INDO-PAK WATER DISPUTES: PLEA FOR NEW TREATY REGIME AND DOMESTIC LEGISLATION IN THE LIGHT OF INTERNATIONAL WATERCOURSE LAW

Submitted By
Shumaila Mir
31-SF/PhD Law/F12

Supervisor
Prof. Dr. Muhammad Munir
Professor of Law

Co-Supervisor
Dr. Samia Maqbool Niazi
Assistant Professor of law

Department of Law
Faculty of Shariah and Law
International Islamic University, Islamabad

Water resources development law and legislation - India

" " " - " " - Pakistan

Water rights - India

" - Pakistan

Indus Waters Treaty (1960)

International rivers - law and legislation

Water - [illegible]

India - [illegible] - Pakistan

[illegible] - India

INDO-PAK WATER DISPUTES: PLEA FOR NEW TREATY REGIME AND DOMESTIC LEGISLATION IN THE LIGHT OF INTERNATIONAL WATERCOURSE LAW

Shumaila Mir
31-SF/PhD Law/F12

Submitted in partial fulfillment of the requirements for the Ph.D degree in Law with specialization in International Watercourse Law at the faculty of Shariah & Law, International Islamic University, Islamabad

Supervisor: Dr. Muhammad Munir
Co-Supervisor: Dr. Samia Maqbool Niazi

December 24

IN THE NAME OF ALLAH, THE MOST MERCIFUL AND BENEFICIENT

Dedicated to my parents for their untiring efforts and love; and to Mudassar for always supporting me

FACULTY OF SHARIAH & LAW
INTERNATIONAL ISLAMIC UNIVERSITY ISLAMABAD

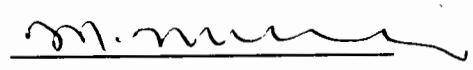
FINAL APPROVAL CERTIFICATE

It is certify that we have evaluated the thesis "**Indo-Pak Water Disputes: Plea for New Treaty Regime and Domestic Legislation in the light of International Water Course Law**" submitted by Ms. Shumaila Mir, Registration No.31-SF/PHDLAW/F12, in partial fulfillment of the requirements of the degree of Ph.D Law at the International Islamic University, Islamabad. The thesis fulfills the requirements in its core and quality for the award of the degree of Ph.D Law.

COMMITTEE

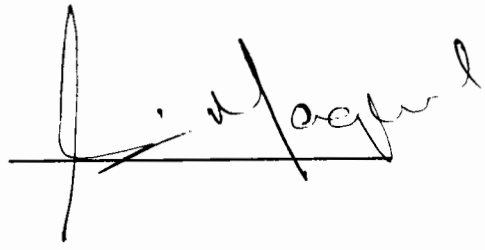
Supervisor

Dr. Muhammad Munir
Professor, Deptt. of Law,
FSL, IIU, Islamabad



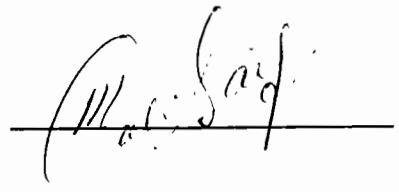
Co-Supervisor

Dr. Samia Maqbool Niazi
Assistant Professor, Deptt. of Law
FSL, IIU, Islamabad



External Examiner-1

Barrister Dr. Muhammad Ali Saif
Senator, Senate of Pakistan, G-5/1,
Islamabad

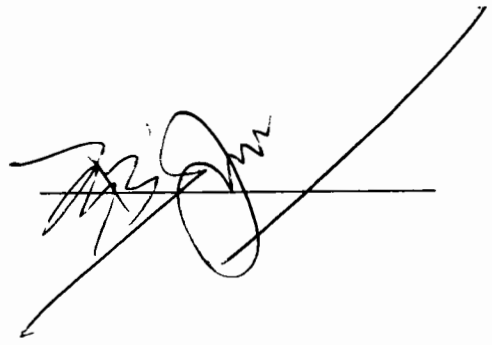


External Examiner-2

Dr. Waseem Ahmad Qureshi
Former Addl. Advocate General,
Punjab Office No.09, Islamabad

Internal Examiner

Dr. Hafiz Aziz-ur- Rehman
Assistant Professor, Deptt. of Law,
FSL, IIU, Islamabad



Abstract

Water is life and considered as a key natural resource for any country. The demand for water is increasing day by day due to rapid increase in population and poor water management. Many countries meet the growing water demand by constructing more reservoirs. The construction of reservoirs may provoke conflicts over water resources between involved stakeholders. These conflicts will further escalate if the stakeholders already have a history of conflicts on the distribution of water resources.

Pakistan, being an agrarian country is heavily dependent on water of Indus Basin. The Radcliffe's boundary line has divided the Indus Basin in such a way that India has emerged as an upper riparian to Pakistan. This demarcation led to disruption of water supply in some areas of Pakistan and ultimately resulted in a water dispute between Pakistan and India. To resolve this water dispute and avoid the danger of other emerging disputes Indus Waters Treaty was concluded between both states with the facilitation of World Bank.

Disputes between India and Pakistan remained even after the conclusion of treaty and aggravated with the passage of time due to construction of hydro-electric power projects on western rivers. Major source of water disputes between Pakistan and India are these power projects because continuance construction will cause substantial damage to river flow and thus resulted in diversion of water of western rivers. These power projects have also affected our environment.

Besides these power projects, water scarcity and abrupt changes in a climate is also affecting the flow of Indus Basin and thus creating tensions between Pakistan and India. Pakistan is also facing transboundary water pollution which is affecting the aquatic ecosystems. These changes have challenged the existence of Indus Waters Treaty as the treaty is silent about climate change and its affects.

Moreover, International watercourse law provides a comprehensive legal framework for transboundary sharing of water between watercourse states. It is based on the principles of equitable and reasonable utilization of water, no harm rule and principle of cooperation. These principles have a customary status and considered as a foundation of IWL. Besides the Treaty, Pakistan has failed to manage its internal waters as it has very old water legislation and it is inconsistent with the principles of IWL. One of the main reasons of the conflict between Sindh and Punjab is inequitable distribution of water and ineffectiveness of its institutions. So, the main aim of this study is to analyze IWT and domestic legislation in perspective of IWL and to form a new treaty regime and domestic legislation by incorporating the norms of IWL.

The thesis has discussed water resources and water disputes before and after partition and further examines the factors that resulted in the conclusion of IWT. It has highlighted the role of World Bank in its conclusion and discussed the problems that treaty has failed to address. This research has also examined the transboundary impacts of the Indian hydro-electric power projects on western rivers and further analyzed these projects in the light of the provisions of IWT. Moreover, it has discussed the role of Permanent Indus Commission, Neutral Expert and Court of Arbitration in the settlement of disputes between Pakistan and India.

IWT is largely affected by drastic change in climate conditions. This study has also focused on the reasons of climate change which has affected the river flow and criticized the Treaty for overlooking an important issue. The study has also discussed the possibility of water war between two nuclear powers due to the unavailability of water and examined the principles of IWL on management of river water.

IWL provides framework for the settlement of disputes between watercourse states. This research has also discussed the international legal regime regarding the sharing of transboundary waters along with customary rules and further analyzed the IWT in the light of IWL and proposed the formation of a new treaty to fill all the lacunas.

Last but not the least this research has discussed the water legislation in Pakistan with a particular focus on Water Apportionment Accord 1991. It has also highlighted the reasons of the failure of this Accord because it has failed to prevent the water disputes between Sindh and Punjab on the distribution of water. Moreover, it has discussed the lacunas in water legislation and the reasons of the failure of institutional framework for the management of water and suggested for incorporating the norms of IWL in domestic legislation.

It is a need of a time to reform a new treaty in accordance with the principles of IWL by involving all the stakeholders to avoid further water conflicts in near future and Pakistan should adopt clear and comprehensive water legislation for the internal management of its water inconformity with the principles of IWL.

Acknowledgements

First and foremost I would like to thank Allah the Almighty for giving me strength and patience to complete this huge task.

I owe my deepest and sincere gratitude to Prof. Dr Muhammad Munir, my supervisor and teacher, for his able guidance and useful suggestions right from the beginning of the defense of my synopsis till the completion of my thesis. I have been extremely lucky to have a supervisor who cared so much about my work and who responded to my questions and queries so promptly.

Besides my supervisor, I great fully acknowledge my co-supervisor and teacher, Dr. Samia Maqbool Niazi, Assistant Professor, Department of Law, International Islamic University Islamabad for her valuable input and suggestions.

I am particularly indebted to my beloved teacher Dr. Muhammad Mushtaq Ahmed, Associate Professor, Department of Law IIUI for always being there when needed. My interest in international law has enhanced because of him. From my bachelors till my PhD, I have learnt a lot from him.

I am thankful to my dearest and beloved friend Saadia Zahoor for providing the support and encouragement throughout these long years and pushing the best out of me. She has been a constant moral and emotional support and I am thankful to Almighty Allah for blessing me with such a beautiful soul.

Special thanks to my dear colleague and friend Sabir Hussain, my dear students Ahsan Saleem and Muaz Khan for their useful contribution to this dissertation.

I have no words to thank my beloved parents for showing trust in me and for their unconditional love and support. Last but not the least; I must express my gratitude to my beloved husband, Mudassar, for his patience and continuous support throughout these tough years. It would not have been possible without his love and support.

I thank you all from the bottom of my heart!

Table of Contents

List of Cases

- *Corfu Channel Case*, 1949.
- Connecticut v. Massachusetts, 282 U.S.660 (1931).
- Hungry vs. Solovakia, ICJ, (1997).
- Kansas v. Colorado, 206 U.S.46 (1907).
- Kishanganga Arbitration, India's request for clarification or interpretation dated May 20th 2013, PCA, December 20, 2013.
- Lake Lanoux Arbitration (France vs. Spain) November 16, (1957).
- Oil Platforms (Iran vs. US)1996.
- *Pulp Mills case*, ICJ, 2010.
- *Trail Smelter Arbitration*, 1941.
- Territorial Dispute (Libya vs. Chad) ICJ Reports, 1994.
- *The Indus Waters Kishanganga Arbitration*, Partial Award, Permanent Court of Arbitration, February 18, 2013.
- Territorial Jurisdiction of the International Commission of the River Oder, Judgment No. 16, 1929, P. C. I. J.
- Wyoming v. Colorado, 459 U.S.419 (1922).
- Washington v. Oregon, 297 U.S 517(1936).

LIST OF ABBREVIATIONS

AJK	AZAD JAMMU AND KASHMIR
BHEPP	Baglihar Hydroelectric Power Project
CCI	Council on Common Interests
CIWL	Customary International Watercourse Law
CoA	Court of Arbitration
C-J	Chasma-Jhelum Link Canal
CDM	Clean Development Mechanism
CIL	Customary International Law
Committee B	Punjab Partition Committee B
DALTA	Draft Articles on Law of Transboundary Aquifers
EIA	Environmental Impact Assessment
FATA	Federally Administered Tribal Areas
GoP	Government of Pakistan
GoI	Government of India
HEPP	Hydro-electric Power Project
HEP	Hydro-electric power
HRs	Helsinki Rules
IBDC	Indus Basin Development Commission
IBFD	Indus Basin Development Fund
IBP	Indus Basin Project

ICSID	International Centre for the Investment Disputes
ICESCR	International Covenant on Economic, Social and Cultural Right
ICOLD	International Commission on Large Dam
ICJ	International Court of Justice
IDB	International Drainage Basin
IIWC	Indian Indus Water Commissioner
IJC	International Joint Commission
ILA	International Law Association
ILC	International Law Commission
IPCC	Intergovernmental Panel on Climate Change
IRSA	Indus River System Authority
IRS	Indus River System
IWL	International Watercourse Law
IWT	Indus Waters Treaty
IWRM	Integrated Water Resource Management
J&K	Jammu and Kashmir
KBD	Kalabagh Dam
KHEPP	Kishanganga Hydroelectric Power Project
KPK	Khyber Pakhtunkhwa
LBDC	Lower Bar Doab Canal
LBOD	Left Bank Outfall Drain
MA	Million Acre
MAF	Million Acre Feet

MW	Mega Watt
NE	Neutral Expert
NHPC	National Hydro-electric Power Cooperation
NJHEPP	Neelum Jhelum Hydro-electric Power Project
NWP	National Water Policy
PBC	Punjab Boundary Commission
PCA	Permanent Court of Arbitration
PEPA	Pakistan Environmental Protection Act
PIC	Permanent Indus Commission
PIWC	Permanent Indus water Commissioner
SCARP	Salinity Control and Reclamation Project
SDGs	Sustainable Development Goals
SVP	Sutlej Valley Project
T-P	Taunsa-Panjanad Link Canal
TIER	Transboundary Environment Impact Report
TCP	Triple Canal Project
UBDC	Upper Bari Daob Canal
UNC	United Nations Charter
UNFCC	UN Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNECE	United Nations Convention on Protection and use of Transboundary Watercourses and International Lake/Water Convention

UNWC	Convention on the Non-Navigational Uses of International Watercourses/UN Watercourses Convention
UN	United Nations
VCLT	Vienna Convention on Law of Treaties
WB	World Bank
WAPDA	Water and Power Development Authority
WAA	Water Apportionment Accord

INTRODUCTION

The importance of water can't be denied as it is essential source for the development particularly in agrarian countries.[1] The demand of water has been increased with the increase in population and industrialization. It covers almost 71%of the total land surface. The flow of the water does not restrict itself to political boundaries and become a reason of conflict but it is also connected with various social and economic factors. Thus it has become a prominent area of environmental and international conflict.[2]

Pakistan is dependent on waters of Indus River for its domestic and industrial needs. The increase in the population and rising temperature is adding pressure on the growing water demands. The division of British India in 1947 has separated the Indus basin system (IBS)[3]. The boundary line was drawn in such a way that India could exercise a control over most of the irrigable water.[4] India has appeared as an upper riparian having a control over the canal head works that supplied water to vast lands in Pakistan i.e. a lower riparian.[5]

The international boundary drawn between India and West Pakistan resulted in interruption of the water supply in some parts of Pakistan which ultimately led to a water dispute between two neighbours in 1948. The necessity to have an understanding between India and Pakistan in sharing the rivers water originating from Indian Territory and flowing through

---

[1] The countries where cultivation is considered as a primary source of wealth and countries at large depend upon irrigation.

[2]Roshni Chakraborty and Sadia Nasir,. "Indus Basin Treaty: It's Relevance to Indo-Pak Relations," *Pakistan Horizon,* Vol. 55, No. 4 (October, 2002): 54. (Hereinafter Charakraborty, and Nasir, "Indus basin Treaty,")

[3]Indus Basin consists of River Indus, Jhelum, Chenab, Ravi, Beas and Sutlej. These rivers combine into a single river near MithanKot in Pakistan, and empties into Arabian Sea at the south of Karachi. (Asjad Imtiaz Ali, Javeed Iqbal Bokhari and Dr. Qazi Tallat M. Siddiqui."Analysis of Indus Water Treaty 1960", no. 743, 72nd Annual Session of Pakistan Engineering Conference).

