approach the problem in a practical spirit on the basis of the East Punjab Government progressively diminishing its supply to these canals in order to give reasonable time to enable the West Punjab Government to tap alternative sources.

5. The West Punjab Government has agreed to deposit immediately in the Reserve Bank such ad hoc sum as may be specified by the Prime Minister of India. Out of this sum, that Government agrees to the immediate transfer to East Punjab of sums over which there is no dispute.

6. After an examination by each party of the legal issues, of the method of estimating the cost of water to be supplied by the East Punjab Government and of the technical survey of water resources and the means of using them for supply to these canals, the two Governments agree that further meetings between their representatives should take place.

7. The Dominion Governments of India and Pakistan accept the above terms and express the hope that a friendly solution will be reached.

(Signed)	(Signed)
Jawaharlal Nehru	Ghulam Mohammad
Swaran Singh	Shaukat Hyat Khan

[160] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

N. V. Gadgil Mumtaz Daultana

New Delhi, May 4, 1948

APPENDIX 2[161]

Letter from the World Bank President, Eugene Black

to the Prime Minister of Pakistan, Liaquat Ali Khan: 6 September 1951.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

There appeared in the popular American magazine "Colliers" of August 4, 1951, an article by Mr. David E. Lilienthal proposing a cooperative regional approach to the development of the water resources of the Indus Basin. Because of the wide circulation of this magazine and Mr. Lilienthal's reputation as an authority in the field of regional development, this article has attracted a great deal of interest in the United States. I assume that copies of Mr. Lilienthal's article have been brought to the notice of the Government of Pakistan. Mr. Lilienthal's proposal contemplates meeting the requirements of both countries for expanded irrigation through the cooperative construction and operation of storage dams and other facilities to be financed in part perhaps by this Bank. It is the essence of the proposal, as I read it, that the development of the Indus water resources should be dealt with on an engineering basis and it appears to be Mr. Lilienthal's belief, after visiting both countries and talking with the highest personalities in the governments, that it is within the realm of practicability to treat water development as a common project that is functional, and not political, in nature and that could therefore be undertaken separately from the political issues with which Pakistan and India are confronted. As you may be aware, both Pakistan and India have from time to time raised with the Bank the possibility of financing irrigation and hydroelectric works in the Indus Basin and in each case the international water-rights problem has been an obstacle. A constructive program for the effective use of the water resources would, moreover, have important implications for the economic development of both countries in other fields. Since the matter is therefore of interest to the Bank and since the Bank's name has now been publicly mentioned in this connection, I should like to ask you whether you are disposed to look with favor upon Mr. Lilienthal's proposal. If so, I can assure you that, if your Government and the Government of India desired to approach the development of the Indus water resources along the lines suggested by Mr. Lilienthal, I should be most happy to recommend that the Bank lend its good offices in such directions as might be considered appropriate by the two governments, make available qualified members of its staff and consider any financing proposals that might develop as a result of joint planning.

I am sending a letter in similar terms to the Prime Minister of India.

[161] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

APPENDIX 3[162]

Letter from the World Bank President, Eugene Black,

to the Prime Minister of Pakistan, Khwaja Nazimuddin; 8 November 1951.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

I have previously expressed my profound regrets on learning of the death of Mr. Liaquat Ali Khan. I must now revert to the subject of my correspondence with him which was interrupted by that tragic event.

I was much gratified to receive, in Mr. Liaquat Ali Khan's reply of September 25, 1951, to my letter of September 6, 1951, assurance that the Pakistan Government favors' looking at the Indus basin water resources from a regional viewpoint with the objective of cooperative development and that he welcomed my proposal along the lines indicated in his letter, which I have carefully studied. The Prime Minister of India has also sent a favorable reply.

These two letters have convinced me that a solution to the problem of using the water resources of the Indus basin in such a way was to make a maximum contribution to the development of both countries is well within the bounds of practicability. I am therefore encouraged to suggest to the two Governments a procedure which seems to me to afford the best prospects of accomplishing that objective.

I shall base my suggestions on the essential principles of Mr. Lilienthal's proposal which are, as I understand them, the following:

(a) The Indus basin water resources are sufficient to continue all existing uses and to meet the further needs of both countries for water from that source.

(b) The water resources of the Indus basin should be cooperatively developed and used in such manner as most effectively to promote the economic development of the Indus basin viewed as a unit.

(c) The problem of development and use of the Indus basin water resources should be solved on a functional and not a political plane, without relation to past negotiations and past claims and independently of political issues.

I assume that, in indicating their willingness to proceed on the basis of Mr. Lilienthal's proposals, the two Governments have accepted these principles. My suggestions as to procedure, which I believe faithfully reflect these principles, are based on that assumption. I should perhaps add that, through its contacts with the two countries, the Bank is convinced that the engineers and other technicians of Pakistan and India are fully qualified to provide the principal technical and planning skills needed to develop, for submission to the two Governments, a comprehensive program for the utilization of the Indus basin water resources. That has been a major consideration in my formulation of a suggested procedure. My proposal is as follows:

(a) Pakistan and India would each delegate a qualified engineer of high standing to prepare, jointly with the designee of the other, a comprehensive long-range plan for the most effective utilization of the water resources of the Indus basin in the development of the region. Each designee would be instructed to govern himself by the principles stated above and to approach the problem on its merits in the interest of economic development of the Indus basin viewed as a unit. Each designee would have such technical assistants as he might desire and as might be available, and the two together would be authorized to retain the services of such engineers, agricultural technicians, economists and other experts, from either or both of the two countries of from other countries, as they might mutually find desirable.

(b) An engineer selected by the Bank would be continuously available during the planning stage to work with the designees of the two countries. He would keep himself informed of the planning in view of the Bank's previously expressed readiness to consider financing proposals and would participate in the

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[162] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

working party as an impartial adviser, free to express his views on any aspects of the matter and available to perform such other services as might be mutually determined to be appropriate. He could thus assist in solving problems without being in the position of an arbitrator. Before selecting its representative, the Bank would ascertain that he would be acceptable to the two Governments. There would be available to him and through him to the entire working party, such technical assistance furnished by the Bank as might be needed to supplement the resources otherwise available.

(c) The working party would hold an initial meeting for the purpose of determining the procedure to be followed in working out the plan, the steps needed to be taken, the order and manner in which those steps would be undertaken and the persons by whom they would be undertaken, and would set target dates for completion of the various steps. On reaching agreement on these matters, the working party would promptly, without the need of any further authorization, put the agreed procedure into effect and begin work on the plan. I suggest that this initial meeting take place on January 3, 1952, at the Bank's Washington Office.

I feel strongly that publicity should be avoided at least until an agreement on procedure has been reached by the working party at the initial meeting. Whether any public statement should be made after a working procedure has been decided upon would be a matter for discussion between the two Governments and the Bank.

If I assume, the Governments of Pakistan and India are in agreement on the principles underlying Mr. Lilienthal's proposal, as I have set them forth above, I anticipate fruitful results from this suggested procedure. At the present stage I have not felt free to bring this matter before the Executive Directors of the Bank but I believe that I can assure you that if the two Governments are prepared to proceed, the Executive Directors, as well as the management and staff, will be happy to cooperate with them in facilitating a solution to this vital development problem.

APPENDIX 4[163]

Letter from the World Bank President, Eugene Black

to the Prime Minister of Pakistan, Khwaja Nazimuddin; 13 March 1952.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

I refer to the conversation we have had about the Indus Basin water problem and to similar conversations I have had with the Prime Minister of India. I am happy to say that I have found common understanding as to the bases on which we can go forward under the Lilienthal proposal.

We all agree that the function of the working party is to work out, and the ultimate objective is to carry out, specific engineering measures by which the supplies effectively available to each country will be increased substantially beyond what they have ever been. Except as the two sides may hereafter agree, legal rights will not be affected and each side will be free to withdraw at any time; but while the cooperative work continues with the participation of the Bank neither side will take any action to diminish the supplies available to the other side for existing uses.

It should be understood that the three main principles set forth in my letter of November 8, 1951 provide the broad basis on which the engineers will meet but are not intended as rigidly fixed terms of reference. Within the broad outline of the basic framework the engineers should be free to put forward or consider proposals in pursuance of the general objective.

With these clarifications both Governments are ready to go forward in accordance with my letter of November 8, 1951, the first meeting of the working party to be held on April 7, 1952 [April is crossed out, replaced by May]. I am therefore happy to invite the designee of your Government, and his technical assistants, to be present at the Bank's Washington office on that date. I am sending an identical letter to the Prime Minister of India.