[4] The irrigation system before the partition was considered as whole. As a result of partition India was given full control over all the headworks of the canals. The Ferozpur weir and the Sulemanki weir went to India. The headworks of UBDC which used to irrigate both Indian and Pakistani soil were also given to India.

[5] The state located in the upstream region is termed as "upper riparian" and it has a priority of access to the waters on the basis of its geographical location as compared to the state that is located in the downstream region.

Pakistan can hardly be overemphasized. It also became essential to re-evaluate the functionality of entire irrigation network, in western Punjab. After initial water sharing problem, the Indus Waters Treaty (IWT) was signed between India and Pakistan through mediation of World Bank (WB) in September 1960.[6]

It was perceived that the conclusion of treaty will end all the problems related to water sharing between Pakistan and India but the problem started again in 1970, when India has started construction of HEPP on western rivers in accordance with the treaty which has provided India with a right to generate hydro-electric power.[7] However, the problem began when India have planned to construct more projects on western rivers. Continuous construction of HEPP on the western rivers will affect the peaceful sharing of the water. The inequitable sharing of water often creates tension among the nations.[8]

Water has turned out to be a major issue in Pakistan and it is facing a severe situation regarding its fresh water resources. So, it should be properly secure and managed. Moreover, Pakistan cannot blame India alone for the reason of its shortage of water because it has failed to manage its internal waters due to lack of legislation in fact it has very old law regarding the distribution of water i.e. Water Apportionment Accord (WAA) 1991.

Therefore, IWT, has proved ineffective in giving amicable solutions to the Indo-Pak water disputes and as such it needs to be replaced by a new treaty regime by incorporating the norms of International Watercourse Law (IWL), so that it fulfills the future needs of the two

---

[6] Charakraborty, and Nasir, "Indus basin Treaty," 56.

[7] Article III (2) d, IWT 1960.

[8] The construction of Grand Renaissance Dam led Ethiopia to divert the course of the Blue Nile in May 2013. The Blue Nile River joins the White Nile in Sudan before flowing in to Egypt. It is the largest HEPP in Africa which provides 83 % power to that population which lacks access to electricity and energy. Whereas Egypt is concerned, dam raises an existential alarm. Furthermore Egypt receives almost no rainfall and therefore depends on the Nile for 97% of its renewable water resources. The Nile also depends on Ethiopia. More than 4/5th of the water in the river first falls as rain in the Ethiopian highlands. Ethopia is of the view that this project wouldn't harm its neighbor but Egypt fears that it could reduce the major water supplies ultimately available downstream.

neighboring nuclear powers and further there is a need to incorporate IWL in domestic legislation for internal management of water resources.

Indus Waters Treaty

According to IWT the IBS is divided between the two countries. India gained full control over the three Eastern Rivers[9] i.e. Ravi, Bias and Sutlej.[10] Western Rivers i.e. Indus, Jhelum and Chenab[11] were awarded to Pakistan[12]. The treaty Comprises of Twelve Articles and Eight Appendices (See Annexure 1).

The treaty provides a specific provision for regular exchange of river and canal data between the two countries[13] with reference to future cooperation.[14] IWT has established the post of Commissioner under PIC.[15] The commissioner should be an engineer and skilled in hydrology and water reuse.[16] According to the treaty the commissioners will meet once in a year in India and Pakistan.[17]

---

[9] Article II (1) IWT, 1960

[10]The Sutlej originates in Tibet and flows through Himachal Pradesh and Punjab before joining the Chenab. Whereas, the Beas and the Ravi originates in Himachal Pradesh state and flow into Pakistan, emptying into the Chenab.

[11]The Indus River: originates in Tibet and flows through Jammu & Kashmir, while the Chenab originates in the Indian State of Himachal Pradesh and travels through Jammu & Kashmir. The Jhelum rises from a deep spring at Vernag in Western Jammu & Kashmir and flows into Pakistan where it finally joins Chenab. Taking into account the flow of the rivers, the importance of the Chenab and the Indus becomes clear. The Chenab combines the waters of four rivers, the Jhelum, the Sutlej, the Beas and the Ravi, to form a single water system which then joins the Indus in Pakistan. The Indus River is considered to be the lifeline of Pakistani economy and livestock. For details see Tufail Ahmed. "Pakistan Water Concerns, Water dispute between India and Pakistan- A potential Casus Belli", IPRI, (July 31, 2009).

[12] Article III (1) of IWT, 1960

[13]Ibid.,Article VI

[14]Ibid., Article VII.

[15] Ibid., Article VIII (1)

[16]Ibid.

[17] Ibid., Article VIII.

PIC was formed under IWT.[18] The function of the PIC was to maintain cooperation between the parties and to ensure that IWT should be implemented in full.[19] The Commission is composed of one Commissioner from each State and together they form PIC.

Each Commissioner has same immunities and privileges as given to the state representatives of the member States.[20] The government has a right to relinquish the immunity of the said Commission in case of breach of duty.[21] For inspection, a Commissioner may be accompanied by two advisors and those advisors will be provided with proper facilities.

The idea of forming a PIC was taken from International Joint Commission (IJC). This Commission was formed in 1909 between Canada and USA under Boundary Waters Treaty.[22] Moreover the principle of reasonable and equitable utilization of water shall be implemented through PIC.

IWT also provide for the settlement of disputes.[23] The matter would be referred to the NE in case of failure of Commission to solve the problem. Court of Arbitration (CoA) can be recourse on the failure of NE.[24] Pakistan and the World Bank (WB) also signed the Indus Basin Development Fund (IBDF) Agreement and the Loan Agreement along with the Treaty in Karachi on 19 September 1960.[25]

---

[18] Ibid., Article VIII.
[19]Ibid., VIII (4).
[20]Ibid., VIII (6).
[21] Ibid.
[22] Siyad A C, "IWT and Baglihar Project," 3146.
[23]Ibid., Article IX.
[24]Ibid., Article IX, Annexure E and G.
[25]Asit k. Biswas, "Indus water treaty: The negotiating process," *Water International*, 17 (1992):208-209.(Hereinafter Biswas, "Indus Waters Treaty,"208-209)

Statement of the problem

In the previous years, India has started building a number of HEPP on the western rivers.[26] These Indian projects fail to fulfill the criteria specified in the IWT and thus results in the violation of treaty.[27] These projects have badly disturbed the flow of the western rivers into Pakistan. The effects of these power projects will be the point of discussion in the second chapter of this dissertation.

Alleged Violations of Indus Water Treaty

The dispute over the construction of the Salal dam[28] on river Chenab was emerged in 1970. The said dispute was settled through peaceful means. On April 14, 1978, the Salal Agreement was signed between Pakistan and India but India didn't stop here and started the construction of another dam on Chenab i.e. Baglihar Hydroeletric Power Project (BHEPP)[29]

---

[26] Ammad Hafiz Muhammad, "Water sharing in the Indus basin river: Application of integrated water resources management," (Swedish University of Agricultural Sciences, dept. of Urban and Rural Development, 2011), 33. (Hereinafter Muhammad, "Water Sharing,"33)

[27] Annexure D, IWT 1960.

[28] Salal Dam is constructed on River Chinab in the State of J&K. It was the first Indian project that became controversial between Pakistan and India. The construction of the dam was decided in 1970.

[29] Pakistan alleged that the Baglihar dam is in violation of criteria mentioned in paragraph 8 Annexure D to the IWT. "Criterion (a) states that the works shall not be capable of raising artificially the water level in the operating pool above the full pondage level specified in the design. Pakistan alleged that the Baglihar plant did not meet this requirement. Criterion (c) requires the maximum pondage in the operating pool not to exceed twice the pondage required for firm power. In this connection, Pakistan claimed that the Baglihar pondage exceeded twice the pondage required for firm power. Criterion (e) states that if the conditions at the sight of the plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design. Pakistan claimed, with regard to this criterion, that the Baglihar plant design was not based on correct, rational and realistic estimates of maximum flood discharge at the site. Criterion (f) requires that the intakes for the turbines shall be located at the highest level consistent with satisfactory and economical construction and operation of the plant as a run-of-river plant. Pakistan considered that the intake for the turbines was not located at the highest level as this criterion mandates."(See Salman M. A. Salman, "The Baglihar difference and its resolution process –a triumph for the Indus Waters Treaty?," *Water Policy*, 10 (2008).

This project is situated in district Doda and it is in working condition since October 2008.[30]This dispute was settled in 2007 after the appointment of neutral expert by WB in 2005. Raymond Lafitte was appointed as a neutral expert. The three out of four objections raised by Pakistan were accepted by NE except the issue regarding installation of spillway. India was allowed the installation of low level spillways in violation of IWT.[31]

The dispute again aggravated when India filled the dam in 2008.[32] Illegal filling of the dam has affected the livelihood of the people of Pakistan. The filing of Baglihar dam above Marala has reduced the flow of water up to 23,000 cusec in violation of IWT. The wheat crops of Pakistan were affected by the loss of 2 Million Acre Feet (MAC) of water from August, 25, 2008 to September, 4, 2008.[33] Under the IWT, India is under an obligation to share the data with Pakistan, with respect to flow.[34] The diversion of water is not allowed under IWT but India is doing so blatantly. The flow of River Chenab[35] has become very low after the Construction of BHEPP[36]

---

[30]Dr Shaheen Akhter, "Emerging challenges to the Indus Water Treaty, Issues of compliance & transboundary impacts of Indian hydroprojects on the Western River's," 6. (Hereinafter Akhter, "Emerging challenges to Indus Waters Treaty,"6)

[31] Annexure D, 8 (e), IWT 1960.

[32] Muhammad, "Water Sharing,"33.

[33] Ibid, 34

[34] Article V of IWT, 1960.

[35] The construction of power projects on resulted in the decrease of river flow. The water flow in Chenab has been fallen to 6000 cusecs from 10,000 cusecs.

[36]Ashfak Bokhari, "Water Scarcity and Riparian Rights," *Dawn (Islamabad)*, February 14, 2010, 9-10.

Again, in 1985, India has started a work on Wuller Barrage or Tulbul Navigation Project.[37] These projects are located on the River Jehlum.[38] Pakistan has registered a strong protest with the Indian government. The said construction was in violation of the IWT[39]and India was asked to stop work on the projects. The Commissioners of both countries tried to resolve the dispute but failed as Pakistan didn't accept the modified design.[40]There have been more than 10 rounds on this issue up till March 2012 under the Composite dialogue but the two sides failed to agree on a way out.[41] Since then the project is still in hot waters.

Another controversial power project launched by India is Kishanganga Hydroelectric Power Project (KHEPP).[42] It was claimed by Pakistan that the construction of KHEPP will reduce 11% and 27% of water flow in summer and winter respectively. It is feared that this dam will not only affect the total availability of water but also affects the storage capacity of Mangla dam.[43]

The issue of Kishanganga dam was discussed between India and Pakistan in five meetings held from November 2004 to 2005 but ended without any results. India has submitted a revised plan of KHEPP in 2006. According to this plan India has brought down the storage

---

[37]Pakistan considers construction of Wullar Barrage by India near Sopore in Occupied Kashmir Valley is a violation of the 1960 Indus Waters Treaty and it has been feared that the barrage can disrupt water flows into Pakistan. The Wullar Barrage or Tulbul Navigation project was the second controversial Indian project which is still unresolved. It is located on the Jhelum in occupied Kashmir. India wants to build the barrage on the mouth of Wullar lake which is the largest fresh water lake in occupied Kashmir. India has started construction of the project in 1948 without informing Pakistan. Pakistan came to know about this project in 1985 and objected to stop its construction.

[38]Amer Rizwan Khattak, "World Bank Neutral Expert's Determination on Baglihar Dam: Implications for India-Pakistan Relations," *Pakistan Horizon*, Vol. 61, No. 3 (July, 2008):92 (Hereinafter Khattak, "World Bank's Neutral expert Determination,"92)

[39] Article (1) (15) (b), (III)(4),

[40] New Delhi had indicated in the year 2012 for seeking international arbitration under Indus Waters Treaty, after the failure of the 2012 bilateral talks.

[41] Sameer Yasir, "Indus Waters Treaty, the Tulbul Project and its implications on India-Pakistan Rrelations." *Firstpost*, September 27, 2016.

[42] KHEPP is the 330 MW Hydropower project in India located in the upstream of Muzaffarabd. It involves the 100 Km diversion of Kishanganga River to a tributary called Bunar Madumat Nallah.

[43] Muhammad, "Water Sharing,"37.

capacity of the dam by reducing its height i.e. from 75.48m to 35.48 m. Pakistan has rejected the revised plan as it would result in the diversion of water. Moreover, the project will harm the power generation capacity of Neelum-Jhelum Project.[44]

As a result of the breakdown of negotiations, both countries decided to approach CoA over KHEPP. The court has ordered India to stop the constructions for sometimes[45]In the case of the Kishenganga project, the CoA was approached.[46] The Court has issued its Partial Award in feburary 2013. According to the Award, "India may accordingly divert water from the Kishenganga/Neelum River for power generation by the Kishenganga Hydro-Electric Plant in such a way as to maintain a minimum flow of water in the Kishenganga/Neelum River, at a rate to be determined by the Court in a Final Award."[47] The CoA has rendered its final Award on December 20, 2013. It has permitted India to divert water for the construction of KHEPP and on the other hand ruled that India is not allowed to bring the level of reservoir below the dead storage and thus supported Pakistani stance. The detail analysis will be discussed later in second chapter of this dissertation.

India is currently constructing three HEPP[48] on River Indus and three projects on River Chenab and Jhelum[49]. The said projects are in their initial stages of construction but India didn't share the river flow data despite of the repeated requests by Pakistan.

---

[44]Ibid, 38.

[45]Niharika Mandana, "Water Wars: Why Pakistan and India are squaring off over their rivers", *Time World*, April 16, 2012.

[46] Article IX, Annexure G, IWT 1960.

[47] Hamid Sarfraz, "Revisiting the 1960 Indus Water Treaty," *Water International*, vol 38 No 2 (2013): 206. (Hereinafter Sarfraz, "Revisiting the 1960 Indus Waters Treaty,"206)

[48] These Hydropower projects includes Chutak dam, NimooBazgu Dam and Dumkhar Dam, with the height of 59 meters, 57 meters and 42 meters respectively.

[49]Dul Hasti Hydroelectric power project, Uri-li Hydel power project and Bursar dam. According to Pakistan, the said projects are in violation of IWT and will affect the environment at large.

Moreover, the diversion of the Neelum River is not only a violation of the IWT but also a violation of the HRs regarding water rights pertaining to international rivers[50]. Further the treaty did not deal with more contemporary principles of equitable sharing of water between riparians. It simply deals with the division of basin between the two countries. It didn't provide meaningful cooperative management or sharing.[51]

Pakistan is of the view that India is engaged in activities which aimed at stopping Pakistan from building storage Dams on Pakistani Rivers. India has even deployed heavy artillery in order to destroy the dams constructed by Nepalese. India's strategy is to construct more dams within their territory while obstructing dams in lower riparian neighbours.[52]

Even in the absence of IWT, the riparian states have obligation under International Law stemming from the Customary International Law (CIL) rules on water sharing. Further, it has been alleged by Pakistan that India is depriving Pakistan from the usage of water of three eastern rivers in violation of Article II of IWT and it is now trying to control the water of three western rivers after having the control over three eastern rivers.[53]

---

[50]According to this law, all basin states of an international river have the right to access an equitable and reasonable share of the water flow.

[51]Daanish Mustafa, "Hydropolitics in Pakitan's Indus Basin", United States Institute of Peace, November 2010, 5, www.usip.org.

[52] Muhammad Rashid Khan, "Crucial Water Issues between Pakistan and India, CBMs, and the Role of Media," *A Research Journal of South Asian Studies*, Vol. 28, No. 1, (January – June, 2013):213. (Hereinafter Khan, "Crucial Water Issues,"213.)

[53]Ibid., 214.

International Watercourse Law and IWT

The navigational and non-navigational use of international watercourses comes under IWL.[54]It also covers the ownership, control and use of water resources, and provides a framework for dispute settlement and policy issues.

ILC made efforts to amalgamate the established and emerging IWL. These efforts include the formation of Helsinki Rules (HRs) 1966[55], the 1992 UN Convention on Protection and Use of Transbounary Watercourses and International Lakes (UNECE Convention)[56], and the Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997 or the UN Watercourses Convention (UNWC)[57].

Principles of reasonable and equitable use, cooperation and no harm are considered as the three main principles of IWL. The principle of reasonable and equitable utilization is considered as a cornerstone of the UNWC and HRs. It is a guiding principle of water sharing between watercourse states. It also entitles a watercourse State to an equitable and reasonable utilization of particular watercourse, and puts an obligation on a state to exercise this right without affecting the rights of the other states.[58]

---

[54]Richard Paisley, "Adversaries into partners: International Water Law and the equitable sharing of downstream benefits," *Melbourne Journal of International Law*, vol 3 (2002):1-2. (Hereinafter Paisley, "Adversaries into Partners,"1-2.)

[55] Helsinki rules are regarding the regulation of rivers and use of ground water. It was adopted by the International Law Association (ILA) in Helsinki, Finland in August 1966. In spite of its adoption by the ILA, there is no mechanism in place that enforces the rules.

[56] The UNECE Convention was adopted in Helsinki in 1992. It was enforced in 1996. It strengthens cooperation between watercourse states. It has also adopted measures for the management of ground and surface water. It promotes the implementation of IWRM which helps in achieving the Millennium Development Goals and other commitments on water, ecology and water sustainability.

[57]The UNWC was concluded on 21 May 1997, as an annex to General Assembly Resolution 51/229. This convention governs shared freshwater resources. It provides framework of rules and principles applicable to particular international watercourses. Some of its principles are considered as customary rules.

[58] Article 5 (1) UNWC 1997.

The UNWC provides a clarification with respect to duty of avoiding significant harm. It requires the states to use international watercourses in their territories without harming their bordering states.[59] The above principles will work through principle of cooperation.

The principles covered by these conventions and rules are also largely embodied within customary international law which have broadened their application globally.[60] Thus IWT should be interpreted in the light of above conventions and it should be noticed that whether India and Pakistan have expressly recognized these conventions or not.[61]

The Annexure G, Para 29[62] of IWT specifically makes the regime of CIL as the applicable law in the dispute. Under UNWC 1997, states are under an obligation to manage and protect international water courses. Neither Pakistan nor India is party to this convention. The said convention is widely considered as a codification of CIL.[63]

Rapid Climatic Change and Population Growth

IWT doesn't talk about future water demands. At the time of the conclusion of treaty water was in abundance. Pakistan and India is facing water scarcity due to rapid increase in population and climate change. It is evident that the conditions will become worst in the near future. The construction of dams by India has badly affected our environment. Under International law, a downstream country may choose to pay for treatment plant, if it is affected by the pollution of upstream state.

---

[59] Ibid., Article 7.

[60] Paisley, "Adversaries into partners,"1-2.

[61] Muhammad Siyad A. C, "Indus Water Treaty and Baglihar Project: Relevance of International Water Course Law", *Economic and Political Weekly*, Vol. 40, No. 29 (Jul 16-22, 2005):3146. (Hereinafter A.C, "Indus Waters Treaty and Balihar project,"3146.)

[62] Annexure G, 29 (a and b) states that "Except as the Parties may otherwise agree, the law to be applied by the Court shall be this Treaty and, whenever necessary for its interpretation or application, but only to the extent necessary for that purpose, the following in the order in which they are listed: International conventions establishing rules which are expressly recognized by the Parties; and customary international law."

[63] Ahmer Bilal Sufi, "Water War with India", *Dawn (Islamabad)*, February 20, 2010, 16.

India has been awarded carbon credits for two dams i.e. Nimoo Bazgu and Chutak dams.[64] Pakistan has raised objection on the said dams at commissioner's level. The under-construction 42-meter high Chutak HEPP is located on the Suru River, whereas Nimoo Bazgu is located at Leh district on Indus River. With the construction of Nimoo-Bazgo project, India is not only violating the IWT but also guilty of violating Clean Development Mechanism (CDM)[65]. Moreover, under UN Framework Convention on Climate Change (UNFCCC), India is under an obligation to get approval from Pakistan before getting Carbon Credits.

Both these dams fall under the category of large dams because their height is more than 15 meters. India is an under obligation to obtain EIA report before the execution of work on any large dams and also duty bound to get Transboundary Environmental Impact Report (TIER) on all upcoming projects .[66]

The unpredictability in the flow of water necessitates the storage of water. It also increases the need for improved transboundary water cooperation in order to avoid climatic threats. Climatic impact on river system lead to desertification[67] of agricultural tracts, flood

[64]This project was proposed in 2001 and its construction began in June 2005. UNFCC has approved India's bid of carbon credits in 2008. Pakistan did not bother to challenge the decision of awarding carbon credits until October 2001. After the span of three years the government of Pakistan came to conclusion that India has not only violated the terms of IWT but also the conditions of UNFCC related to the carbon credits.

[65] Article 12 of the Koyoto Protocol defines CDM. "It is a carbon trading scheme devised as an international tool for fighting global warming, which gives companies in industrialized countries an incentive to invest in greenhouse gas reduction projects." The Carbon credits were awarded under Kyoto Protocol's Clean Development Mechanism

[66] "Environmental Impact Assessment reports: Government alerted to UN clearance of Indian Projects", *Dawn*, July 19, 2010.

[67]Desertification is defined as "a type of land degradation in which a relatively dry land region becomes increasingly arid, typically losing its bodies of water as well as vegetation and wildlife." It is caused by a variety of factors, such as climate change and human activities. Desertification is a significant global ecological and environmental problem.

hazards and conflict over resources. The change in the climate will affect the highs and lows of river flows.[68]

Both countries should come forward to renegotiate IWT in the light of current threats to its sustainability. This could only be achieved by involving all the major parties. A joint organization on river basin should be established for the efficient use of water resources of Indus River. This organization should perform its duties independently regardless of any political pressure and interference. Working of the organization can be enhanced with the participation of technical staff of riparian states. [69]

Water scarcity has not been addressed by IWT. In fact, when the treaty was in negotiation, a possibility of water scarcity in near future was not a concern for the parties. The Treaty doesn't provide for any mechanism to treat the water scarcity as a result of climate change. It only talks about the obligation to let the flow of river without any interference.[70]

Distribution of Water in Pakistan

Pakistan is legally bound under International Covenant on Economic, Social and Cultural Rights (ICESCR) to manage its territorial water in a better way in order to secure the right to water.[71]The problems concerning the distribution of water among the provinces continued. The said problems were dealt by several committees and commissions. The current regime for water management is Water Apportionment Accord 1991.

---

[68]In 2011, Sutlej River was flooded on the release of extra water into the river by India. Due to dryness of Sutlej River the people settled on its bed. However, this flood has resulted in the loss of property along with the displacement of adjacent communities.

[69]Khattak, "World Bank Neutral Expert's Determination," 100.

[70] Article II and III, IWT 1960.

[71]Article 11 and 12, ICESCR, 1966.

It was signed by all provinces in 1991,[72]and ratified by Council on Common Interests (CCI) on March 21, 1991. It has 14 sections and eight annexures (See Annexure 2). Under the said Accord, the provinces remain focused on the water flows but completely ignored Section 6 of the Accord.[73] Further it has no water storage plans. This non-compliance by the provinces will hinder the federation from performing international obligations.

After the signing of Accord in 1991, first controversy took place in 1994. Sindh has alleged that Punjab was not releasing its agreed quantity of water. It was also alleged that Punjab continues to violate the said Accord with the collaboration of WAPDA (Water and Power Development Authority) and IRSA (Indus River System Authority). This controversy was dissolved in 1998 and soon after that a controversial Kalabagh dam (KBD) was announced.[74] Khyber Pakhtunkhwa (KPK) and Sindh have raised serious objections over the construction of said dam on Indus River. The province of Sindh alleged that KBD will deprive them from their due share of water. The construction of said dam will affect ground water and will result in droughts. KPK province is also against the construction of KBD and considers it as a threat to their land and populated areas. We will analyze the affects of KBD later in the dissertation. Two more dams are planned in the upper region of Indus River and their foundation was laid in 2006.[75] In July 2010, Punjab and Sindh came against each other on the issue of opening up of Chashma-Jhelum Link canal. This matter was resolved by the intervention of the then PM, Yousaf Raza Gilani. However, it is a fact that Pakistan's water shortage will only be controlled by the construction of more water reservoirs.

---

[72] This Accord was signed under the supervision of the then PM of Pakistan, Muhammad Nawaz Sharif.

[73] Section 6, WAA 1991 states that "The need for storages/wherever feasible on the Indus Rivers was admitted and recognized by the participants for planned future agricultural development".

[74] KBD is a new controversy in addition to the water sharing disputes in Pakistan. Critics are of the view that because of the less availability of water the project is not needed and the construction of said dam will affect the environment and water availability. Sindh alleged that for the construction of KBD, more water will be diverted by Punjab. The dam will also affect KPK because it will result in the displacement of people and water-logging.

[75] Diamer Bhasha and Mohmand Dam in Gilgit Baltistan.

18th Amendment[76] tried to resolve the increased inter-provincial water conflicts with the insertion of provision in Constitution of Pakistan, 1973[77]. This amendment has tried to decentralize the water administration. It has also strengthened the CCI to resolve inter provincial water conflicts in Pakistan but even then the CCI has failed to resolve these disputes.WAA have no mechanism to resolve inter-provincial disputes so there is a need to form such mechanism where provinces approach in case of conflict. Pakistan will need more reservoirs for essential water storage and regulatory mechanisms for water management because the current regulatory framework is insufficient and ineffective.

Internal Management of Water Resources

The legal framework for water resources in Pakistan lacks a proper policy on the management of waters. There was no comprehensive policy on the management of water resources till 2018 but in the same year, Ministry of Water Resources has laid down a broad policy framework and set of water principles for water security and scarcity.

Pakistan can also ensure internal water resources management by following the principles of Integrated Water Resources Management (IWRM) which is designed to improve the management of water resources.

[76] 18th Amendment to Constitution of Pakistan, 2010.

[77] Article 157(1) states that ["Provided that the Federal Government, prior to taking a decision to construct or cause to be constructed hydro-electric power stations in any Province, shall consult the Provincial Government concerned and]; and further clause (3) states that In case of any dispute between the Federal Government and a Provincial government in respect of any matter under this Article, any of the said Governments may move the Council of Common Interests for resolution of dispute."

IWRM is based on four key principles which were adopted at the 1992 Dublin Conference on Water and the Rio de Janeiro Summit on Sustainable Development.[78] This will results in reducing reliance on Indus Rivers system.[79]

Significance of the Research

India is constructing more dams on western rivers in violation to the IWT. So it's high time to review the treaty in order to avoid water scarcity and environmental degradation and to provide the solution in order to bring the treaty more affective.

The dispute resolution mechanism provided by IWT is not proving to be affective and India is diverting the water by construction of hydroelectric power projects on western rivers. Therefore, there is a need to establish more affective legal mechanism. IWT didn't provide the solution for water scarcity and groundwater management. It only talks about the distribution of waters and IWL came in to being after the formation of treaty. Therefore, there is a dire need to bring the treaty in conformity with international standards

Pakistan needs more reservoirs for water storage and there are many differences on distribution of water within the provinces of Pakistan. WAA should be revisited for its affective implementation because the distribution of water in the Accord is not based on principle of equitable and reasonable utilization enshrined in IWL.

[78]Dublin principles are the statement of experts on water and sustainable development. It recognizes the problem of water scarcity and conflicts regarding the overuses of water.

[79] IWRM has following principles i.e. "Fresh water is a finite and vulnerable resource essential to sustain life, development, and the environment; Water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels; Women play a central part in the provision, management, and safeguarding of water; and Water has an economic value in all its competing uses and should be recognized as an economic good."

Objectives of the Study

The main purpose of this study is to address the current water issues between Pakistan and India, which are aggravating the situation and if not addressed will lead to a water war. Further this study also analyses the alleged violations of IWT made by India and provides a comprehensive solution to stop the violations. The study will discuss the issues of regional and global securities in the light of drastic climate change and its effect on the survival of IWT.

The study will discuss IWL in detail and review it in the light of IWT's mechanism for settlement of disputes and will suggest for the formation of a new treaty by incorporating the principles of IWL. This study will also focus on the internal management of water and discuss the ineffectiveness of legal and institutional framework which results in an inter-provincial water disputes.

Lastly, this study is an attempt to suggest the new treaty regime between India and Pakistan in the light of IWL by involving all the stakeholders. As far as an internal management of water is concerned, comprehensive water legislation is required for the distribution of waters between provinces.

Literature Review

Since the development of IWL, many writers have written on the safe usage of international watercourses and reviewed the rights of the riparian states. While discussing the management of international watercourses; they have also analyzed the management of water in River Indus in the light of IWT. However, most of the literature available in Pakistan on water issue is written in political, social, geographical and economic context. There are very few writers who have

discussed the legal consequences of water dispute between India and Pakistan and analyses the IWT in the light of IWL.

John. G. Laylin, in his article "Principles of Law Governing the Uses of International Rivers: Contributions from the Indus Basin,"[80]discusses the earlier development of the principles governing the uses of international rivers. Laylin further describes the principles governing the use of Indus Basin and discuss the history of settlement of irrigation disputes before partition. He further explains the role of ILA in the formation of IWL.

David J. Lazerwitz, in his article "The flow of International Water law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses,"[81]discusses the recognition of importance of the water in an international relations. He then discusses the nature of the problem in the context of international law and highlighted the effect of the activities of upstream state to the nature of the downstream river and vice versa. He has further discussed the evolution of IWL by critically analyzing the watercourses conventions on non-navigational uses. Though article provides very useful information regarding the background of evolution of IWL but while discussing the nature of the problem he has mentioned only one example to support his stance.