[163] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

APPENDIX 5[164]

Proposal by the WB Representative for a Plan to

Develop and use of the

Indus Basin Waters, 5 February 1954

Introduction

The Indus Basin Working Party, consisting of engineers designated by India and Pakistan and their advisors assisted by the Bank Representative and consultants, have for almost two years worked at their task of preparing a comprehensive plan for the utilization of the waters of the Indus system, in accordance with the suggestion made by Mr David E Lilienthal in August, 1951. Over a year was spent in compiling and analyzing data in a field trip of more than 9000 miles in the basin. Efforts to agree in advance on a common approach having proved fruitless, the two Designees, at the suggestion of the Bank Representative, each proposed a comprehensive plan.

As presented above the plans differed widely in concept and in substance. Subsequent discussions have produced substantial concessions, but these have not been enough to bring about an agreement and the margin of difference between the two plans remains wide. In rough approximation, the two plans (as modified by recent concessions) provide for the following division of usable supplies of water:

Indian Plan:	Usable supplies allocated to:	
	India	- all of the Eastern rivers and 7% of the Western rivers
	Pakistan	- none of the Eastern rivers and 93% of the Western rivers
Pakistan Plan:	Usable supplies allocated to:	
	India	-30% of the Eastern rivers and none of the Western rivers
	Pakistan	- 70% of the Eastern rivers and all of the Western rivers

In quantitative terms, the division of the usable supplies of water may be approximately shown as follows (in millions of acre-feet):

Total uses excluding losses and unusable supplies

	For India	For Pakistan	Total Usable
India	29	90	119
Pakistan	15.5	102.5	118

The present status is that it has not yet been possible to reach agreement and that, in the absence of some new development, there is no prospect of further progress in the Working Party. Before considering what step should next be taken, it will be useful to analyze the reasons that have so far prevented agreement.

Essential Elements of the Problem

The inability to agree in the Working Party has not been due to the technical difficulties or inability to devise appropriate engineering works and measures to make the most effective use of the waters. If this were the whole problem, a solution would doubtless have been found before now.

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[164] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

The available technical resources are impressive. The proficiency of the Indian and Pakistani engineers in canal irrigation techniques is unsurpassed, and perhaps unequalled, anywhere in the world.

Abundant technical data is at hand. It is doubtful whether such complete recorded flow data exists for the Indus system of rivers and canals could be duplicated for any comparable river system in any other country.

Moreover, there is a large measure of accord between the two Designees on certain fundamentals:

1. The Working Party are in agreement that the average annual flow is not sufficiently dependable to be taken as a basis for planning and that some more conservative figures must be used.

2. For the most practical purposes, they are in agreement on the amount of unusable supplies in the rivers, on the amount that can be developed through storage, on the sites and capacities of possible storage facilities and on the technical feasibility of proposed engineering works.

3. They agree that existing uses of water must be respected (although they differ as to the meaning of "existing uses").

4. They agree that surplus usable supplies, including supplies that can be developed through storage, must be equitably apportioned among the potential new uses in the interests of the economic development of the basin as a unit (though they differ in defining the boundaries of the basin).

5. They agree that existing inundation canals should be replaced by weir-controlled canals.

6. Finally both sides appear to accept the concept that the cost of the new works should be allocated to the two countries in the proportion in which they derive benefit there-from.

7. The extensive compilation of data and the large area of agreement that already exists provide firm foundations for a settlement, and thus represent most valuable contributions by the Working Party to an ultimate solution. Unfortunately, they are not enough in themselves to bring about an agreement. What hampers further progress in the Working Party is no matter of engineering complexity, but rather a combination of three basic difficulties which have so far prevented the Working Party from reaching the heart of the problem - a fair division of the waters between the two countries.

8. The first difficulty lies in the fact that water supplies and storage potentialities are inadequate to the needs of the basin. The Indus is one of the world's greatest river systems. With proper development by engineering works, it is capable of providing substantially more irrigation to each country than has ever been enjoyed. But even after full development, there will not be enough water to supply all the needs of the water. This means that there can be no ideal plan which will fully satisfy both sides. Any plan must involve a large element of compromise under which each country will have to forego some of the irrigation uses that it would wish to develop if adequate supplies and storage were available.

9. The second difficulty is that although the Working Party is planning on the basis of the development of the Indus Basin as an economic unit, two sovereign states are involved. This greatly limits the practical potentialities of planning. A comprehensive plan can achieve maximum efficiency, economy and usefulness when it is developed and administered by a single authority. Under such an authority, decisions can be made promptly; plans can be readily changed to meet new circumstances and accommodations made to meet emergencies.

10. When two sovereign authorities are concerned, it is difficult to use resources to the greatest advantage. Problems must be solved by negotiation and agreement rather than by decision. Minor questions of planning and operational detail must be referred to high authority and dealt with, perhaps, through diplomatic channels. Moreover the two countries may follow different development policies, or may have unequal resources available for development. They may also (as has been evident in the present discussions) be reluctant to have works regulating water supplies on which they depend constructed in territory controlled by another country. All these factors make agreement difficult.

11. In the present case, it would be unrealistic to ignore this difficulty. The prospects of being able to establish an efficient and smooth-running joint administration are not favourable. At present, any comprehensive plan must be framed with this limitation in mind.

12. The third difficulty, the most serious of all, has arisen in the course of discussions. The plans put forward by the two sides differ fundamentally in concept. An essential part of the Pakistan concept is that existing uses of water must be continued from existing sources. Moreover "existing uses", in the Pakistan plan, include not only the amounts of water that have actually been put to use in the past, but also the allocations of water which have been sanctioned prior to partition, even though the necessary supplies have not been available for use. This concept protects Pakistan's actual and potential uses on the Eastern rivers and reserves most of the water in the Western rivers for use in Pakistan.

13. The corresponding concept of the Indian plan, on the other hand, is that although existing uses (here defined to include only actual historic withdrawals) must be continued, they need not necessarily be continued from existing sources. This concept permits the water in the Eastern rivers which is now used in Pakistan to be released for use in India and replaced by water from the Western rivers.

14. The basic divergence of concept, together with the other two difficulties mentioned above, effectively blocks progress towards a settlement. As long as it persists, there is no prospect that further discussions will prove fruitful.

The Bank Proposal

Both sides have repeatedly stated that they sincerely desire a settlement and that in this they reflect the desires of their Governments. It is vital that a settlement be reached. Moreover, after two years' concern with the problem, the Bank is convinced that, despite the difficulties mentioned above, no insurmountable obstacle exists to a settlement which will benefit both countries. On the contrary, there is no doubt that this dispute can be settled on terms by which 'the supplies effectively available to each country will be increased substantially beyond what they have ever been.[165]

In the circumstances, the Bank Representative feels that he has the responsibility to put forward a proposal for the consideration of both sides to serve as the basis of a comprehensive plan. The proposal has the concurrence of the engineering consultants to the Bank Representative and is put forward with the full support of the management of the Bank.

This proposal has been framed in complete realization of the nature of the Bank's role in these discussions. Though the Bank Representative is 'free to express his views on any aspect of the matter,[166] neither he nor the Bank is in the position of a judge or arbitrator. The Bank cannot, therefore, pass upon any of the legal contentions that have been put forward by the parties in the past. The proposal here made does not express, and is not intended to imply, any opinion on those contentions.

The Bank proposal is no arbitrary compromise arrived at by mathematically splitting the differences between the two sides. It is a plan based on concepts of its own, which produce a fair and economic result.

In the formulation of the Bank proposal, the divergence of concept in the Working Party as to treatment of existing uses had to be faced at the outset. The Bank proposal embodies the principle that historic withdrawals of water must be continued, but not necessarily from existing sources. This principle allows water to be used so as most effectively to promote development. A requirement that existing uses must be supplied from existing sources would unduly limit the flexibility of operation needed for the efficient use of waters. In fact, no fair and adequate comprehensive plan could, in the opinion of the Bank Representative, be devised under such a requirement.

The Bank proposal also embodies the principle that, in view of existing circumstances, allocation of supplies to the two countries should be such as to afford the greatest possible freedom of action by each country in the operation, maintenance and future development of its irrigation facilities. It is desirable, so far as practicable, to avoid control by India over waters on which Pakistan will be dependent, and to enable each country to control the works supplying the water allocated to it and determine in its own interests the apportionment of waters within its own territories. This principle has not merely the negative advantage of minimizing friction between the two countries (a matter of some significance in view of the disputes that have arisen from sharing waters from the same river) and of avoiding the necessity of a costly and perhaps ineffective permanent joint administration. It also has a positive advantage. There is every reason to believe that leaving each country free to develop its own water resources in the light of its own needs and resources, and without having to obtain the agreement

[165] Letters of President Black to the Prime Ministers of India and Pakistan, March 13, 1952
[166] Letters of President Black to the Prime Ministers of India and Pakistan, November 8, 1951.

of the other at each point, will in the long run mostly effectively promote the efficient development of the whole system.