Dr. Patricia Wouters, in his article "The legal response to International Water Scarcity and Water Conflicts: The UN Watercourse Convention and beyond,"[82]discusses international conflicts over water. He then discusses the evolution of IWL and particularly the development of

---

[80] John. G. Laylin, "Principles of Law Governing the Uses of International Rivers: Contributions from the Indus Basin," *Proceedings of the American Society of International Law at Its Annual Meeting (1921-1969)*, Vol: 51 (April 25-27, 1957): 20-36.

[81] David J. Lazerwitz, "The flow of International Water law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses," *Indiana Journal of Global Legal Studies*, Vol 1: Issue 1, (1993):250.

[82] Dr. Patricia Wouters, "The legal response to International Water Scarcity and Water Conflicts: The UN Watercourse Convention and beyond,"[82] (May/June 2003): 1-48, www.africanwater.org/pat_wouters1.htm last accessed, July 3, 2019.

UNWC 1997 and then further highlighted UNWC's response to water conflicts and water scarcity. Furthermore he explained the issues with respect to its implementation which can be achieved through institutional mechanism. However the writer has very briefly discussed the issue of water scarcity which is considered as one of the reasons of water disputes among riparian states.

Dr. Waseem Ahmed Qureshi's article "The Indus Basin: Water Cooperation, International law and the Indus waters Treaty,"[83]is about water cooperation in perspective of Indus Basin River. The writer has discussed that water cooperation is the key for reasonable and equitable utilization of water resources between watercourse states. He then explains that the development of controversial power projects on western rivers is affecting this cooperation. He further explains the water cooperation mechanism provided by IWT and IWL along with some examples of water cooperation but fails to describe that what steps should be taken to achieve the water cooperation.

Ijaz Hussain in his book "Indus Waters Treaty: Political and Legal dimensions,"[84] discusses in detail the genesis of the dispute between Pakistan and India both in political and legal perspective. This is the first ever book that has focused the issue in a comprehensive way. It has highlighted the role of WB in the settlement of IWT and then discussed the effects and legality of Indian power projects on western rivers. It provides the detail analyses on the decision of CoA in KHEPP. However in our view, it has briefly discussed the impact of climate changes on the IWT and its future sustainability. Moreover, the book didn't provide adequate analysis of

[83] Dr. Waseem Ahmed Qureshi "The Indus Basin: Water Cooperation, International law and the Indus waters Treaty," *Michigen State International Law Review*, Vol 26: No 21, (2017): 27.

[84] Ijaz Hussain, *Political and Legal Dimensions Indus Waters Treaty*, (Oxford University Press: Karachi, 2017).

IWT in the light of IWL that what principles should be incorporated in a treaty to make it more effective.

Muhammad Siyad A.C in his article "Indus Waters Treaty and Baglihar Project: Relevance of International Watercourse Law"[85] discusses the relevance of IWL with IWT. This article is considered as one of the rare articles, which has discussed the applicability of IWL in the light of IWT. This article also describes the provisions of IWT and highlighted the Baglihar issue. According to the writer, Baghlihar issue should be resolved under IWL as ICJ has applied UNWC in *Hungry v. Solovakia*. Muhammad Siyad further discusses the provisions and significance of UNWC.

Roshni Chakraborty and Sadia Nasir's article "Indus Basin Treaty: Its Relevance to Indo-Pak Relations"[86] is about the relevance of the Indus Waters Treaty in the context of the present Indo-Pak relationships. The authors have discussed that whether IWT will continue to act peacefully or it will lead to conflict. Further IWT is used as tool for improving the relation between two hostile nations. This article didn't mention about the alleged violation of the provisions of IWT. This article also fails to discuss the basic water disputes between both the countries.

Ahmed Hafiz Muhammad in his dissertation "Water sharing in the Indus basin river: Application of integrated water resources management"[87] analyzed the IWT and also discusses the nature of problems faced by Pakistan. This dissertation also describes the role of riparian

[85]Muhammed Siyad A. C, "Indus Waters Treaty and Baglihar Project: Relevance of International Watercourse Law", Economic and Political Weekly, Vol. 40, No. 29 (Jul. 16-22, 2005), 3145-3154.

[86]Roshni Chakraborty and Sadia Nasir, "Indus Basin Treaty: Its Relevance to Indo-Pak Relations", Pakistan Horizon, Vol. 55, No. 4 (October 2002), 53-62.

[87]Ammad Hafiz Muhammad, "Water sharing in the Indus basin river: Application of integrated water resources management", Swedish University of Agricultural Sciences (2011): 1-51.

states and future developments regarding treaty. However this dissertation didn't provide detail solution of the problem facing by Pakistan.

Muhammad Rashid Khan's[88]"Crucial Water Issues between Pakistan and India, CBMs, and the Role of Media" is about water issues between Pakistan and India. The writer also discusses the recent developments took place in 2011. It provides the detail discussion on the decision of KHEPP given by CoA. The study identifies India's unfair dealing with Pakistan with respect to water sharing but didn't talk about the further remedy available to Pakistan to address its grievances.

"Emerging challenges to the Indus Water Treaty, Issues of compliance & transboundary impacts of Indian hydroprojects on the Western Rivers" is written by Dr. Shaheen Akhter.[89] The paper explores the drivers of the current water discourse in Pakistan and India. It examines how Pakistan's rights over the western rivers as specified in the Treaty have been violated by India. It analyzes the potential impact of the Indian projects on the natural and ecological flow of western rivers into Pakistan. Finally, it looks into the ways and means to bridge the trust deficit in the implementation of the IWT and adopting of certain cooperative measures that could strengthen the shared Indus water regime by addressing the adverse effects of climate change and environmental degradation on the Indus basin rivers system.

[88] Muhammad Rashid Khan, "Crucial Water Issues between Pakistan and India, CBMs, and the Role of Media", *A Research Journal of South Asian Studies* Vol. 28, No. 1, (January – June 2013): 213-231.

[89]Dr Shaheen Akhter, "Emerging challenges to the Indus Water Treaty, Issues of compliance & transboundary impacts of Indian hydroprojects on the Western Rivers," 1-86.

Methodology

We have explained the water dispute before the partition that leads to the formation of IWT which have made easier to understand the evolution of problem. Further we have analyzed the provisions of treaty allegedly violated by India by discussing relevant case laws. We have adopted qualitative research method for this work. This method is best suited for the work as it has compared the treaty with international instruments regarding distribution of international watercourses and provides the legal solution to the problem.

Complexity of Issues

From the above discussion we can conclude that IWT has been proved insufficient in resolving disputes between Pakistan and India and there is a need to revisit the treaty in the light of current challenges. Moreover, domestic legislation is very old and ineffective to resolve the inter-provincial disputes. Many legal issues related to the incorporation of IWL, revisiting of IWT and making domestic water legislation, requires a detail discussion.

It is important to discuss that whether the partition of Punjab was the main cause of Indo-Pak water disputes because this partition has made Pakistan dependent on India with respect to water sharing. It is also necessary to determine that whether India's stoppage of water in 1948 was against the norms of international law? What was the reason behind the offer of WB to act as a mediator because all other water sharing treaties are within respective states?

IWT permits India to use the waters of western rivers for the generation of HEPP along with domestic, non-consumptive and agricultural uses but the question arises here that whether the series of power projects planned by India on western rivers or already constructed by India will affect the flow of river especially in a sowing season? What is the reason of giving India an

additional right to use the waters of western rivers for generation of hydroelectric power? It is also important to determine that whether India is involved in diversion of the waters of western rivers by constructing HEPP? And what about the minimum flow? Whether the treaty has discussed about the minimum flow? In *Kishanganga Arbitration* CoA has allowed India to carry on the construction of KHEPP. Whether Pakistan can recourse to the ICJ and if yes, on what grounds? IWT can't be terminated unilaterally. What would happen in the case of termination of a treaty?

It is important to determine that whether the treaty has any provision regarding EIA? And whether the power projects have ability to affect the natural environmental flow and biodiversity? Rapid increase in climate change has resulted in water scarcity. The question arises here that whether IWT has any provision regarding the effects of climate change and water scarcity on flow of river? And whether this water security will lead towards a water war between two nuclear powers? Whether the treaty provides any mechanism for the management of groundwater?

As, discussed above that IWL revolves around the principle of reasonable and equitable utilization, no harm rule and the principle of cooperation. The question here arises that whether IWT follows this principle or has deviated from the same? As the Indus River is shared by China, Afghanistan and Jammu and Kashmir besides India and Pakistan so whether it should be reviewed by involving all stakeholders?

Moreover, IWT has provided a mechanism for resolving disputes. The question arises here that why the mechanism has failed to resolve current water issues? Is the issue is in its implementation or its time taking procedure? Furthermore, it is equally important to determine that whether IWT needs to be reviewed in the light of IWL?

Besides IWT, Pakistan is facing difficulty in the managing its water. WAA 1991 deals with the distribution of water but the question arises here that whether the Accord distributes the water among provinces in the light of principle of reasonable and equitable utilization? If yes, then, why the provinces are in a state of conflict over distribution? It is also important to determine that whether the Accord is exhaustive and clear or it is a vague document that doesn't talk about environmental flow, pollution, water scarcity and additional storage?

IRSA was formed for the implementation of WAA but question arises here that why this institution has failed to implement Accord? CCI is a forum for the resolution of water disputes but it has too failed to resolve inter-provincial disputes. What is the reason of failure of CCI, whether it has weak mechanism or whether it is not an independent body?

In order to manage the water internally, Pakistan needs reservoirs because it has no major reservoirs since the formation of Mangla and Terbela dam but the provinces have failed to develop consensus over the construction of reservoirs particularly Kalabagh Dam (KBD). Therefore it is important to discuss the legal and environmental aspects of this project that whether the said project affects river flow? Whether it affects the ecology of river and what are the reservations of Sindh KPK and Baluchistan?

Last but not the least it is important to determine that whether IWT and WAA are in accordance with the principles of IWL or a comprehensive, clear and effective legislation is required both at national and international level in order to solve water issues.

Outline of the Thesis

For analyzing the above mentioned issues, the thesis has been divided into five parts besides this chapter.

Chapter One: First chapter deals with the water resources and the history of disputes before partition. It discusses the nature of the water dispute after partition which resulted into formation of IWT in 1960. Moreover, it has highlighted the role of WB in the conclusion of the treaty and has further explained the disputes after the conclusion of the treaty. At the end, the chapter discusses the unsettled issues.

Chapter Two: Second chapter deals with the alleged violations of the IWT by India regarding the construction of HEPP. The chapter further explains in detail the affect of these power projects on western rivers. The chapter has also highlighted the role of PIC, NE and CoA in resolving these disputes and consequences of the termination of treaty.

Chapter three: Third chapter deals with the extreme changes in the climate and water scarcity. It discusses the impact of environmental degradation on river flow. The chapter has also explained the international regime on climate change and criticized IWT for ignoring such an important issue. The possibility of a war due to unavailability of water is also a point of discussion in this chapter. At the end, the chapter provides a detail discussion on the management of water under IWL.

Chapter Four: Fourth chapter of the thesis discusses the legal regime regarding the sharing of transboundary waters including the customary status of the principles of IWL. The chapter has analyzed the treaty in perspective of IWL and discusses the dispute resolution mechanism. Moreover, it suggests the formation of new treaty regime.

Chapter Five: Chapter five of the thesis is about the internal management of water and it provides a detail discussion on WAA 1991 related to the distribution of water. It analyzes the WAA in the light of IWL and suggests the formation of new legal regime by incorporating the principles of IWL. The chapter has also highlighted the interprovincial disputes which creates

lack of consensus among the provinces over the construction of more water reservoirs. Last part of this chapter deals with the alternative measures to be adopted by Pakistan for the internal management of water and suggests the adoption of the Integrated Resource Management Technique for the better management of water.

The chapters are followed by the conclusion and recommendations

CHAPTER 1: INDO-PAK WATER DISPUTES AND INDUS WATERS TREATY: HISTORICAL INTRODUCTION

1. Introduction

River Indus is one of the great river systems in the world. Its annual flow is twice that of Nile and three times that of Tigris and Euphrates.[90] It has six rivers i.e. Indus, Jhelum, Chenab, Ravi, Beas, and Sutlej.[91] Its total area is approximately 365,000 square miles.[92] Most of it lies in Pakistan and rest of the Indus Basin is in J&K, India, China and Afghanistan.[93]

The unbalance division of boundary line between India and West Pakistan resulted in water dispute in April 1948.[94] As a result of this division major share of the total irrigated cropped area was given to Pakistan, and India was in control of most of the irrigable water.[95] The dispute started after the expiry of Arbitral Tribunal on 31stMarch1948. After negotiations under

[90] The World bank, "Indus Water Treaty", World affairs, Vol: 133, No: 4(Winter-1960), 99 (99-101).

[91]Four out of the five rivers rise in India and flow through Pakistan. These are the Jhelum, the Chenab, the Ravi and the Beas. The fifth, the Sutlej, rises in Tibet and flows through India before entering Pakistan. The Jhelum rises below the PirPanjal range in Himachal Pradesh, flows through the Wular lake and enters Pakistan. After flowing a length of 813 kilometers it joins the Chenab. The Chenab rises in Himachal Pradesh in India and enters Pakistan in Punjab. The Chenab is joined by the Jhelum and lower downstream by the Ravi after which it merges with the Sutlej to become the Panjnad that joins the Indus at Mithankot. The Ravi River rises in the Rohtang Pass near Kullu in Himachal Pradesh, India, and joins the Chenab in Pakistan after flowing through the Indian city of Amritsar and the Pakistani city of Lahore. The 460 kilometer long Beas River rises in the Himalayas in Himachal Pradesh, India, and joins the Sutlej River in the Indian Punjab. The Sutlej which rises from Lake Rakshasthal in Tibet is, at 960 kilometers, the longest and easternmost of the five main tributary rivers of the Indus. (See Dr. Gopal Siwakoti Chitan, Khatmandu, "Trans-boundary River Basins in South Asia: Options for Conflict Resolution,"2011):2)

[92] Abdul Rauf Iqbal, "Environmental Issues of Indus River Basin: An Analysis,"ISRA, (2013): 93.

[93] The source of the Indus is at 17,000 feet above sea level in western Tibet and flows briefly through Chinese territory before entering Indian controlled Kashmir and then flowing into Pakistan. In northern Pakistan it is joined by the Kabul River, which flows out of Afghanistan. Four other rivers which arise in northern India or Indian controlled Kashmir, the Jhelum, Ravi, Chenab and Sutlej combine to form the Panjnad River, which joins the Indus in central Pakistan. From this point, the Indus remains in Pakistan along its 2897 km course to the Arabian Sea.

[94]The West Pakistan comprised three Governor's provinces (North-West Frontier, West-Punjab and Sindh Province), one Chief Commissioner's province (Baluchistan Province), and the Baluchistan States Union along with several other independent princely states (notably Bahawalpur, Chitral, Dir, Hunza, Khairpur and Swat), the Federal Capital Territory around Karachi, and the tribal areas.

[95]Prem Laal, "Indus Waters Treaty an Exercise in International Mediation," *Indian Economic Review, New Series*, Vol. 8, No. 2 (October 1973):198.

the supervision of WB, IWT was signed in 1960.[96] According to the treaty, three Western rivers (Indus, Jhelum and Chenab)[97] were allocated to Pakistan and, three Eastern Rivers (Sutlej, Beas and Ravi)[98]were allocated to India.

The chapter will discuss in detail the water resources and the history of disputes in pre-partitioned India. It will also discuss in detail the genesis of water dispute after partition which ultimately led to the conclusion of the IWT. It will also highlight the role of the World Bank in conclusion of the IWT. It further explains the disputes after the conclusion of IWT. In the end, the chapter will discuss the issues that the Treaty has failed to address.

1.1. Water Resources in Pre-Partition India

The Indus Basin prior to partition contained one of the highly established irrigation systems, consisting of about 34,000 miles of main canals and tributaries, which watered more than 25 Million Acres (MA) of Land.[99]It was divided between a number of provinces and princely States.[100]

---

[96]Asjad Imtiaz Ali, Javeed Iqbal Bokhari and Dr. Qazi Tallat M. Siddiqui, "Analysis of Indo-Pak water Treaty, 1960," Paper No. 743, 72nd Annual session of PEC, 227. (Hereinafter Ali, Bokhari, and Siddique, "Analysis of Indo-Pak water Treaty,"227).

[97] Article 1 (6), Indus Water Treaty, 1960

[98]Ibid., Article 1(5).

[99] The Basin includes all or part of British Baluchistan, the pre-partition Indian Provinces of Sindh, the Punjab and the North-West Frontier, the Indian State of Bahawalpur, J&K, Kapurthala, Patilala, Khairpur and several smaller States in Balochistan i.e. Kalat, Kharan, Lasbela, and Makran, northwest of Jammu and east of Punjab, and the Gilgit Agency. Parts of Afghanistan (Kabul, Kandahar, and Kunar) and Tibet were also in the Basin.. see Salman M. A Salman, "Mediation of International Water Disputes-the Indus, the Jordan and the Nile Basin interventions," (2013):369. (Hereinafter Salman, "Mediation of International Water,"369).

[100] John. G. Laylin, "Principles Of Law Governing The Uses Of International Rivers: Contributions from the Indus Basin," *Proceedings of the American Society of International Law at Its Annual Meeting (1921-1969)*, Vol: 51 (April 25-27, 1957): 22 (hereinafter Laylin, "Principles of Law Governing,"22).

1.1.1. History of Disputes between States and Provinces before Partition

The sharing of waters between the States and Provinces of British India were regulated under international law as applied by British colonial power but from 1858 to 1919, Indian States delegated the power of resolving the irrigation disputes between several provinces of British India to Secretary of State for India.[101]In 1919, the questions regarding irrigation came to be determined by Government of India (GoI) instead of Secretary of State.[102]

After, 1935 Act, water became a subject of provincial jurisdiction.[103]British Government handed over the responsibility of river developments to the provincial governments. [104] Though there was a commission to investigate the water rights and irrigation needs.[105] The inclusion of a Commission didn't help to settle the disputes between states and provinces rather it created frustrations that indicated the formation of centralized policy.[106]

The development of canal irrigation shows that the provinces show their objection solely on a reason that it would rather affect their own irrigation system.[107]In 1918, representatives of British Indian Province and States of Bahawalpur met to arrive at a distribution of Sutlej River. States of Bahawalpur have objected over Sutlej Valley Project (SVP) which was created to

---

[101] Ibid.

[102] Part II, Government of India, Government of India Act, 1919. This Act remained for 10 years and it was passed on the basis of recommendations of Lord Chelmsford (Viceroy, India 1916).

[103]Article 130, Government of India Act 1935 states that "If it appears to the Government of any Governor's Province or to the Ruler of any Federated State that the interests of that Province or State, or of any of the inhabitants thereof, in the water from any natural source of supply in any Governor's or Chief Commissioner's Province or Federated State, have been,. or are likely to be, affected prejudicially by- (a) any executive action or legislation taken or passed, or proposed to be taken or passed ; or (b) the failure of any authority to exercise any of their powers, with respect to the use, distribution or control . of water from that source, the Government or Ruler may complain to the Governor-General."

[104] Muhammad Adeel, "Indus Waters Treaty and the Case for Hydro-Hegemony," *CSCR (Centre for Stratigic and Contemporary Research*), (2016): 2. (Hereinafter Adeel, "Indus Waters Treaty,"2).

[105] Article 131 (1 & 2) of Government of India Act 1935 provides that in case of any complaint received by the Governor General, a Commission having experience of irrigation, engineering, finance, and law shall be appointed to look after the matter. After investigation Commission shall submit its report to the Governor General along with the recommendations.

[106]Muhammad Nasrullah Mirza, "Indus Water Disputes and India-Pakistan Relations," (PhD Diss., University of Heidelberg, Federal Republic of Germany): 163. (Hereinafter Mirza, "Indus Water Disputes,"163).

[107]Marcus Taylor, *The Political Ecology of Climate Change Adaptation: Livelihoods, agrarian change and the conflicts of development* (New York: Routledge, 2014), 13.

irrigate eastern part of Bikanker State.[108]Government of Bombay also protested against this project that it would affect the flow of Indus Basin itself. Though the project was approved by GoI but from the very beginning it lacked sufficient flow of water. [109]

Anderson Committee was appointed by the GoI to address the objections of Bahawalpur State and Bombay Province regarding distribution of waters.[110]The committee was guided with the principle of allocating water to the greatest number without hampering the rights of others.[111]The principle was accepted and it was further decided that water made available for the irrigation of SVP should be disseminated in the best interest of general public.[112]

In 1939, controversy arose regarding the plans of the than United Punjab to build Bhakra Storage Dam and increase withdrawals from the rivers on which downstream States and Provinces were dependent for their supplies. Complaint was brought by Sindh (Lower Riparian) under Government of India Act 1935.[113]Sindh was of the view that it would injure inundation canals used to irrigate lower region of Guddu and Kotri.[114] The GoI appointed a commission chaired by Benegal N. Rau.[115]The Commission submitted a report in 1942 and upheld the complaint of Sindh government. It was noted that the said projects will cause material injury to

---

[108]Laylin, "Principles of Law Governing," 23.

[109]Rafia Rauf, "Legal Framework for Resolution of Water Conflicts in Pakistan-A Historical Perspective," LEAD, (January 3, 2009):1. (hereinafter Rauf, "Legal Framework,"1)

[110]As a result of 1919 Constitutional reforms (Government of India Act, 1919), questions concerning irrigation came to be determined by the Government of India (GoI). Indus (Anderson) Committee was constituted by the GoI in 1935 to examine the distribution of water for Sutlej Valley Projects and Sukkur Barrage project.

[111] This principle was suggested by Sir, Claude Hill (Chairman and representative of the Indian government). It implies to attain maximum possible benefits for all states and to achieve the greatest possible satisfaction of all their needs, while minimizing the detriment to, or unmet needs of, each.

[112] Indus (Anderson) Committee Report, Vol :II, 1935, 60.

[113] A riparian is "one that lives or has property on the bank of a river." Webster's Third New International Dictionary 1960 (3d ed. 1986). "Riparian rights are those that accrue by operation of law to owners of land on the banks of waterways, such as the use of such water, ownership of soil under the water, etc." Barron's Law Dictionary 425 (3d ed. 1991).

[114] The canals which drew supply directly from the river and governed by the level of water in river.

[115]Bengal. N. Rau, who later became Judge of ICJ chaired the Commission. The Commission was formed to investigate the complaint of Government of Sindh about their interests in the water from the River Indus.

Sindh's inundation canals.[116]The Rau Commission further recommended the GoI to prohibit the construction of new projects for the period of three years. Following the recommendations of Rau Commission, an Accord was signed between Sindh and Punjab in 1945.[117] By virtue of this Agreement, Punjab was forbidden to construct any dam on the River Indus or any of its tributaries without the consensus of Sindh Government.[118] It fixed the priorities and provided a framework for sharing waters.[119] This was the scenario regarding the water issues between Punjab and Sindh when partition took place in 1947. Thus the distribution of water canals was not peaceful even before partition.

1.1.2. Division of Province of Punjab

The 3rd June Plan 1947,[120]results in the division of Punjab between India and Pakistan by British government. Punjab Boundary Commission (PBC) was formed by Governor General (Lord Mountbatten). It was formed for the demarcation of the boundaries of two parts of Punjab on the basis of determining the adjacent majority areas of Muslims and Non-Muslims.[121] The Committee will also consider other factors while demarcation. It consists of four members, two

---

[116]Ijaz Hussain, *Political and Legal Dimensions Indus Waters Treaty*, (Oxford University Press: Karachi, 2017), 35. (hereinafter Hussain, *Political and legal dimensions*, 35)

[117] According to Sindh-Punjab Water Agreement 1945, Punjab was to take one share of water and Sindh three from the Indus at Ghazi Ghat.

[118] Article8, Sindh –Punjab Agreement, 1945.

[119]The Rau Commission affirmed that new withdrawals by the upstream province of the Punjab (East Punjab in undivided Punjab) must be regulated in such a way as to avoid material damage to the canals of the downstream province of Sindh. The Commission advised further that the parties might agree that such damage could be prevented through the construction of two barrages across the Indus downstream, in such situation the lower Punjab should make a substantial financial contribution toward their cost.

[120]The 3rd June plan includes, the division of British India into two separate States, award of dominion status to the successor government of two states, formation of Boundary Commission to demarcate the boundaries if any of the communal group decides in favor of dividing the province of Punjab and Bengal, authorization of the Sindh Legislative Assembly to opt out whether it desires to join the current Constituent Assembly or the New Constituent Assembly, a conduction of referendum in the North West Frontier Province and Sylhet, and freedom of choice was granted to Balochistan.

[121]John R. Wood. "Dividing the Jewel: Mountbatten and the Transfer of Power to India and Pakistan." *Pacific Affairs* 58, no. 4 (1985): 653-662.

from Congress and two from Muslim League.[122]Sir Cyril Radcliffe was the Chairman of the PBC.[123]

The 3rd June Statement specified the Muslim majority districts of Punjab according to 1941 census. The Muslim majority areas contained the whole of Rawalpindi and Multan Divisions, and the district of Gujranwala, Gardaspur, Lahore, Sheikhupura, and Sialkot of Lahore Divisions.[124] Besides the 17 District listed in appendix to the statement, the Muslim League claimed 14 more areas.[125] Whereas, the Congress claimed seven more areas in addition to the 12 areas allotted to it in national division.[126]

There was a difference of opinion between the members of Commission regarding the allocation of areas however, Radcliffe has decided to give his own Award. District Gardaspur was a Muslim majority area as three out of its four Tehsil had a Muslim Majority (Gardaspur, Batala and Shakargarh) and only Pathankot had non-Muslim majority. The above three areas were allocated to India in violation of partition principle outlined above. Similarly, the headworks[127] of Sutlej were also located in Muslim majority areas.[128]Ferozpur and Zira were also allocated to India despite of Muslim majority.

Radcliffe justified his unjust distribution on the basis of other factors i.e. the maintenance of the integrity of water and railway communication systems. However, the Commission

---

[122] Mr. Justice Din Muhammad and Mr Justice Muhammad Munir were from Muslim League, Mr Justice Mehr Chand Mahajan and, Mr. Justice Teja Singh was from Congress.

[123] Sir Cyril Radcliffe was a British Lawyer and known for his role in Partition of British India.

[124]V.N. Datta, "The Punjab Boundary Commission Award (12 August 1947)", *Proceedings of the Indian History Congress*, Vol No 59 (1998), 853. 850-862

[125]Ajnala Tehsil of Amritsar District, MajithaZail of Amritsar Tehsil of the same district, Portions of Fazilka and Mukhtsir Tehsils of Ferozpur Districts, Zira and Ferozpur Tehsil of Ferozpur District, Jullundur and Nakodar Tehsil of Jullundur District, Parts of Dashya and Hoshyarpur District, The area along both bank of River Sutlej up to the towns of Ropar and ending on the Boundary between Punjab and the Nalagarh State including the town of Ludhiana and District Ambala.

[126]Gurdaspur District, Lahore District including the city of Lahore, Laylpur District, Montgomery, Sheikhupura, Sialkot and Gujranwala District.

[127] The term "headworks" generally refers to a structure erected on a river which can control and regulate its flow.

[128] Sutlej had following Muslim majority Tehsils ;Ferozpur, Zira and Fazilka

nowhere defines the term 'other factors', which is a major flaw. According to the statement of Arthur Henderson (Secretary of State for India) before the British House of Commons "the primary basis of demarcation must be majority population. In certain cases there may be factors which justify departure from this principle."[129] This statement shows that the 'majority population' was a general principle and 'other factors' is its exception. Thus, Radcliffe divided Punjab in violation of this integral principle.

Moreover, the boundary was drawn without taking in consideration the economics of region and without any distinction with respect to irrigational works.[130] As a result of this demarcation,[131] Indus basin was divided which was previously a one unit. The division of cultivable land in Indian Union and Pakistan was 7.6 and 74.6 MA respectively, and, the irrigated area by the Indus Basin in Pakistan and Indian Union was 30.6 MA and 5.9 respectively.[132] There were 19 headworks in Indus Basin System out of which four were in Indian Union and fifteen were in Pakistan.[133]

There were thirteen canals from which ten came to Pakistan.[134] Two canals went to the Indian Union and one, the Upper Bari Doab Canal (UBDC), was divided between the two States. Between the periods of 1922 to 1932, the UBDC irrigated only 90,000 acres in Gardaspur District, 418,000 acres in Amritsar and, 792,000 acres in Lahore District.[135] Most of the area that

---

[129] Hussain, *Political and Legal Dimensions* , 41.

[130] Ali, Bokhari, and Siddique, "Analysis of Indo-Pak water Treaty," 228-229.

[131] The part of the Punjab to the west of this boundary became a part of Pakistan and that to its east was incorporated into the Indian Union.

[132]Tufail Javed, "The World Bank and the Indus Basin Dispute: Background-1,",*Pakistan Horizon*, Vol 18: No 3, (Third Quarter, 1965): 227.

[133] The term Headwork is any structure at the head or diversion point of the waterway. It is smaller than barrage and it is used to divert the water from river into canal. Five headworks were on Indus at Kalabagh, Taunsa, Guddu, Sukkur and, Kotri. Two headworks were on Jhelum at Mangla and Rasool, and four headworks were on Chenab at Marala, Khanki, Trimmu and, Punjnad. Indian Union has four headworks, two were on Ravi at Balloki and Sidnai and the other two were on Sutlej at Sulemanki and Islam.

[134] Upper Bari Doab, Lower Bari Doab, Upper Chenab, Lower Chenab, Upper Jhelum, Lower Jhelum, Pakpattan, Dipalpur, Mailisi, Haveli-Rangpur and, Indus-Inundation Canals.