This does not mean that the Bank proposal places any obstacle in the way of cooperation between the two countries. On the contrary, it encourages cooperation and permits full advantage to be taken of any willingness to cooperate. But it is capable of bringing benefits even if a full degree of cooperation does not develop as rapidly as might be hoped.

Statement of Bank Proposal

The Bank proposal is that there be taken as a basis for agreement between India and Pakistan a plan under which the waters of the Western rivers would be reserved to Pakistan and the waters of the Eastern rivers would, subject to a relatively short transition period, be reserved to India. The plan may be summarized as follows: The entire flow of the Western rivers (Indus, Jhelum and Chenab) would be available for the exclusive use and benefit of Pakistan, and for development by Pakistan, except for the insignificant volume of Jhelum flow presently used in Kashmir.

The entire flow of the Eastern rivers (Ravi, Beas and Sutlej) would be available for the exclusive use and benefit of India, and for development by India, except that for a specified transition period India would continue to supply from these rivers, in accordance with an agreed schedule, the historic withdrawals from these rivers in Pakistan.

The transition period would be calculated on the basis of the time estimated to be required to complete the link canals needed in Pakistan to make transfers for the purpose of replacing supplies from India. A temporary cooperative administration would be needed to supervise the carrying out of the transitional arrangements.

Each country would construct the works located on its territories which are planned for the development of the supplies. The costs of such works would be borne by the country to be benefited thereby. Although no works are planned for joint construction by the two countries, certain link canals in Pakistan will, as stated above, be needed to replace supplies from India. India would bear the costs of such works to the extent of the benefits to be received by her therefrom. An appropriate procedure would be established for adjudicating or arbitrating disputes concerning the allocation of costs under this principle.

Some additional explanation may be helpful to a consideration of the Bank proposal.

The entire flow of the Indus, Jhelum and Chenab Rivers (Western rivers) would be allocated to Pakistan. These rivers are now used within Pakistan, except for the insignificant volume of the Jhelum that is used in Kashmir. Although the Indus River has its source outside Pakistan in Tibet and flows for a considerable length before entering Pakistan, the mountainous topography is unfavourable for irrigation development. Therefore, unhindered use by Pakistan of its waters seems assured. The Jhelum River rises and flows for some distance in Kashmir and, although here also reasons of topography limit the opportunities for irrigation diversion, there should be agreement that the flow will not be disturbed. The Chenab River rises in India and before it enters Kashmir, provides a substantial flow that could be diverted for use in India. Assurance by India that the flow of this river will not be disturbed is essential.

The entire flow of the Sutlej, Beas and Ravi Rivers (Eastern rivers) would be allocated to India when the necessary works have been completed to permit transfers of supplies from the Western rivers to replace historic withdrawals in Pakistan from the Eastern rivers. At present, India is not receiving the entire flow of these rivers but is supplying therefrom a substantial amount for canals in Pakistan, principally in the Sutlej Valley.

The works that are necessary to replace supplies from India consist of link canals connecting the Western to the Eastern rivers. Several such link canals have already been constructed by Pakistan, one is nearing completion and some additional canals will undoubtedly be necessary. As the necessary link canals are to be constructed in Pakistan, their integration with present planning there must be determined by Pakistan. Since any plan for transfer of supplies is susceptible of various modifications, accurate determination of costs must await completion of engineering studies.

It is proposed that the costs of these works will be borne by the two countries in proportion to the benefits. Thus, the cost of a canal in Pakistan of the capacity required to replace supplies from India would be borne by India; but if Pakistan decides, in its own interests, to increase the capacity beyond what is needed for such replacement, the cost would be shared proportionately by the two countries.

It will be necessary, under the Bank proposal, for India to continue to supply the Pakistan canals until the necessary works are completed by Pakistan for transfer of supplies from the Western rivers. This will involve preparation of a construction time schedule and of a time schedule for actual transfer of supplies.

These schedules would allow the actual transfers of supplies to come into effect progressively and the deliveries by India to diminish accordingly. They must be prepared cooperatively and agreed to by both countries. The period required for completion of the necessary link canals is roughly estimated to be about 5 years.

As indicated in the summary, temporary cooperative administrative machinery would be needed in the transition period to facilitate the carrying of the time schedules. There would be exchange of data on river discharges and withdrawals and on construction of interest to both countries. Joint observations would be provided for. Arrangements for settling disputes concerning allocations of cost by arbitration or adjudication would also be needed.

The Bank proposal contemplates that no reservoir storage (aside from the Bhakra dam which should be completed by the end of the transition period) will be required to supplement flow water in continuing the historic withdrawals. The inter-connected system which the link canals would provide could be so operated as the meet the existing requirements of the Sutlej Valley lands except, perhaps, in small amounts in a few canals in exceptional years.

Even without further storage construction, the Bank plan would permit the following uses after the transition period:

Pakistan could supply her historic withdrawals and could bring most of the Sutlej Valley Canals up to allocation. She could also meet the requirements of projects in progress on the Indus. India could supply her historic withdrawals and meet the requirements of projects in progress except that some modifications of the Rajasthan Canal project would be required, at least until further reservoir capacity is available.

There can be no doubt, however, that additional reservoir storage is necessary for the full development of the system and such storage is contemplated by the Bank plan. Any further storage capacity would greatly reduce the possibility of shortages and would support substantial new irrigation uses.

As far as is now known the potential storage capacities which could be developed by the two countries under the Bank plan would be about equal. However, no thorough engineering studies have been made and accordingly storage capacity (except for Bhakra) cannot be definitely determined. Further studies may well disclose additional reservoir possibilities not now known. Costs can obviously not be estimated at present and construction time can be only approximated.

The following table gives a rough quantitative comparison (in millions of acre-feet of usable supplies) between the Indian and Pakistan plans, as modified by recent concessions, and the Bank plan:

Plan	Total Uses Excluding Losses and Unusable Supplies		
	For India	For Pakistan	Total Usab
Indian	29	90	119
Pakistan	15.5	102.5	118
Bank	22	97	119

Comments on Bank Proposal

An essential test of a comprehensive plan is its fairness. The Bank proposal provides a fair division of the waters. It protect existing irrigation uses from disturbance and allocates surplus supplies, those already developed and those that may be developed, in accordance with the principle of equitable apportionment.

The Bank Representative is aware that certain minor adjustments would make the plan more economic if there were a sufficient assurance of cooperation between the parties to permit these measures to be planned and carried out.

At the present time, however, no such adjustments are recommended. If in the course of the transition period the prospects for long-term cooperation appear favorable enough, there will then be ample opportunity to agree on adjustments. But in present circumstances, their disadvantages appear to be greater than their benefits. Most such adjustments would require the establishment of a permanent joint commission. Administrative arrangements of that kind are costly, and the costs recur annually. More significantly, joint commissions are likely to be inefficient except in extremely favorable conditions.

One of the merits of the Bank proposal is that, unlike the plans of the two Designees, it avoids the complexities that would require the establishment of a permanent joint commission.

A further advantage of the Bank proposal lies in the fact that, after transfer works are completed, each country will be independent of the other in the operation of its supplies.

Each country will be responsible for planning, constructing and administering its own facilities in its own territories as it sees fit. This should provide strong incentives to each country to make the most effective use of water, since any efficiency accomplished by works undertaken by either country for storage, transfer, reduction of losses and the like will accrue directly to the benefit of that country. The same will be true of efficiency achieved in operations. Pakistan, for instance, will be able to take full advantage of the flexibility afforded by an inter-connecting system. As the flow of the rivers varies with the seasons, and from year to year, supplies that are surplus in one river can be transferred to a river in which supplies are low. Likewise India will be able to operate Bhakra so as to meet the varying requirements of different areas. By contrast, if the supplies from particular rivers were shared by the two countries, the administrative complexity of arranging necessary adjustments to meet variations in flow and scheduling for crop needs would be formidable.

The mutual independence afforded by the Bank proposal would also bring benefits of a different kind. The location of works serving each country on territories under its control, and the assurances against interference by either country with the supplies on which the other depends, should reduce the chances of disputes and tension and contribute to improved relations.

All these factors should serve to promote the development of the entire basin.

A number of contentions have been made in the Working Party discussions which need not be resolved by agreement if the Bank proposal is adopted. There has been discussion about the location of the easterly boundary of the Indus Basin, a question which is difficult to settle since the area is a desert with no discernible watershed. Under the Bank proposal, the question need not be settled by agreement. Each country will be free to use the waters allocated to it as it sees fit.

There has also been discussion about the proper allowance for gains and losses, for salinity repulsion and for tube-well supply. It is not possible to answer these questions precisely at this time; nor will it be possible for some years until upstream storage and use permits much less wastage to the sea. The best method of dealing with these questions is to let each country make such provision out of supplies allotted to it, or take such engineering measures, as it deems wise.