[135] Hussain, *Political and Legal Dimensions* , 42.

irrigated by UBDC was Muslim majority. The headworks of two big canal systems (UBDC &Dipalpur) were in Indian Union but the area irrigated by these canals was in Pakistan which shows that the Pakistan's agricultural economy depends upon India.[136] Our reliance on India's water was later on proved in 1948 when East Punjab stopped the flow of water in every canal entering Pakistan.[137]

A large volume of water was withdrawn from Sutlej which has deprived the major portion of Southern Pakistan from its regular flow. Suleimanki headworks were in Montgomery but training works were in Ferozpur Region.[138]It was really unjust to Pakistan and it shows great disrespect for geographical and human factors.[139]Hence, the division of the province of Punjab by Radclif was not appropriate and very unjust as it was a diversion from a basic principle. We can say that British authority is responsible for Indo-Pak water dispute.

1.2. Beginning of the Indo-Pak Water Dispute

The reason of all the water disputes between both states lies in their partition in 1947. After the partition many groups in India waited for economic, social and political debacle that would have compelled Pakistan to rejoin India, thus restoring the unity of sub-continent.[140]

---

[136]Madhopur Headwork was in Indian Union on Ravi but Upper Bari Doub canals irrigated the important region of Lahore. This canal was emerged just below Madhopur. Dipalpur Canals irrigated the southern Punjab. These canals were controlled by Ferozpur Headwoks situated in India.

[137] When on 31 March 1948 the Arbitral Tribunal ceased to exist, Pakistan farmers were busy sowing the Kharif crops. The Indian Union, taking advantage of the circumstances and their physical control of the Madhopur Headworks on the Ravi and Ferozepur Headworks on the Sutlej, stopped the water in the canals entering Pakistan. The canals, which the India deprived of water for more than a month, irrigated more than 1,600,000 acres.

[138]The headworks of Sulemanki controlled the flow of Pakpattan Canal in the Montgomery and Multan regions and the canals of Fardwah and Sadiqa in Bahawalpur.

[139]Hafeez-ur-Rehman Khan, "Indo-Pakistan Water Disputes," *Pakistan Horizon*, vol:12, No. 4, (December 1959):323. (Hereinafter Khan, "Indo-Pak Water Disputes,"323)

[140]Helmet R. Kulz, "Further water disputes between India and Pakistan", The International and Comparative Law Quarterly, Vol:18, No:3 (July 1969), 724-725. (Hereinafter Kulz, "Further water Disputes," 724)

Pakistan was of the view that existing uses are inviolable, and only the excess water could be divided between the two on equal basis. This principle was supported by many treaties between the states or even between the provinces of the same Country.[141]India has given counter argument by stating a principle under which upper riparian has an absolute right to use waters and lower riparian can get the share according to the treaty between parties.

As a result of the division of Punjab, lower riparian was at the mercy of upper riparian i.e. India in case of sharing the waters.[142] The statement of Lord Mountbatten regarding the use of common waters was not justified because of the enmity between the two sections before partition.[143] Furthermore, it was duty of both the sections to familiarize themselves with the problems and to look for guidance in other precedents regarding the partition of States.[144]

Instantly, after partition the Indian Union asked for compensation over the canal colonies situated in Pakistan. The reason behind the claim of compensation was the finances spent on the construction of these canals. These finances were spent before partition by undivided Punjab and central government of British India.

Before Radcliffe Award, the British Government had constituted two bodies i.e. Punjab Partition Committee (Committee B) and Arbitral Tribunal.[145]The committee was created to deal

---

[141] The Nile Waters Agreement, 1929 was signed between Egypt and United Kingdom. The treaty was concluded in the light of above principle. Another treaty was signed between United States of America and Mexico in 1944 regarding the distribution of waters of Rio Grande River and Colorado Rivers. Both treaties protected the existing uses of waters and provided for the equitable division of additional supplies.

[142]It is sometimes argued that a State located on the upstream termed as "upper riparian" would, on account of its geographical location, have priority right of access to river waters when compared to a State located downstream termed as "lower riparian."

[143] Lord Mountbatten was of the view that India herself would be prepared to arrange with Pakistan the uses of their common waters.

[144]The Peace Treaties of St. Germaine was signed on 10th July, 1919 between Allies and New Republic of Austria. Treaty of Trianon was signed on 4th June, 1920 at the end of WWI between Allies and Hungry. Both treaties took great pains to deal with such questions arising out of the new frontiers between Austria and Hungary and their successor-States. See Articles 309 and 310 of the Treaty of St. Germaine 1919. See also "International law in Historical Perspective" by Dr. J. H.W. Verzijl, Part II-State Succession, 216-217.

[145]Hussain,, *Political and Legal Dimensions*, 61.

with the matters relating to the division of Punjab province and, the function of Arbitral Tribunal was to arbitrate on matters referred to it by the Committee.

The Committee B was given the task of future administration of physical assets.[146] The aim behind this task was the equal distribution of these assets between the two states. Pakistan was supposed to pay the compensation of the value of assets situated in Pakistan. The committee had to determine the division of assets and their value. Principal assets were canal colonies and the Crown lands. It consists of eight members, four from both the countries and the report of the committee was to be signed by all eight members. According to the report of the committee there was an agreement over distribution of waters but the issue of evaluation of assets remained unsettled.

The report was presented before the Committee B and it was adopted in total.[147] Committee B and the Arbitral Tribunal accepted the fact that the authorized shares of waters of both the countries would remain unchanged.[148] It was based on the division of the existing flow that this flow would be respected, and the two states would continue to receive the same revenues. Moreover, both zones would provide the same quantity of water as received earlier to the inhabitants of both the countries.[149]

On 20th December, both countries signed a Standstill Agreement to maintain the *status quo* till the end of the Rabi Crops.[150] It was also recommended to conclude further agreement

---

[146] Punjab Partition Committee B was one of the sub-committees formed for the division of physical assets. It dealt with matters related to the future management of joint assets, the division of other physical assets, and the evaluation of these assets between Pakistan and India. Thus it determines the nature and worth of assets.

[147]Hussain, *Political and Legal Dimensions*, 61.

[148]Moonis Ahmar, ed., *The Challenge of Confidence Building in South Asia*,(Taj press, New Delhi: India, 2001), 389.

[149]Ibid.,388.

[150] Annexure H, part 1, para 5 (b) of IWT states "the time period of Rabi (1st October to 31st March) and Kharif Crops (1st April to 30th September)."

before the expiry of Standstill Agreement.[151] Pakistan requested to extend the agreement but in return Indian Union has stopped the water of the canals entering Pakistan on 1st April 1948. It was shocking for Pakistan as the farmers there were busy in cultivating the Kharif crops.[152] India's act was pure malice as Kharif season was about to begin and India knew that it will affect the farmers of Pakistan. It has deprived Pakistan from water which irrigated 1,600,000 acres.[153]

Moreover, Arbitral Tribunal was to expire on 31st March 1948 and India knew it that after the expiry of Arbitral Tribunal, Pakistan would not be able to get favourable award. This closure led to fear and panic.[154]

On May 4, 1948, the Indian government submitted a statement and compelled Pakistan to sign the same for restoration of water supplies leaving no other choice for Pakistan. It declares that East Punjab (India) had a sole proprietary right over the waters of rivers flowing through its territories by leaving Pakistani canals dry while West Pakistan had no right over these waters.[155]

West Pakistan had cited the decision of Arbitral Tribunal in its favour and contended that under international law and equity it had rights to the water flowing through east Punjab as the CIL provides for the equitable utilization of waters of the international courses. Subsequently, Inter-Dominion Conference was held in Lahore on July, 1948 to give the final shape to the May 1948 statement.[156] India desperately wanted Pakistan to accept its sole rights over the waters of Eastern Rivers but Pakistan wanted it to be re-written.[157] Moreover, HRs 1966 also provides for

---

[151] The Agreement would expire on 31st March, 1948.
[152] Khan, "Indo-Pak Water Disputes," 329-330.
[153] Ibid., 331
[154] Ibid., 326.
[155] This statement for the restoration of water supplies was to be known as Delhi Agreement, Inter-Dominion Agreement or Joint Statement.
[156] Hussain, *Political and Legal Dimensions*,72.
[157] Ibid., 73.

reasonable share in the use of water of an international drainage basin.[158] Therefore, it was not acceptable for Pakistan and resulted in a deadlock.

In order to break the deadlock, India offered the establishment of a committee for further negotiations on 5th October, 1949. Pakistani delegation was led by Chaudhry Muhammad Ali,[159] who proposed that the existing uses be met from the available sources and new supplies be provided from the flood waters by constructing dams on Ravi, Beas, Sutlej and Chenab Rivers. He also proposed an equitable division of new supplies. On the other hand, Indian Delegation rejected the proposal and suggested to preserve the entire flow of Sutlej for India.[160]The delegation was of the view that supplies from Central Bari Doab Canals (CBDC) and deficiencies in the Sutlej could be met from the construction of link canal on the Chenab.[161] Following the acceptance, the committee again met in Delhi on May 1950, and instead of presenting the same proposal, India presented a new plan which is out rightly rejected by Pakistan.[162]

It is a well settled principle of international law that violation of international obligations is always followed by an obligation to make some reparations.[163] Therefore, Pakistan registered a statement to the Secretariat of United Nations that withholding of water is an international

---

[158] Article 4, Helsinki Rules, 1966 states that "each basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin."

[159] He was the fourth Prime Minister of Pakistan from 1955 to 1956

[160]India has given this suggestion because she was building Bhakra Dam on Sutlej River. The construction of said dam was challenged by Pakistan as it will divert the flow. The objection to the said dam will be discussed in this chapter later on.

[161] The entire flow of Chenab would be available for Pakistan.

[162] According to a new plan, India not only proposed for the exclusive use of Sutlej but also that of Beas and Ravi. In addition to that she also wanted 10,000 cusecs from Chenab through a tunnel built at site called Marhu in J&K.

[163] Cedric Ryngaert and Holy Buchanan, "Member States Responsibility for the acts of international organization," *Utrecht Law Review*, Vol 7, Issue 1 (January 2011):131.

wrongful act under CIL.[164] Pakistan was of the view that the Standstill Agreement had ceased to exist, and it was signed under duress and political pressure. Under international law the treaty has no legal affect if signed through coercion.[165] This argument was rejected by the then Prime Minister Jawahar Lal Nehru but the fact is that it was signed under pressure because future of million Pakistani farmers was at stake. It doesn't include use of force, but it does include political and economic pressure that led to its signatures.[166]

1.2.1. Legal Analysis

There are several principles which deal with the distribution for the irrigation of the canals.[167] They reflect different practices of states on the uses of international rivers late in the nineteenth century.[168]

Firstly, there is a principle of absolute territorial sovereignty which is also known as Harmon Doctrine.[169]According to this principle, state is free to dispose its waters within the

---

[164] Pakistan was of the view that the so called Standstill Agreement of 1948 has been expired and compelling a party to sign an agreement is against the norms of international law. India compelled and pressurized Pakistan to sign the Standstill Agreement "without changing a word or comma".

[165] Article 52, Vienna Convention on Law of Treaties, 1969 states that "A treaty is void if its conclusion has been procured by the threat or use of force in violation of the principles of international law embodied in the Charter of the United Nations."

[166] "The Declaration on the Prohibition of the Military, Political and Economic Coercion in the Conclusion of the Treaties" This Declaration was introduced to supplement Article 52 of Vienna Convention on Law of Treaties 1969. It condemns the threat or use of pressure in any form by a State against another but doesn't declare a treaty void it concluded through the threat or use of political or economic pressure.

[167] F. J Fowler, "Some problems of Water distribution between East and West Punjab." *Geographical Review*, vol, 40: no,4, (Oct 1950): 583.

[168] Salman M. A Salman and Kishor Uperty, *Conflict and Cooperation on South Asia's International Rivers: A legal Perspective*, (Kluwer Law International, The Hague: Netherlands), 11.

[169] Harmon Doctrine is named after Judson Harmon, Attorney-General of United States of America. In 1895, he gave his legal opinion in the dispute between United States of America and Mexico over diversions of waters of Rio –Grande by the farmers in the United States which reduced the natural water supply to Mexico. It states that under the principles, rules and precedents of international law, United States is under no obligation to share its waters with Mexico since by virtue of absolute sovereignty within its territory, it is entitled to use the waters for its domestic uses regardless of the trans-boundary consequences. The United States himself didn't follow the principle while entering into a treaty regarding shared lakes and rivers with its two neighbours i.e. Canada (1909) and Mexico (1944).

territory without concerning its effect on other riparian state.[170]This principle was criticized as it was against the basic principles of international law, which prohibits riparian states from causing harm to other states.[171] It was used as a weapon by the upper riparian states but it didn't get the support of international community.[172]Under international law a state should not hamper the interest of the other State with respect to international rivers crossing its territory. A state is responsible for the acts of producing change in the existing regime and such change had caused injury to the other state.[173]Secondly, there is a principle of absolute territorial integrity which establishes a right of continuation of natural flow without any restriction and at the same time it also imposes a duty on upper riparian not to restrict such natural flow to other lower riparian.[174]

Thirdly, there is a principle of prior appropriation.[175] It provides that first user has superior rights over the later ones on international rivers whether or not his land is contiguous to the stream.[176]

---

[170] Traditionally, those States territorially concerned with an international drainage basin have been referred to as "riparian", "co-riparian", "upper riparian", "lower riparian". These terms are based upon the view that the territory of the State so described touches a river flowing on the surface of the drainage basin. Further see Article 1 (4), Water Convention 1992.

[171]Salman. A. Salman, "The Helsinki Rules and the UN Watercourses Convention and the Berlin Rules: Perspective on International Water Law,"*Water Resources Development,* Vol, 23: No, 4 (December, 2007):627.

[172]The arbitral tribunal in Lake Lanoux arbitration (France v. Spain) (1957) declined to accept this principle where it stated that according to the principles of good faith, the upstream state is obliged to consider the genuine interest of other riparian states.

[173] Article IV, Resolution of Dubrovnik, 1956 (International Law Association) states that "A State is responsible, under international law, for public or private acts producing change in the existing régime of a river to the injury of another State, which it could have prevented by reasonable diligence."

[174] This Principle was also criticized like the Harmon Doctrine and it is not considered as a part of contemporary international law.

[175] Aaron T. Wolf, "Criteria for Equitable Allocations: The Heart of International Water Conflict," *Natural Resources Forum*, Vol 23: Issue 1, (1999): 7.

[176] David J. Lazerwitz, "The flow of International Water law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses," *Indiana Journal of Global Legal Studies*, Vol 1: Issue 1, (1993):250.