It might perhaps be said that the allocation of the waters of a river to lands far removed from its banks, rather than to adjacent lands, is abnormal. But the practice is not new; it was well known in the Indus Basin before partition and has been followed since partition. Besides, recent history of the Indus Basin has not been normal.It is unusual, to say the least, to find an elaborate irrigation system, originally planned and operated under a single political regime, suddenly cut in two by a new political boundary.

It might also be said that the Bank proposal differs from pre-partition plans in that it contemplates irrigation of lands for which irrigation was not formerly planned. There would be substance in such a statement. The justification is that social and economic conditions have changed. Political developments have shifted large masses of population to new homes and these people now need irrigated land. No comprehensive plan would be realistic that failed to take account of the changed situation.

Conclusion

The Bank proposal is simple, workable and fair. It will effectively promote the economic development of the Indus Basin and will benefit both countries by substantially increasing the amount of

usable water available to each of them. The Bank Representative recommends its acceptance as the basis of agreement.

APPENDIX 6[167]

Aide Memoire, 21 May 1956

1. Cooperative work on the Indus Basin question was resumed in November 1954 on the basis of "Terms of Reference and Procedure" proposed by the Bank and accepted by the Government of India and the Government of Pakistan. The objective of this latest phase of the cooperative work has been to prepare 'a comprehensive plan for the consideration of Governments, on the basis of the Bank proposal of February 5, 1954, taking as a starting point the division of waters envisaged therein.'

2. The Delegations of India and Pakistan, together with the Bank Group, have now been at work for almost 18 months. During this time a series of studies have been carried out by both Delegations and numerous memoranda have been submitted by each side bearing on the various issues arising out of Paragraphs 2 and 3 of the Terms of Reference. The Bank has also arranged for the Bank Consultants (TAMS) to carry out a series of independent studies of the same nature.

3. The present status of the discussions can be summarized as follows:

[a] It has not been possible to secure full agreement between the two Delegations on:-

[i] the quantitative aspects of certain of the uses specified in Paragraph 2 and in Paragraph 3 of the Terms of Reference.

[ii] certain technical considerations involved (e.g. the effect of the proposed changed regime of the rivers on "Gains and Losses")

[b] In the absence of agreement on the points mentioned in [a] above, it has not been possible to secure a common approach to the actual engineering features of a "Comprehensive Plan."

4. The Bank continues to hold the view that the "division of the waters" contemplated by the Bank Proposal of February 1954 affords the best prospects for a settlement of the Indus Waters question; that out of the flow-cum-storage potential of the rivers allocated to them, India and Pakistan could each develop very substantial irrigation uses, additional to those that they now enjoy; and that no insuperable engineering difficulties are likely to arise in either country in constructing the physical works necessary to develop these additional supplies. The works would, however, be costly; and their financing would present a serious financial problem.

5. The Bank is of the opinion that no useful purpose is likely to be served by continuing to devote the cooperative work to an attempt to obtain agreement of the two Delegations on the issues arising out of Paragraph 2 and Paragraph 3 of the Terms of Reference. The Bank, however, feels it desirable, at the stage which the discussions have now reached, that the Bank should consider, in the light of the studies made by the consultants, whether any "adjustment" in the Bank Proposal of February 1954 is called for; and also to make proposals to the two Governments with regard to future Bank participation.

Paragraph 2 Uses and Surplus

6. [a] The Bank's consultants have studied the extent to which the flow of the Western Rivers will meet the uses envisaged in Paragraph 2 of the Terms of Reference, and the nature and extent of any surplus.

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[167] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

[b] For this purpose, the Bank asked its Consultants to adopt the following quantum of uses:-

[i] Historic withdrawals of all canals (except the Pakistan Sutlej Valley Canals);

[ii] Allocations for the Pakistan Sutlej Valley Canals (11.1 MAF)*;

[iii] 3.6 MAF for Thal;*

[iv] 9.5 MAF for Kotri.*

(* With distribution shown in Appendix A).

[c] These studies have led the Bank Group to the conclusion that, after taking into account the possibilities of the transfer of flow supplies of the Indus, Jhelum and Chenab by a system of link canals:-

[i] There would be no shortages in Kharif, except for occasional 10-day periods in April and September in occasional years.

[ii] There would be consistent surpluses in Kharif, significant in quantity, duration and frequency. [iii] There would be consistent shortages in Rabi, occasionally beginning in late September of extending into early April (see [i] above), of a degree, duration and frequency which the Bank Group could not regard as "tolerable".

Paragraph 3 Uses

7. [a] Additional Requirements of Sukkur and Gudu Pakistan has claimed for Sukkur substantial additional uses both in Rabi and in Kharif, and for Gudu substantial additional uses during Kharif only. If the pre-partition regime of the six rivers were to continue undisturbed, no significant additional Rabi irrigation at Sukkur could be developed on any dependable basis, from flow alone. Consequently, none could be developed only from the flow of the Western Rivers. So far as Kharif uses at Sukkur and at Gudu are concerned, the Kharif surplus referred to in Paragraph 6[c] [ii] above is available to allocate to new Kharif uses at these two projects, and to employ as a substitute for "Sailab."

[b] Future Development in the State of Jammu and Kashmir India has claimed that some part of the flow of the Jhelum and Chenab should be reserved for future development in the State of Jammu and Kashmir. It has been stated by India that this development would involve "relatively insignificant consumptive uses." This question should, in the Bank's view, be postponed until the point has been reached when the provisions of an international water treaty might be under consideration.

"Adjustments" to the Bank Proposal

8. [a] In the light of the conclusions at which the Bank has arrived, as set out in Paragraphs 6 and 7 above, the Bank feels that an adjustment in its Proposal of February 1954 is called for. This adjustment should, in the Bank's view, assure to Pakistan "timely" water sufficient to eliminate the shortage referred to in Paragraph 6[c] [iii].

[b] The adjustment referred to in [a] above might take any of the following forms, or a combination of any two or all of them:-

[i] Supplies from tubewells.

[ii] Continued deliveries to Pakistan of "timely" water from the Eastern Rivers.

[iii] Construction of storage on the Western Rivers.

[c] When the Bank made its proposal of February 1954, the possibility, both in India and in Pakistan, of supplementing flow by supplies from tube-wells, was realized. But this source of supply is not, in the Bank's view, an appropriate means, over the long term, of eliminating any part of the disclosed shortage. Accordingly, and if the Division of Waters contemplated by the Bank Proposal is maintained, the adjustment should be in the form of storage on the Western Rivers.

9. The system of works to implement the Bank Proposal, as adjusted, should, therefore, in the Bank's view, be based on the principle that, for the purpose of meeting the "Paragraph 2 Uses," flow of the Western Rivers (Indus, as well as Jhelum and Chenab) should be exploited to the maximum possible extent, and that the minimum inroads should be made on Pakistan's limited storage capacity. In the

Bank's view, the cost of this system of works should be the basis of the calculation of India's financial liability.

10. The Bank now wishes to propose to the two Governments the following course of action:-

[a] The completion of negotiations with the two Delegations of ad hoc amounts for Indian withdrawals from the Eastern Rivers during the period 1st April 1956 to 31st March 1957.

[b] A continuance of the period of the cooperative work until 31st March 1957.

[c] After the two Governments had agreed to [b] above, the conclusion of an intergovernmental Agreement to cover [a] above.

[d] That the Bank should then proceed to use its good offices to bring about acceptance of an appropriate adjustment of the Bank Proposal of February 1954, along the lines indicated.

11. The Bank feels that if, by 31st March 1957, the Bank should see no reasonable prospects for a settlement on the basis of the Bank Proposal, with an appropriate adjustment, the Bank would have to consider whether the employment of its good offices could make any further contribution to a solution.

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APPENDIX 1[1]

INTERDOMINION AGREEMENT, BETWEEN

THE GOVERNMENT OF INDIA AND THE GOVERNMENT OF PAKISTAN,

ON THE CANAL WATER DISPUTEBETWEEN EAST AND WEST PUNJAB

1. A dispute has arisen between the East and West Punjab Governments regarding the supply by East Punjab of water to the Central Bari Doab and the Dipalpur canals in West Punjab. The contention of the East Punjab Government is that under the Punjab Partition (Apportionment of Assets and Liabilities) Order, 1947, and the Arbitral Award the proprietary rights in the waters of the rivers in East Punjab vest wholly in the East Punjab Government and that the West Punjab Government cannot claim any share of these waters as a right. The West Punjab Government disputes this contention, its view being that the point has conclusively been decided in its favor by implication by the Arbitral Award and that in accordance with international law and equity, West Punjab has a right to the waters of the East Punjab Rivers.

2. The East Punjab Government has revived the flow of water into these canals on certain conditions of which two are disputed by West Punjab. One, which arises out of the contention in paragraph 1, is the right to the levy of seigniorage charges for water and the other is the question of the Madhavpur [sic] Head Works and carrier channels to be taken into account.

3. The East and West Punjab Governments are anxious that this question should be settled in a spirit of goodwill and friendship. Without prejudice to its legal rights in the matter the East Punjab Government has assured the West Punjab Government that it has no intention suddenly to withhold water from West Punjab without giving it time to tap alternative sources. The West Punjab Government on its part recognizes the natural anxiety of the East Punjab Government to discharge the obligation to develop areas where water is scarce and which were underdeveloped in relation to parts of West Punjab.

4. Apart, therefore, from the question of law involved, the Governments are anxious to approach the problem in a practical spirit on the basis of the East Punjab Government progressively diminishing its supply to these canals in order to give reasonable time to enable the West Punjab Government to tap alternative sources.

5. The West Punjab Government has agreed to deposit immediately in the Reserve Bank such ad hoc sum as may be specified by the Prime Minister of India. Out of this sum, that Government agrees to the immediate transfer to East Punjab of sums over which there is no dispute.

6. After an examination by each party of the legal issues, of the method of estimating the cost of water to be supplied by the East Punjab Government and of the technical survey of water resources and the means of using them for supply to these canals, the two Governments agree that further meetings between their representatives should take place.

7. The Dominion Governments of India and Pakistan accept the above terms and express the hope that a friendly solution will be reached.

(Signed)	(Signed)
Jawaharlal Nehru	Ghulam Mohammad
Swaran Singh	Shaukat Hyat Khan
N. V. Gadgil	Mumtaz Daultana

New Delhi, May 4, 1948

[1] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

APPENDIX 2[2]

Letter from the World Bank President, Eugene Black

to the Prime Minister of Pakistan, Liaquat Ali Khan: 6 September 1951.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

There appeared in the popular American magazine "Colliers" of August 4, 1951, an article by Mr. David E. Lilienthal proposing a cooperative regional approach to the development of the water resources of the Indus Basin. Because of the wide circulation of this magazine and Mr. Lilienthal's reputation as an authority in the field of regional development, this article has attracted a great deal of interest in the United States. I assume that copies of Mr. Lilienthal's article have been brought to the notice of the Government of Pakistan. Mr. Lilienthal's proposal contemplates meeting the requirements of both countries for expanded irrigation through the cooperative construction and operation of storage dams and other facilities to be financed in part perhaps by this Bank. It is the essence of the proposal, as I read it, that the development of the Indus water resources should be dealt with on an engineering basis and it appears to be Mr. Lilienthal's belief, after visiting both countries and talking with the highest personalities in the governments, that it is within the realm of practicability to treat water development as a common project that is functional, and not political, in nature and that could therefore be undertaken separately from the political issues with which Pakistan and India are confronted. As you may be aware, both Pakistan and India have from time to time raised with the Bank the possibility of financing irrigation and hydroelectric works in the Indus Basin and in each case the international water-rights problem has been an obstacle. A constructive program for the effective use of the water resources would, moreover, have important implications for the economic development of both countries in other fields. Since the matter is therefore of interest to the Bank and since the Bank's name has now been publicly mentioned in this connection, I should like to ask you whether you are disposed to look with favor upon Mr. Lilienthal's proposal. If so, I can assure you that, if your Government and the Government of India desired to approach the development of the Indus water resources along the lines suggested by Mr. Lilienthal, I should be most happy to recommend that the Bank lend its good offices in such directions as might be considered appropriate by the two governments, make available qualified members of its staff and consider any financing proposals that might develop as a result of joint planning.

I am sending a letter in similar terms to the Prime Minister of India.

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[2] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

APPENDIX 3[3]

Letter from the World Bank President, Eugene Black,

to the Prime Minister of Pakistan, Khwaja Nazimuddin; 8 November 1951.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

I have previously expressed my profound regrets on learning of the death of Mr. Liaquat Ali Khan. I must now revert to the subject of my correspondence with him which was interrupted by that tragic event.

I was much gratified to receive, in Mr. Liaquat Ali Khan's reply of September 25, 1951, to my letter of September 6, 1951, assurance that the Pakistan Government favors' looking at the Indus basin water resources from a regional viewpoint with the objective of cooperative development and that he welcomed my proposal along the lines indicated in his letter, which I have carefully studied. The Prime Minister of India has also sent a favorable reply.

These two letters have convinced me that a solution to the problem of using the water resources of the Indus basin in such a way was to make a maximum contribution to the development of both countries is well within the bounds of practicability. I am therefore encouraged to suggest to the two Governments a procedure which seems to me to afford the best prospects of accomplishing that objective.

I shall base my suggestions on the essential principles of Mr. Lilienthal's proposal which are, as I understand them, the following:

(a) The Indus basin water resources are sufficient to continue all existing uses and to meet the further needs of both countries for water from that source.

(b) The water resources of the Indus basin should be cooperatively developed and used in such manner as most effectively to promote the economic development of the Indus basin viewed as a unit.

(c) The problem of development and use of the Indus basin water resources should be solved on a functional and not a political plane, without relation to past negotiations and past claims and independently of political issues.

I assume that, in indicating their willingness to proceed on the basis of Mr. Lilienthal's proposals, the two Governments have accepted these principles. My suggestions as to procedure, which I believe faithfully reflect these principles, are based on that assumption. I should perhaps add that, through its contacts with the two countries, the Bank is convinced that the engineers and other technicians of Pakistan and India are fully qualified to provide the principal technical and planning skills needed to develop, for submission to the two Governments, a comprehensive program for the utilization of the Indus basin water resources. That has been a major consideration in my formulation of a suggested procedure. My proposal is as follows:

(a) Pakistan and India would each delegate a qualified engineer of high standing to prepare, jointly with the designee of the other, a comprehensive long-range plan for the most effective utilization of the water resources of the Indus basin in the development of the region. Each designee would be instructed to govern himself by the principles stated above and to approach the problem on its merits in the interest of economic development of the Indus basin viewed as a unit. Each designee would have such technical assistants as he might desire and as might be available, and the two together would be authorized to retain the services of such engineers, agricultural technicians, economists and other experts, from either or both of the two countries of from other countries, as they might mutually find desirable.

(b) An engineer selected by the Bank would be continuously available during the planning stage to work with the designees of the two countries. He would keep himself informed of the planning in view of the Bank's previously expressed readiness to consider financing proposals and would participate in the working party as an impartial adviser, free to express his views on any aspects of the matter and available to perform such other services as might be mutually

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[3] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

determined to be appropriate. He could thus assist in solving problems without being in the position of an arbitrator. Before selecting its representative, the Bank would ascertain that he would be acceptable to the two Governments. There would be available to him and through him to the entire working party, such technical assistance furnished by the Bank as might be needed to supplement the resources otherwise available.

(c) The working party would hold an initial meeting for the purpose of determining the procedure to be followed in working out the plan, the steps needed to be taken, the order and manner in which those steps would be undertaken and the persons by whom they would be undertaken, and would set target dates for completion of the various steps. On reaching agreement on these matters, the working party would promptly, without the need of any further authorization, put the agreed procedure into effect and begin work on the plan. I suggest that this initial meeting take place on January 3, 1952, at the Bank's Washington Office.

I feel strongly that publicity should be avoided at least until an agreement on procedure has been reached by the working party at the initial meeting. Whether any public statement should be made after a working procedure has been decided upon would be a matter for discussion between the two Governments and the Bank.

If I assume, the Governments of Pakistan and India are in agreement on the principles underlying Mr. Lilienthal's proposal, as I have set them forth above, I anticipate fruitful results from this suggested procedure. At the present stage I have not felt free to bring this matter before the Executive Directors of the Bank but I believe that I can assure you that if the two Governments are prepared to proceed, the Executive Directors, as well as the management and staff, will be happy to cooperate with them in facilitating a solution to this vital development problem.

APPENDIX 4[4]

Letter from the World Bank President, Eugene Black

to the Prime Minister of Pakistan, Khwaja Nazimuddin; 13 March 1952.

[A similar letter was sent to the Prime Minister of India, Jawaharlal Nehru.]

I refer to the conversation we have had about the Indus Basin water problem and to similar conversations I have had with the Prime Minister of India. I am happy to say that I have found common understanding as to the bases on which we can go forward under the Lilienthal proposal.

We all agree that the function of the working party is to work out, and the ultimate objective is to carry out, specific engineering measures by which the supplies effectively available to each country will be increased substantially beyond what they have ever been. Except as the two sides may hereafter agree, legal rights will not be affected and each side will be free to withdraw at any time; but while the cooperative work continues with the participation of the Bank neither side will take any action to diminish the supplies available to the other side for existing uses.