It provides assurance for a continuous flow to the areas cultivated earlier. The first user has absolute right to divert the water to the extent of its use.[177] The said doctrine was not applied while settling the water disputes between different states and provinces of British India because it was against the principle of equitable distribution.[178]

Finally, there is a principle of equitable utilization which describes river system as indivisible single unit with the distribution of its benefits among all the riparian states.[179] It encompasses all of the above principles and formed the basis of the modern international water law. It guarantees all the existing uses first and then distributes the remaining water on equal basis.[180] This principle shows that no state is bound to submit to injury by a unilateral action of any state. This principle is applied all over the world in Europe and America. In case of solving inter provincial and inter-state water disputes before the partition, the same principle was applied but it was disregarded after partition.[181]

It is clear from the above discussion that the diversion and stoppage of water by Indian Union was illegal and it has not only violated the terms of Committee B but also violated the norms of international law and equity as it deprived Pakistan from the water which was essential for irrigation of 16,00,000 acres.

---

[177] While applying this principle it may become inequitable where one State lags behind another in the economic or technical ability to develop its river use. Further, in rewarding those who first put water to use, the doctrine does not take into account either thorough planning or environmental uses of the river. Consequently, although the doctrine is the legal basis for the allocation of water resources in the western United States, it has received little international support

[178] Laylin, "Principles of Law Governing,"20.

[179] Muhammad Nasrullah, *Wullar Barrage* (1991), 152-153.

[180] Ibid.

[181] Mirza, "Indus Water Disputes,"3

1.3. Role of World Bank in Dispute Settlement

David Lileanthal[182]visited India in 1951 and suggested the role for WB in operation of Indus River System as a single unit.[183]He proposed that the two countries along with the WB should jointly finance the building of the storage dams for diversion and distribution of water.[184]Pakistan has accepted the proposal, while Indian Prime Minister, Jawaharlal Nehru was of the view that settlement would be made in accordance with May 1948 Agreement.[185]The WB decided to take up the suggestion and offered its good services to both parties which were finally accepted.[186]

Both have cooperated to establish a plan by which their supplies will be increased. Moreover, it was agreed that the cooperation will continue with the participation of WB.[187]It was planned that the resources of Indus River are sufficient for future needs, and these resources should be established mutually to promote economic development. .[188]

Both India and Pakistan showed reservations to the Bank's conditions.[189]Khawaja Nazim-ud-Din, the then Prime Minister of Pakistan expressed his concerns over the failure of WB to guarantee Pakistan's existing uses.[190]Jawaharlal Nehru wrote to President of the WB

---

[182] David Lilienthal was a chairman of US Tennessee Valley Authority.

[183] Muhammad Adeel, "Indus Waters Treaty and the Case For Hydro-Hegemony," *CSCR (Centre for Stratigic and Contemporary Research),* 2016,2.

[184]Hussain, *Political and Legal Dimensions*,102.

[185] It declares that East Punjab (India) had a sole proprietary right over the waters of rivers flowing through its territories by leaving Pakistani canals dry while West Pakistan had no right over these waters.

[186] Salman, "Mediation of International Water Disputes."369.

[187] John G Laylin, "Indus River System-Comments," *American Society of International law*, Vol :54 (April 28-30, 1960):146.

[188]Sergei Vinogradov, Patricia wouters, and Patricia Jones, "Transforming Potential Conflict into Cooperation Potential: The Role of International Water Law," UNESCO, SC-2003/WS/67, 29.

[189] Nehru agreed with the first condition but had reservations with the third condition "irrespective of past negotiations". This had a reference to May 1948 agreement. Pakistan was also unhappy because it had failed to mention of their entitlement to the existing uses of water, which Lilienthal has mentioned in his Article..

[190]Hussain, *Political and Legal Dimensions*, 110.

Eugene R. Black regarding the acceptance of 1948 Agreement by Pakistan.[191] This resulted in a deadlock in the negotiations.

The process of negotiation was re-initiated by Eugene R. Black. As a result of these negotiations, an Agreement was concluded on March 31st, 1952.[192] The Agreement stated that neither side will hinder the supplies available to other sides as long as the involvement of WB.[193]WB along with the participation of equal number of engineers met in Washington in May-June 1952 in order to form a comprehensive plan on this proposal.[194]

During these efforts, India has again reduced supplies to Pakistan in the Kharif Season, which resulted in reduction of water. As a result, Pakistan has registered a complaint against India in UN. The WB's plan for the development of Indus Basin by a joint board has fallen apart. The situation became worse. Finally, it came up with proposal of dividing the rivers between India and Pakistan on February 5, 1954.[195]

A technical group comprising India, Pakistan and WB Engineers was formed under the direction of General Raymond A. Wheeler.[196]This group proposed a comprehensive plan for the development of the water resources on joint basis, but no progress was made towards its settlement. There was an agreement on division of water between the two countries.[197]General Wheeler has prepared the Bank proposal with the following elements.[198]

---

[191] Ibid.

[192] The World bank, "Indus Water Treaty," *World affairs*, Vol: 133, No: 4(Winter-1960): 99.

[193]Khan, "Indo-Pakistan Water Disputes," 329.

[194] Ibid.

[195]Ibid., 330.

[196]General Wheeler was retired as a Chief of engineers in US Army. He joined the WB in 1949 and provided technical assistance in resolving water dispute between Pakistan and India.

[197] The World bank, "Indus Water Treaty", World affairs, Vol: 123, No: 4(Winter-1960), 100

[198] Ibid.

a. The waters of three Eastern Rivers[199] should be for the use of India and,

b. The waters of three western rivers[200] should be for the use of Pakistan and,

c. Existence of a transition period[201] and the payment for the construction of link canals.

India accepted the proposal but Pakistan was not ready to accept the proposal because no share was allocated to Pakistan from Eastern Rivers.[202] Pakistan was of the view that WB proposal is closer to Indian demand.[203] It favoured India by legalizing the withdrawal thus impairing the interests of Pakistan. It would not be able to meet the shortages of water during critical periods.[204] Thus, it violates the basic principle of international law i.e. equal apportionment of water.

After series of negotiations it was found that the WB's assumption of enough water in Indus Rivers for the future needs of two countries was not well founded. On May 21st, 1956 WB issued an aide-memoire and admits the shortages in *rabi* season.[205]Therefore, it suggested an adjustment in the proposal in order to assure Pakistan of timely supplies during *rabi* and *kharif* season.[206]

Pakistan was reluctant to accept the proposal as it feared that India would not give enough finance.[207] On the other hand, India was not ready to pay for the storage facilities and, refused to go beyond the original WB's proposal. In order to resolve the deadlock, WB decided

---

[199]Ravi, Beas and Sutlej.

[200]Indus, Chenab and Jhelum.

[201] It is a period during which Pakistan would construct a system of link canals. The purpose of this link canal is to transfer water from the Western Rivers for irrigation purposes before they met eastern rivers.

[202] Pakistan's claim over the waters of eastern Rivers was justified on the basis of historic uses. The basic principle requires that all riparians should recognize the interests of other riparians. Moreover the principle of equal apportionment of water is considered as a backbone international law regarding sharing of waters of rivers.

[203]Hussain, *Political and Legal Dimensions*, 121.

[204]*Aide-Memoire*, 21 May 1956, para. 8-9.

[205]Ibid., para 6

[206] The adjustment was regarding the construction of storage facilities on the western rivers to be paid by India.

[207]Hussain, *Political and Legal Dimensions*,144

to ask India and Pakistan to prepare separate report in order to deal with issue of financial support.[208]In July 1958, Pakistan proposed the construction of two dams for replacement and development purposes at Jhelum and Indus River respectively.[209]It also proposed the construction of three smaller dams and a series of link canals. The estimated cost for the above work was $1.12 billion. India objected the plan on the basis of excessive cost of replacement works and suggested that link canals falls in the category of replacement works.[210]

To break this deadlock, President and Vice President of the WB again visited India and Pakistan in 1959.[211] The Bank submitted its draft which covered a number of areas. The daft was named as Heads of Agreement and it covered following areas i.e. division of the Rivers, works on Western Rivers and, Indus Basin Development Commission (IBDC).[212]

After addressing reservations of both sides, a final draft of treaty was prepared in 1960 which ultimately led to the conclusion of IWT on September 19, 1960. The role of WB in the conclusion of treaty was suspicious as WB is the only party in this treaty while all other treaties are between states. The proposed plan of WB was well according to Indian wishes and as US wanted India to be an ally because at that time US was engaged in a cold war. Therefore, similarity between WB proposal and Indian plan shows Washington's intention to drag India into Western fold.

---

[208]Ibid.

[209]Ibid., 145.

[210]G.T. Keith Pitman, "The Role of World Bank in Enhancing Cooperation and Resolving Conflict on International Water Courses: The Case of the Indus Basin," World Bank Technical Paper, No. 414 (1998):162.

[211] Mirza, "Indus Water Disputes,"239.

[212]The Agreement concludes the following points: 1. a system of replacement and development works in Pakistan without Indian participation and agreement. 2. A 10-year transition period and some additional Indian withdrawals. 3. an Indus Basin Development Commission with a neutral Chairman. 4. An *ad hoc* but fixed financial contribution by India. 5. Indus Basin Development Fund to be established and administered by the Bank.

1.4. Conclusion of Indus Water Treaty

IWT was concluded in 1960 between Pakistan and India. WB was the guarantor of the Treaty. The aim of the IWT was to prevent dispute over the distribution of water in near future. According to the IWT, three eastern rivers (Ravi, Beas and Sutlej)[213]were given to India and, three western rives (Indus, Jhelum and Chenab)[214] were awarded to Pakistan.

Apart from WB, Australia, Canada, Germany, New Zealand, Britain and, the United States of America were also included in Indus Basin Development Fund Agreement (IBFD).[215] It was signed on September 19, 1960. A loan agreement was also signed on the same day.[216]The Indus Basin project also included the construction of Mangla and Tarbela Dams on Jhelum and Indus River respectively along with barrages to carry water to the areas which were earlier irrigated by the waters of Eastern Rivers.[217]

According to the IWT, the waters of Eastern Rivers shall be available for the use of India without any restraints.[218]Pakistan was under an obligation to let flow the waters of Eastern Rivers in the reaches where these rivers flow in Pakistan except for domestic, non-consumptive[219], and agriculture uses.[220] The waters flowing in Pakistan of any tributary in its

---

[213] Article I (5), IWT, 1960.

[214]Ibid., Article I (6).

[215]Rabia Aslam, "Pakistan's Water Vulnerability and the rise of Inter-State Conflict in South Asiam,"*Forman Journal of Economic Studies*, Vol. 9 (2013): 23. (Hereinafter Aslam, "Paistan's Water Vulnerability," 23)

[216]AG .Noorani, "A treaty to Keep," *Frontline,* April 13-26, 2002.

[217]Chakraborti and Nasir, "Indus Basin Treaty," 56.

[218]Ibid., Article II (1).

[219]Article 1(11) of IWT, 1960 defines non-consumptive use. It says that "the term Non-Consumptive Use means any control or use of water for navigation, floating of timber or other property, flood protection or flood control, fishing or fish culture, wild life or other like beneficial purposes, provided that, exclusive of seepage and evaporation of water incidental to the control or use, the water (undiminished in volume within the practical range of measurement) remains in, or is returned to, the same river or its Tributaries ; but the term does not include Agricultural Use or use for the generation of hydro-electric power."

[220]Ibid., Article II (2 & 3).

natural course shall be available for its unrestricted use but it doesn't give her any rights to any of the releases by India.[221]

Pakistan shall have a right on the unlimited use of the waters of Western Rivers.[222] India is under an obligation to let flow the waters of these rivers without any interference.[223] Under treaty India was allowed to use the waters of western rivers with certain restrictions. It can also generate hydro-electric power.[224] Except for the generation of hydro-electric power, India is not allowed to store any water of the western rivers.[225]

It is compulsory for both the parties to exchange data with respect to flow and utilization of waters of the Rivers.[226] IWT doesn't mention any provision regarding the breach of Treaty but it does mention about its modification from time to time when needed.[227]

It further provided for future cooperation[228]and recognized the common interests of both states in the development of Rivers and should declare their intention through mutual agreement regarding cost incurred, engineering works on the Rivers, and exchange of data.[229] It provides a principle of prior-notification in order to inform the other party about all the works on the Rivers. This principle is also recognized under Customary International Watercourse Law (CIWL).[230]

---

[221]Ibid., Article II (4).
[222]Ibid., Article III (1).
[223] Ibid, Article III (2).
[224]Ibid., Article III (2) d.
[225] Ibid, Article III (4).
[226]Ibid., Article VI.
[227]Ibid., Article XII (3).
[228] Article VII, IWT 1960.
[229] Ibid, Article VII (1) a and (2)
[230]Muhammad Siyad A C, "Indus Waters Treaty and Baglihar Project: Relevance of International Watercorse Law", *Economic and political weekly* Vol 40, No 29 (July 16-22, 2005) 3145. (Hereinafter Siyad A C, "IWT and Baglihar Project," 3145.)

1.5. Water in Post-Indus Water Treaty Era

After signing IWT in 1960, it was expected that once for all the water disputes were over but the case was not the same.[231] The distribution of water between the two States was effected by 1965's war. In 1965, India has stopped the water of three eastern tributaries to the Indus i.e. Ravi, Beas and, Sutlej. This act has caused serious damage to the crops in Pakistan that were about to be harvested in August and September 1965. These tributaries were released again in January 1966.[232]

The matter was taken to PIC but the Commission failed to provide any solution.[233]According to IWT, if the governments fail to resolve the issue then it can be taken to CoA but no such action was taken in this case.[234]

Pakistan also completed Mangla and Terbela Dam projects in 1970 and 1976 respectively as provided in the Indus Basin Project.[235]However, the problem started in 1970's when India decided to build dams on Western Rivers for the generation of hydroelectric power as provided by the IWT.[236] India has allegedly violated the terms of IWT by constructing Salal Dam, Baglihar Dam (Baglihar Hydroelectric Power Project),Wullar Barrage/tulbul Navigation project, Kishanganga Dam, NimoBazgo and Chutak Dams. The detail analysis of these disputes will be discussed in the second chapter.

---

[231] Kulz, "Further water disputes," 718.
[232] Ibid.
[233] Article IX , IWT, 1960.
[234]Ibid., Article IX (5), Annexure G.
[235] The Indus Basin project also included the construction of Mangla and Tarbela Dams along with barrages to carry water to the areas which were earlier irrigated by the waters of Eastern Rivers
[236] Article III (2)d, IWT 1960.

1.6. Unsettled Problems

Increase in water strain since early 1990s has brought IWT under stress and its survival in danger. The treaty fails to address the issue of division of shortages in dry years between India and Pakistan, and the cumulative impact of storages on the flows of River Chenab into Pakistan.[237]

Furthermore, issues regarding climate change, melting of Himalayan Glaciers; water shed management, ground water international reforms, and population growth has not been discussed in the Treaty. It is also silent on TEIA which was introduced in the Stockholm Declaration on Human Development 1972 and Rio Declaration on Environment and Development 1992.[238]

Furthermore, India is allowed to use the water of Western Rivers for the generation of HEPP in addition to domestic, agriculture and, non-consumptive use.[239] No such permission has been granted to Pakistan with respect to Eastern Rivers. Pakistan is only allowed to use waters of Eastern Rivers for domestic, agriculture and non-consumptive use.[240]

The water issue is also linked with Kashmir. The Jhelum and the Chenab flow into Pakistan within disputed territory. India, having a physical control over these waters can interrupt the supplies if needed. The unsettled dispute of Kashmir is disturbing for Pakistan. India cannot utilize those waters due to the nature of land but can store them and thus damage Pakistan.[241]Therefore, the importance of Kashmir due to its rivers is undeniable as it will not only decrease the cooperation between India and Pakistan but also hinder water rights.