It should be understood that the three main principles set forth in my letter of November 8, 1951 provide the broad basis on which the engineers will meet but are not intended as rigidly fixed terms of reference. Within the broad outline of the basic framework the engineers should be free to put forward or consider proposals in pursuance of the general objective.

With these clarifications both Governments are ready to go forward in accordance with my letter of November 8, 1951, the first meeting of the working party to be held on April 7, 1952 [April is crossed out, replaced by May]. I am therefore happy to invite the designee of your Government, and his technical assistants, to be present at the Bank's Washington office on that date. I am sending an identical letter to the Prime Minister of India.

[4] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, The Indus Bain Irrigation Water Dispute, No. 5 (November 1953); and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

APPENDIX 5[5]

Proposal by the WB Representative for a Plan to

Develop and use of the

Indus Basin Waters, 5 February 1954

Introduction

The Indus Basin Working Party, consisting of engineers designated by India and Pakistan and their advisors assisted by the Bank Representative and consultants, have for almost two years worked at their task of preparing a comprehensive plan for the utilization of the waters of the Indus system, in accordance with the suggestion made by Mr David E Lilienthal in August, 1951. Over a year was spent in compiling and analyzing data in a field trip of more than 9000 miles in the basin. Efforts to agree in advance on a common approach having proved fruitless, the two Designees, at the suggestion of the Bank Representative, each proposed a comprehensive plan.

As presented above the plans differed widely in concept and in substance. Subsequent discussions have produced substantial concessions, but these have not been enough to bring about an agreement and the margin of difference between the two plans remains wide. In rough approximation, the two plans (as modified by recent concessions) provide for the following division of usable supplies of water:

Indian Plan: Usable supplies allocated to:

India - all of the Eastern rivers and 7% of the Western rivers

Pakistan - none of the Eastern rivers and 93% of the Western rivers

Pakistan Plan: Usable supplies allocated to:

India -30% of the Eastern rivers and none of the Western rivers

Pakistan - 70% of the Eastern rivers and all of the Western rivers

In quantitative terms, the division of the usable supplies of water may be approximately shown as follows (in millions of acre-feet):

Total uses excluding losses and unusable supplies

	For India	For Pakistan	Total Usable
India	29	90	119
Pakistan	15.5	102.5	118

The present status is that it has not yet been possible to reach agreement and that, in the absence of some new development, there is no prospect of further progress in the Working Party. Before considering what step should next be taken, it will be useful to analyze the reasons that have so far prevented agreement.

Essential Elements of the Problem

The inability to agree in the Working Party has not been due to the technical difficulties or inability to devise appropriate engineering works and measures to make the most effective use of the waters. If this were the whole problem, a solution would doubtless have been found before now.

[5] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

The available technical resources are impressive. The proficiency of the Indian and Pakistani engineers in canal irrigation techniques is unsurpassed, and perhaps unequalled, anywhere in the world.

Abundant technical data is at hand. It is doubtful whether such complete recorded flow data exists for the Indus system of rivers and canals could be duplicated for any comparable river system in any other country.

Moreover, there is a large measure of accord between the two Designees on certain fundamentals:

1. The Working Party are in agreement that the average annual flow is not sufficiently dependable to be taken as a basis for planning and that some more conservative figures must be used.

2. For the most practical purposes, they are in agreement on the amount of unusable supplies in the rivers, on the amount that can be developed through storage, on the sites and capacities of possible storage facilities and on the technical feasibility of proposed engineering works.

3. They agree that existing uses of water must be respected (although they differ as to the meaning of "existing uses").

4. They agree that surplus usable supplies, including supplies that can be developed through storage, must be equitably apportioned among the potential new uses in the interests of the economic development of the basin as a unit (though they differ in defining the boundaries of the basin).

5. They agree that existing inundation canals should be replaced by weir-controlled canals.

6. Finally both sides appear to accept the concept that the cost of the new works should be allocated to the two countries in the proportion in which they derive benefit there-from.

7. The extensive compilation of data and the large area of agreement that already exists provide firm foundations for a settlement, and thus represent most valuable contributions by the Working Party to an ultimate solution. Unfortunately, they are not enough in themselves to bring about an agreement. What hampers further progress in the Working Party is no matter of engineering complexity, but rather a combination of three basic difficulties which have so far prevented the Working Party from reaching the heart of the problem - a fair division of the waters between the two countries.

8. The first difficulty lies in the fact that water supplies and storage potentialities are inadequate to the needs of the basin. The Indus is one of the world's greatest river systems. With proper development by engineering works, it is capable of providing substantially more irrigation to each country than has ever been enjoyed. But even after full development, there will not be enough water to supply all the needs of the water. This means that there can be no ideal plan which will fully satisfy both sides. Any plan must involve a large element of compromise under which each country will have to forego some of the irrigation uses that it would wish to develop if adequate supplies and storage were available.

9. The second difficulty is that although the Working Party is planning on the basis of the development of the Indus Basin as an economic unit, two sovereign states are involved. This greatly limits the practical potentialities of planning. A comprehensive plan can achieve maximum efficiency, economy and usefulness when it is developed and administered by a single authority. Under such an authority, decisions can be made promptly; plans can be readily changed to meet new circumstances and accommodations made to meet emergencies.

10. When two sovereign authorities are concerned, it is difficult to use resources to the greatest advantage. Problems must be solved by negotiation and agreement rather than by decision. Minor questions of planning and operational detail must be referred to high authority and dealt with, perhaps, through diplomatic channels. Moreover the two countries may follow different development policies, or may have unequal resources available for development. They may also (as has been evident in the present discussions) be reluctant to have works regulating water supplies on which they depend constructed in territory controlled by another country. All these factors make agreement difficult.

11. In the present case, it would be unrealistic to ignore this difficulty. The prospects of being able to establish an efficient and smooth-running joint administration are not favourable. At present, any comprehensive plan must be framed with this limitation in mind.

12. The third difficulty, the most serious of all, has arisen in the course of discussions. The plans put forward by the two sides differ fundamentally in concept. An essential part of the Pakistan concept is that existing uses of water must

be continued from existing sources. Moreover "existing uses", in the Pakistan plan, include not only the amounts of water that have actually been put to use in the past, but also the allocations of water which have been sanctioned prior to partition, even though the necessary supplies have not been available for use. This concept protects Pakistan's actual and potential uses on the Eastern rivers and reserves most of the water in the Western rivers for use in Pakistan.

13. The corresponding concept of the Indian plan, on the other hand, is that although existing uses (here defined to include only actual historic withdrawals) must be continued, they need not necessarily be continued from existing sources. This concept permits the water in the Eastern rivers which is now used in Pakistan to be released for use in India and replaced by water from the Western rivers.

14. The basic divergence of concept, together with the other two difficulties mentioned above, effectively blocks progress towards a settlement. As long as it persists, there is no prospect that further discussions will prove fruitful.

The Bank Proposal

Both sides have repeatedly stated that they sincerely desire a settlement and that in this they reflect the desires of their Governments. It is vital that a settlement be reached. Moreover, after two years' concern with the problem, the Bank is convinced that, despite the difficulties mentioned above, no insurmountable obstacle exists to a settlement which will benefit both countries. On the contrary, there is no doubt that this dispute can be settled on terms by which 'the supplies effectively available to each country will be increased substantially beyond what they have ever been.[6]

In the circumstances, the Bank Representative feels that he has the responsibility to put forward a proposal for the consideration of both sides to serve as the basis of a comprehensive plan. The proposal has the concurrence of the engineering consultants to the Bank Representative and is put forward with the full support of the management of the Bank.

This proposal has been framed in complete realization of the nature of the Bank's role in these discussions. Though the Bank Representative is 'free to express his views on any aspect of the matter,[7] neither he nor the Bank is in the position of a judge or arbitrator. The Bank cannot, therefore, pass upon any of the legal contentions that have been put forward by the parties in the past. The proposal here made does not express, and is not intended to imply, any opinion on those contentions.

The Bank proposal is no arbitrary compromise arrived at by mathematically splitting the differences between the two sides. It is a plan based on concepts of its own, which produce a fair and economic result.

In the formulation of the Bank proposal, the divergence of concept in the Working Party as to treatment of existing uses had to be faced at the outset. The Bank proposal embodies the principle that historic withdrawals of water must be continued, but not necessarily from existing sources. This principle allows water to be used so as most effectively to promote development. A requirement that existing uses must be supplied from existing sources would unduly limit the flexibility of operation needed for the efficient use of waters. In fact, no fair and adequate comprehensive plan could, in the opinion of the Bank Representative, be devised under such a requirement.

The Bank proposal also embodies the principle that, in view of existing circumstances, allocation of supplies to the two countries should be such as to afford the greatest possible freedom of action by each country in the operation, maintenance and future development of its irrigation facilities. It is desirable, so far as practicable, to avoid control by India over waters on which Pakistan will be dependent, and to enable each country to control the works supplying the water allocated to it and determine in its own interests the apportionment of waters within its own territories. This principle has not merely the negative advantage of minimizing friction between the two countries (a matter of some significance in view of the disputes that have arisen from sharing waters from the same river) and of avoiding the necessity of a costly and perhaps ineffective permanent joint administration. It also has a positive advantage. There is every reason to believe that leaving each country free to develop its own water resources in the light of its own needs and resources, and without having to obtain the agreement of the other at each point, will in the long run mostly effectively promote the efficient development of the whole system.

This does not mean that the Bank proposal places any obstacle in the way of cooperation between the two countries. On the contrary, it encourages cooperation and permits full advantage to be taken of any willingness to

[6] Letters of President Black to the Prime Ministers of India and Pakistan, March 13, 1952
[7] Letters of President Black to the Prime Ministers of India and Pakistan, November 8, 1951.

cooperate. But it is capable of bringing benefits even if a full degree of cooperation does not develop as rapidly as might be hoped.

Statement of Bank Proposal

The Bank proposal is that there be taken as a basis for agreement between India and Pakistan a plan under which the waters of the Western rivers would be reserved to Pakistan and the waters of the Eastern rivers would, subject to a relatively short transition period, be reserved to India. The plan may be summarized as follows: The entire flow of the Western rivers (Indus, Jhelum and Chenab) would be available for the exclusive use and benefit of Pakistan, and for development by Pakistan, except for the insignificant volume of Jhelum flow presently used in Kashmir.

The entire flow of the Eastern rivers (Ravi, Beas and Sutlej) would be available for the exclusive use and benefit of India, and for development by India, except that for a specified transition period India would continue to supply from these rivers, in accordance with an agreed schedule, the historic withdrawals from these rivers in Pakistan.

The transition period would be calculated on the basis of the time estimated to be required to complete the link canals needed in Pakistan to make transfers for the purpose of replacing supplies from India. A temporary cooperative administration would be needed to supervise the carrying out of the transitional arrangements.

Each country would construct the works located on its territories which are planned for the development of the supplies. The costs of such works would be borne by the country to be benefited thereby. Although no works are planned for joint construction by the two countries, certain link canals in Pakistan will, as stated above, be needed to replace supplies from India. India would bear the costs of such works to the extent of the benefits to be received by her therefrom. An appropriate procedure would be established for adjudicating or arbitrating disputes concerning the allocation of costs under this principle.

Some additional explanation may be helpful to a consideration of the Bank proposal.

The entire flow of the Indus, Jhelum and Chenab Rivers (Western rivers) would be allocated to Pakistan. These rivers are now used within Pakistan, except for the insignificant volume of the Jhelum that is used in Kashmir. Although the Indus River has its source outside Pakistan in Tibet and flows for a considerable length before entering Pakistan, the mountainous topography is unfavourable for irrigation development. Therefore, unhindered use by Pakistan of its waters seems assured. The Jhelum River rises and flows for some distance in Kashmir and, although here also reasons of topography limit the opportunities for irrigation diversion, there should be agreement that the flow will not be disturbed. The Chenab River rises in India and before it enters Kashmir, provides a substantial flow that could be diverted for use in India. Assurance by India that the flow of this river will not be disturbed is essential.

The entire flow of the Sutlej, Beas and Ravi Rivers (Eastern rivers) would be allocated to India when the necessary works have been completed to permit transfers of supplies from the Western rivers to replace historic withdrawals in Pakistan from the Eastern rivers. At present, India is not receiving the entire flow of these rivers but is supplying therefrom a substantial amount for canals in Pakistan, principally in the Sutlej Valley.

The works that are necessary to replace supplies from India consist of link canals connecting the Western to the Eastern rivers. Several such link canals have already been constructed by Pakistan, one is nearing completion and some additional canals will undoubtedly be necessary. As the necessary link canals are to be constructed in Pakistan, their integration with present planning there must be determined by Pakistan. Since any plan for transfer of supplies is susceptible of various modifications, accurate determination of costs must await completion of engineering studies.

It is proposed that the costs of these works will be borne by the two countries in proportion to the benefits. Thus, the cost of a canal in Pakistan of the capacity required to replace supplies from India would be borne by India; but if Pakistan decides, in its own interests, to increase the capacity beyond what is needed for such replacement, the cost would be shared proportionately by the two countries.

It will be necessary, under the Bank proposal, for India to continue to supply the Pakistan canals until the necessary works are completed by Pakistan for transfer of supplies from the Western rivers. This will involve preparation of a construction time schedule and of a time schedule for actual transfer of supplies.

These schedules would allow the actual transfers of supplies to come into effect progressively and the deliveries by India to diminish accordingly. They must be prepared cooperatively and agreed to by both countries. The period required for completion of the necessary link canals is roughly estimated to be about 5 years.

As indicated in the summary, temporary cooperative administrative machinery would be needed in the transition period to facilitate the carrying of the time schedules. There would be exchange of data on river discharges and withdrawals and on construction of interest to both countries. Joint observations would be provided for. Arrangements for settling disputes concerning allocations of cost by arbitration or adjudication would also be needed.

The Bank proposal contemplates that no reservoir storage (aside from the Bhakra dam which should be completed by the end of the transition period) will be required to supplement flow water in continuing the historic withdrawals. The inter-connected system which the link canals would provide could be so operated as the meet the existing requirements of the Sutlej Valley lands except, perhaps, in small amounts in a few canals in exceptional years.

Even without further storage construction, the Bank plan would permit the following uses after the transition period:

Pakistan could supply her historic withdrawals and could bring most of the Sutlej Valley Canals up to allocation. She could also meet the requirements of projects in progress on the Indus. India could supply her historic withdrawals and meet the requirements of projects in progress except that some modifications of the Rajasthan Canal project would be required, at least until further reservoir capacity is available.

There can be no doubt, however, that additional reservoir storage is necessary for the full development of the system and such storage is contemplated by the Bank plan. Any further storage capacity would greatly reduce the possibility of shortages and would support substantial new irrigation uses.

As far as is now known the potential storage capacities which could be developed by the two countries under the Bank plan would be about equal. However, no thorough engineering studies have been made and accordingly storage capacity (except for Bhakra) cannot be definitely determined. Further studies may well disclose additional reservoir possibilities not now known. Costs can obviously not be estimated at present and construction time can be only approximated.

The following table gives a rough quantitative comparison (in millions of acre-feet of usable supplies) between the Indian and Pakistan plans, as modified by recent concessions, and the Bank plan:

Plan	Total Uses Excluding Losses and Unusable Supplies		
	For India	For Pakistan	Total Usab
Indian	29	90	119
Pakistan	15.5	102.5	118
Bank	22	97	119

Comments on Bank Proposal

An essential test of a comprehensive plan is its fairness. The Bank proposal provides a fair division of the waters. It protect existing irrigation uses from disturbance and allocates surplus supplies, those already developed and those that may be developed, in accordance with the principle of equitable apportionment.

The Bank Representative is aware that certain minor adjustments would make the plan more economic if there were a sufficient assurance of cooperation between the parties to permit these measures to be planned and carried out.

At the present time, however, no such adjustments are recommended. If in the course of the transition period the prospects for long-term cooperation appear favorable enough, there will then be ample opportunity to agree on adjustments. But in present circumstances, their disadvantages appear to be greater than their benefits. Most such adjustments would require the establishment of a permanent joint commission. Administrative arrangements of that kind are costly, and the costs recur annually. More significantly, joint commissions are likely to be inefficient except in extremely favorable conditions.

One of the merits of the Bank proposal is that, unlike the plans of the two Designees, it avoids the complexities that would require the establishment of a permanent joint commission.

A further advantage of the Bank proposal lies in the fact that, after transfer works are completed, each country will be independent of the other in the operation of its supplies.

Each country will be responsible for planning, constructing and administering its own facilities in its own territories as it sees fit. This should provide strong incentives to each country to make the most effective use of water, since any efficiency accomplished by works undertaken by either country for storage, transfer, reduction of losses and the like will accrue directly to the benefit of that country. The same will be true of efficiency achieved in operations. Pakistan, for instance, will be able to take full advantage of the flexibility afforded by an inter-connecting system. As the flow of the rivers varies with the seasons, and from year to year, supplies that are surplus in one river can be transferred to a river in which supplies are low. Likewise India will be able to operate Bhakra so as to meet the varying requirements of different areas. By contrast, if the supplies from particular rivers were shared by the two countries, the administrative complexity of arranging necessary adjustments to meet variations in flow and scheduling for crop needs would be formidable.

The mutual independence afforded by the Bank proposal would also bring benefits of a different kind. The location of works serving each country on territories under its control, and the assurances against interference by either country with the supplies on which the other depends, should reduce the chances of disputes and tension and contribute to improved relations.

All these factors should serve to promote the development of the entire basin.

A number of contentions have been made in the Working Party discussions which need not be resolved by agreement if the Bank proposal is adopted. There has been discussion about the location of the easterly boundary of the Indus Basin, a question which is difficult to settle since the area is a desert with no discernible watershed. Under the Bank proposal, the question need not be settled by agreement. Each country will be free to use the waters allocated to it as it sees fit.

There has also been discussion about the proper allowance for gains and losses, for salinity repulsion and for tube-well supply. It is not possible to answer these questions precisely at this time; nor will it be possible for some years until upstream storage and use permits much less wastage to the sea. The best method of dealing with these questions is to let each country make such provision out of supplies allotted to it, or take such engineering measures, as it deems wise.

It might perhaps be said that the allocation of the waters of a river to lands far removed from its banks, rather than to adjacent lands, is abnormal. But the practice is not new; it was well known in the Indus Basin before partition and has been followed since partition. Besides, recent history of the Indus Basin has not been normal.It is unusual, to say the least, to find an elaborate irrigation system, originally planned and operated under a single political regime, suddenly cut in two by a new political boundary.

It might also be said that the Bank proposal differs from pre-partition plans in that it contemplates irrigation of lands for which irrigation was not formerly planned. There would be substance in such a statement. The justification is that social and economic conditions have changed. Political developments have shifted large masses of population to new homes and these people now need irrigated land. No comprehensive plan would be realistic that failed to take account of the changed situation.

Conclusion

The Bank proposal is simple, workable and fair. It will effectively promote the economic development of the Indus Basin and will benefit both countries by substantially increasing the amount of usable water available to each of them. The Bank Representative recommends its acceptance as the basis of agreement.

APPENDIX 6[8]

Aide Memoire, 21 May 1956

1. Cooperative work on the Indus Basin question was resumed in November 1954 on the basis of "Terms of Reference and Procedure" proposed by the Bank and accepted by the Government of India and the Government of Pakistan. The objective of this latest phase of the cooperative work has been to prepare 'a comprehensive plan for the consideration of Governments, on the basis of the Bank proposal of February 5, 1954, taking as a starting point the division of waters envisaged therein.'

2. The Delegations of India and Pakistan, together with the Bank Group, have now been at work for almost 18 months. During this time a series of studies have been carried out by both Delegations and numerous memoranda have been submitted by each side bearing on the various issues arising out of Paragraphs 2 and 3 of the Terms of Reference. The Bank has also arranged for the Bank Consultants (TAMS) to carry out a series of independent studies of the same nature.

3. The present status of the discussions can be summarized as follows:

[a] It has not been possible to secure full agreement between the two Delegations on:-

[i] the quantitative aspects of certain of the uses specified in Paragraph 2 and in Paragraph 3 of the Terms of Reference.

[ii] certain technical considerations involved (e.g. the effect of the proposed changed regime of the rivers on "Gains and Losses")

[b] In the absence of agreement on the points mentioned in [a] above, it has not been possible to secure a common approach to the actual engineering features of a "Comprehensive Plan."

4. The Bank continues to hold the view that the "division of the waters" contemplated by the Bank Proposal of February 1954 affords the best prospects for a settlement of the Indus Waters question; that out of the flow-cum-storage potential of the rivers allocated to them, India and Pakistan could each develop very substantial irrigation uses, additional to those that they now enjoy; and that no insuperable engineering difficulties are likely to arise in either country in constructing the physical works necessary to develop these additional supplies. The works would, however, be costly; and their financing would present a serious financial problem.

5. The Bank is of the opinion that no useful purpose is likely to be served by continuing to devote the cooperative work to an attempt to obtain agreement of the two Delegations on the issues arising out of Paragraph 2 and Paragraph 3 of the Terms of Reference. The Bank, however, feels it desirable, at the stage which the discussions have now reached, that the Bank should consider, in the light of the studies made by the consultants, whether any "adjustment" in the Bank Proposal of February 1954 is called for; and also to make proposals to the two Governments with regard to future Bank participation.

Paragraph 2 Uses and Surplus

6. [a] The Bank's consultants have studied the extent to which the flow of the Western Rivers will meet the uses envisaged in Paragraph 2 of the Terms of Reference, and the nature and extent of any surplus.

[b] For this purpose, the Bank asked its Consultants to adopt the following quantum of uses:-

[i] Historic withdrawals of all canals (except the Pakistan Sutlej Valley Canals);

[ii] Allocations for the Pakistan Sutlej Valley Canals (11.1 MAF)*;

[iii] 3.6 MAF for Thal;*

[8] Government of Pakistan, National Documentation Wing, Cabinet Division, Islamabad; and Government of Pakistan, Canal Waters Dispute: Correspondence between the Government of Pakistan and the Government of India and Partition Documents, (May 1958); and Government of Pakistan, Canal Waters Dispute: Documents relating to Negotiations under the Good Offices of the International Bank for Reconstruction and Development (June 1958).

[iv] 9.5 MAF for Kotri.*

(* With distribution shown in Appendix A).

[c] These studies have led the Bank Group to the conclusion that, after taking into account the possibilities of the transfer of flow supplies of the Indus, Jhelum and Chenab by a system of link canals:-

[i] There would be no shortages in Kharif, except for occasional 10-day periods in April and September in occasional years.

[ii] There would be consistent surpluses in Kharif, significant in quantity, duration and frequency. [iii] There would be consistent shortages in Rabi, occasionally beginning in late September of extending into early April (see [i] above), of a degree, duration and frequency which the Bank Group could not regard as "tolerable".

Paragraph 3 Uses

7. [a] Additional Requirements of Sukkur and Gudu Pakistan has claimed for Sukkur substantial additional uses both in Rabi and in Kharif, and for Gudu substantial additional uses during Kharif only. If the pre-partition regime of the six rivers were to continue undisturbed, no significant additional Rabi irrigation at Sukkur could be developed on any dependable basis, from flow alone. Consequently, none could be developed only from the flow of the Western Rivers. So far as Kharif uses at Sukkur and at Gudu are concerned, the Kharif surplus referred to in Paragraph 6[c] [ii] above is available to allocate to new Kharif uses at these two projects, and to employ as a substitute for "Sailab."

[b] Future Development in the State of Jammu and Kashmir India has claimed that some part of the flow of the Jhelum and Chenab should be reserved for future development in the State of Jammu and Kashmir. It has been stated by India that this development would involve "relatively insignificant consumptive uses." This question should, in the Bank's view, be postponed until the point has been reached when the provisions of an international water treaty might be under consideration.

"Adjustments" to the Bank Proposal

8. [a] In the light of the conclusions at which the Bank has arrived, as set out in Paragraphs 6 and 7 above, the Bank feels that an adjustment in its Proposal of February 1954 is called for. This adjustment should, in the Bank's view, assure to Pakistan "timely" water sufficient to eliminate the shortage referred to in Paragraph 6[c] [iii].

[b] The adjustment referred to in [a] above might take any of the following forms, or a combination of any two or all of them:-

[i] Supplies from tubewells.

[ii] Continued deliveries to Pakistan of "timely" water from the Eastern Rivers.

[iii] Construction of storage on the Western Rivers.

[c] When the Bank made its proposal of February 1954, the possibility, both in India and in Pakistan, of supplementing flow by supplies from tube-wells, was realized. But this source of supply is not, in the Bank's view, an appropriate means, over the long term, of eliminating any part of the disclosed shortage. Accordingly, and if the Division of Waters contemplated by the Bank Proposal is maintained, the adjustment should be in the form of storage on the Western Rivers.

9. The system of works to implement the Bank Proposal, as adjusted, should, therefore, in the Bank's view, be based on the principle that, for the purpose of meeting the "Paragraph 2 Uses," flow of the Western Rivers (Indus, as well as Jhelum and Chenab) should be exploited to the maximum possible extent, and that the minimum inroads should be made on Pakistan's limited storage capacity. In the Bank's view, the cost of this system of works should be the basis of the calculation of India's financial liability.

10. The Bank now wishes to propose to the two Governments the following course of action:-

[a] The completion of negotiations with the two Delegations of ad hoc amounts for Indian withdrawals from the Eastern Rivers during the period 1st April 1956 to 31st March 1957.

[b] A continuance of the period of the cooperative work until 31st March 1957.

[c] After the two Governments had agreed to [b] above, the conclusion of an intergovernmental Agreement to cover [a] above.

[d] That the Bank should then proceed to use its good offices to bring about acceptance of an appropriate adjustment of the Bank Proposal of February 1954, along the lines indicated.

11. The Bank feels that if, by 31st March 1957, the Bank should see no reasonable prospects for a settlement on the basis of the Bank Proposal, with an appropriate adjustment, the Bank would have to consider whether the employment of its good offices could make any further contribution to a solution.

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