---

[237]United Nations Development Program, "Development Advocate Pakistan", Feb, 1, 2017.

[238] The Treaty permitted India under strict conditions to construct run-of-the river hydropower projects but was largely silent on sharing of transboundary environmental impact assessment on the downstream state.

[239] Article III (2), IWT, 1960.

[240]Ibid., Article II (3).

[241]Khan, "Indo-Pakistan Water Disputes,"324.

Conclusion

In the view of above discussion, it is concluded that the Partition of Punjab by the British Government was in violation of basic principle i.e. to divide the Punjab on the basis of adjacent Muslim and non-Muslim majority population because Radcliffe awarded Muslim majority areas to India and thus diverted from the purpose for which PBC was formed.

This partition was the main reason behind Indo-Pak water disputes as it made Pakistan dependent on India in case of irrigation and later on it was proved when India stopped the water in 1948. This stoppage of water was illegal and against the norms of international law. It is also concluded that giving the control of eastern Rivers to India was well according to Indian wishes and we can say that it was in her favour. The role of the WB in conclusion of the Treaty is also suspicious as WB is only party to this Treaty.[242]All other water sharing treaties are between the respective states.

Moreover, IWT is a partitioning Treaty instead of a water sharing treaty as it divides the Indus Basin River between India and Pakistan.[243] It was concluded to avoid the water conflicts between two nations but it failed to do so. The analysis of the Treaty will be the point of discussion in the coming chapters and we will also discuss the violation of the treaty provisions by India in lieu of hydropower projects on Western Rivers.

IWT is about the use of tributaries but it doesn't provide any mechanism related to the groundwater use, changes in flow due to climate change and changing domestic demand due to the increase in population. All these issues will be discussed in the coming chapters.

---

[242] Mary Miner, Gori Patankar, Shama Ghamar and David J. Eaten, "Water Sharing between India and Pakistan: A Critical evaluation of Indus Waters Treaty," *Water International,* Vol 34, No 2 (June, 2009):204.

[243]Hussain, *Political and Legal Dimensions*,188.

CHAPTER TWO: CASE STUDY OF INDIAN HYDROPOWER PROJECTS ON WESTERN RIVERS

2. Introduction

Under IWT India is allowed to construct run of river plants on western rivers for the generation of hydroelectric power.[244]It has been noted that during past years India has started construction of number of hydroelectric power projects (HEPP) on western rivers which has resulted in controversies and violations.[245] The controversies and violations are due to the interpretation of provisions of treaty with respect to the design of dams and diversion of waters of Indus River.

The HEP doesn't deplete water but the issue facing by Pakistan is of the timings with respect to the flow of river. Being dependant on agriculture, it is important for Pakistan to receive water during planting season.[246]Therefore, the construction of dams could affect the flow of water.[247]Increase in number of these power projects can be used to deprive lower riparian from water in any particular season.[248]

Major source of water disputes is construction of HEPP by India. Pakistan has expressed its reservations with respect to the construction of these projects as their continuance construction will cause substantial damage to the flow of water to its rivers.[249] India has planned

---

[244] Part 1, (g), Annexure D, IWT 1960 defines run of river plants. It states that ""Run-of-River Plant" means a hydro-electric plant that develops power without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage.

[245]Dr..Shaheen Akhter, "Quest for Re-Interpreting the Indus Waters Treaty: Pakistan's Dilemma," Margalla Papers, (2011):23. (Hereinafter Akhter, "Quest for re-interpreting,"23.)

[246]Dr. Noor-ul-Haq, "Pakistan's Water Concerns," (Oct 31, 2010): 13.

[247]John Briscoe, "War or Peace on the Indus?," *The News International*, April 3, 2010.

[248]Ali Raza Kalair, Naeem Abbas, Qadeer ul Hassan, Esmat Kalair, Anum Kalair and Nasrullah Khan, " Water, Energy and Food nexus of Indus Waters Treaty and Water Governance," Water-Energy Nexus, Vol 2, Issue 1 (June 2019): 17.

[249]Hussain, "*Political and Legal Dimensions,*", 315.

to construct a large number of dams on western rivers; some are at conceptual stage while others are on advanced stages of planning.[250]

The chapter will discuss the alleged violations by India in terms of the construction of HEPP on western rivers thus resulting in the violation of IWT. It will also highlight the effects of the projects on the flow of water of the rivers allocated to Pakistan by Treaty. Moreover, the chapter will discuss the role of Permanent Indus Commission, NE and CoA in resolving these disputes and consequences in the case of termination of Treaty.

2.1. Transboundary impacts of Indian Hydro-Electric Power Projects

The projects on the western rivers have devastative environmental impacts. KHEPP project will adversely affect Gurez Valley and Neelum Valley in J&K and AJK (Azad Jammu and Kashmir) respectively.[251] It will displace more than 25,000 Dard Shin natives from the area of Gurez Valley and will reduce the river's flow in Pakistan up to 27%.[252]KHEPP will not only affect the flow of river in Pakistan but it also affects the power generation capacity of Neelum- Jhelum Hydroelectric Power Project (NJHEPP).[253]

---

[250] Ibid., 516-544.

[251] It will not only destroy the stream ecology of the River Neelum but will also be responsible for the extinction of some native fish and macro-invertebrate species resulting in a massive displacement of wildlife in Neelum valley.

[252]Dr. Waseem Ahmed Qureshi "The Indus Basin: Water Cooperation, International law and the Indus waters Treaty," *Michigen State International Law Review*, Vol 26: No 21, (2017): 27. (Hereinafter Qureshi, "The Indus Basin,"27).

[253] Ibid.

2.1.1. Exchange of Data of Indian Hydro-Power Projects

IWT provides for the exchange and sharing of data with respect to the projects on western rivers.[254]It is essential for Pakistan to know about the details of run of river projects in order that whether they are operating within the IWT or not. It has been noted that India has violated the said provision and failed to share the data of these projects which has created tensions between both countries.[255]The delay in exchange of data restrains Pakistan to review and adjudge the - compatibility of these projects.[256]

Under IWT, India is required to share the details of new projects six months prior to their commencement.[257] Being a co-riparian India is also under an obligation to provide the details of its civil works projects even on eastern rivers which will affect Pakistan as a downstream nation.[258] It is evident from the cases discussed below that India has violated its obligations.

2.2. Indian Hydroelectric Power Projects on Chenab River

Salal was the first dam constructed on Chenab River followed by the Baglihar dam.[259] If Salal and Baglihar were the only dams on Chenab River then it would not have affected the flow of rivers in Pakistan but this was not the case as India is planning to construct more dams.[260]

---

[254] Article VI, IWT 1960.

[255]India has failed to share data on projects like Baglihar, Wullar Barrage, Dul-Hasti, Uri-II, Kishenganga and NimooBazgo project.

[256]Akhter, "Quest for Re-Interpreting,", 30.

[257] Annexure D, part III, Clause 9, IWT.

[258]Ibid,. 31.

[259]Salal Hydroelectric Project was built on river Chenab near Reasi in Udhampur district of Jammu & Kashmir in India. Although, the plan was originally conceived in pre independent India, the planning of the project started in 1960s. The actual construction of the dam started in 1970s. The design of the project laid out a two-stage powerhouse with a total installed capacity of 690 MW (345 MW each).

[260]Shahid Ahmad, " Indus Water Treaty and Water Cooperation for managing apportioned Rivers-Policies, Issues and Options," *International Union for Conservation of Nature*, (2013), 1. (Hereinafter Ahmad, "Indus Water Treaty,"1).

Besides Salal and Baglihar dam, India has constructed Dal Husti dam on upstream of Chenab River,[261]and moreover intended to construct more dams on the said river.[262]The cumulative live storage of these dams will affect the flow of rivers in Pakistan especially in the dry season thus affecting Rabi crops.[263] So far no dam has been constructed by Pakistan on Chenab and the river inflows are being measured at the rim station of Head Merala.[264]

Mean annual flow of western rivers is 136.1 MAF (168 km) out of which Chenab River contributes about 19.2% to the average annual flows of the western rivers.[265] Any diversion of water by India due to the construction of HEPP will affect the flow of river in Pakistan especially in dry season.[266] Moreover, the upstream users are not allowed to take any decisions affecting the interest of other users in downstream areas.[267]Therefore, it needs a comprehensive hydrologic study under IWT to avoid conflict over Chenab water.[268]

---

[261] It is a 390 MW hydroelectric power plant in Kishtwar district of Jammu and Kashmir, India. The power plant is a run-of-the-river type on Chandra River, a tributary of Chenab River, in the Kishtwar region. It consists of a 70 m (230 ft) tall gravity dam which diverts water through a 9.5 km (5.9 mi) long headrace tunnel to the power station which discharges back into the Chenab. The project provides peaking power to the Northern Grid with beneficiary states being Jammu and Kashmir, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Rajasthan, Delhi and Union Territory of Chandigarh. It was constructed between 1985 and 2007.

[262]Swalkot dam in Jammu and Kashmir, Bursar dam at Marwah Tehsil in Jammu and Kashmir, Pakuldul dam at Marusudar River (tributary of River Chenab). Miyar dam, Lower Kalnai, and Ratle Dam.

[263] Live storage means the corresponding volume of water.

[264]Merala Barrage is the rim station at river Chenab and is, therefore of paramount importance in all the water regulatory matters. All downstream stations are directly connected with the information supplied by this station. It is located at 32°-40/ N and 74°-29/E.

[265]Ahmad, "Indus Water Treaty,"2.

[266]Ibid., 2.

[267]Hungry vs. Solovakia, ICJ, 1997.

[268] Article VI (2) IWT states that "If, in addition to the data specified in Paragraph (1) of this Article, either Party requests the supply of any data relating to the hydrology of the Rivers, or to canal or reservoir operation connected with the Rivers, or to any provision of this Treaty, such data shall be supplied by the other Party to the extent that these are available."

2.2.1. Dispute over the Construction of Salal Dam

The first controversy after the conclusion of IWT was Salal Dam. Pakistan objected to the design and storage capacity of the dam.[269]The Indian Indus Water Commissioner (IIWC) had not provided with the adequate information regarding the design of the dam and was reluctant to give the details of the project on their meeting in July, 1970.[270] Moreover, it was alleged by Pakistan's Commissioner that India is using delaying tactics and expressed its desire to solve the matter under Article IX (1) of IWT.[271]

Pakistan's then Foreign Affairs Minister formally took the matter in February, 1975 because before this the IIWC had refused to talk at Commissioners level and wanted to take the matter by both governments.[272]The IIWC conveyed certain changes in the design of the plant to Pakistan's government but the proposed changes have further aggravated the situation.[273] The modified design of the plant has violated the provisions of Annexure D of IWT 1960.[274]

a. Objections of Pakistan on Salal Dam

According to Pakistan, the design was in violation of Part 3, Annexure D of IWT 1960.[275]India wanted to construct 12 gates measuring 50 feet wide and 40 feet high for the purpose of controlling floods.[276] Pakistan believes that India was exaggerating the threat in order to justify

---

[269]Nausheen Wasi, "Harnessing the Indus Waters Perspectives from Pakistan," *IPCS Issue Brief*, No. 128 (September 2009):2.

[270] Ibid.

[271] Article IX (1) of IWT 1960 states that (1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavor to resolve the question by agreement.

[272]Hussain, "*Political and Legal Dimensions*," 217

[273] Ibid.

[274]Para a, d, e and f of Annexure D, IWT 1960.

[275] Part 3, 8 (a) states that "The works themselves shall not be capable of raising artificially the water level in the Operating Pool above the Full Pondage Level specified in the design."

[276]Azhar Ahmad, "Indus Waters Treaty A Dispassionate Analysis," *Policy Perspectives*, vol 8: No 2 (July-December 2011), 78.

the installation of gates.[277]India has also given justifications regarding the design of the dam in fear of possible threat of earth quakes and mud-clogging.[278]

Pakistan has also objected to the construction of sluices.[279] The construction of said sluices was in violation of Part 3 of Annexure D.[280]Pakistan was of the view that the said sluices were unnecessary and since Salal Dam didn't have a live storage capacity it didn't require sediment control.[281]

Pakistani Commissioner was of the view that Salal Dam was at such site that it didn't require a gated spillway and the spillway was in violation of part 3, Annexure D of IWT.[282]IIWC had defended the position that the absence of the gated spillway would increase the cost of the project.[283] The argument was irrelevant as IWT has laid down the criteria with respect to the design of the dam.[284] Moreover, the design of the proposed dam raised the level of the intakes by 13.5 feet below the full reservoir level, which is also the dead storage level, in violation of criteria set by IWT.[285]

---

[277] Pakistani experts put the maximum discharge of water at 4.5 Lac cusecs and according to India the said discharge was 8 lac cusecs at the point where India decided to construct dam.

[278]Hussain, "*Political and Legal Dimensions*," 218.

[279] A sliding gate or other device for controlling the flow of water in a lock gate.

[280] Part 3, Paragraph 8 (d) states that "There shall be no outlets below the Dead Storage Level, unless necessary for sediment control or any other technical purpose ; any such outlet shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the works."

[281] The sediment is present in the dead storage of dam, it consists of gravels, clay, sand, rocks which is known as sediment particles. Due to silting capacity of live storage of reservoir decreases rapidly as well as silt also effects on the durability of structure of dam.

[282] Part 3, Paragraph 8 (e), Annexure D states that "If the conditions at the site of a Plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design and satisfactory construction and operation of the works."

[283]Hussain, "*Political and Legal Dimensions*," 219.

[284]Paragraph 8, Annexure D, IWT 1960.

[285]Ibid., Paragraph 8 states that "The intakes for the turbines shall be located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design for the designated range of the Plant's operation."

After a series of talks, India and Pakistan succeeded in finalizing an agreement.[286]After the agreement the construction of the project was given to National Hydroelectric Power Corporation (NHPC).[287] Stage-1 of the project was completed in 1987 and the second one was completed in 1993 with an installed capacity of 345 MW each.[288]

2.2.2. Baglihar Dam

India started a construction of a 450 MW dam at a tributary of Chenab River.[289]Baglihar is a run-of-river project in the north eastern state of J&K.[290] It has a capacity of producing 450 MW in its first stage and with 900 MW on its completion. It was another attempt to control the flow of Chenab. It was first conceived in 1992.[291] Construction of the said dam was started in 1999 by NHPC. The proposed dam was a concrete gravity type and was heighted 144.5m with a live pondage of 37.5 million cubic meters.[292]It came under discussion in 1992 when Pakistan claimed that India has failed to provide proper information regarding the project and Pakistan further

---

[286] According to the terms of an agreement the height of the dam was fixed at RL 1600 feet. The iron gates were reduced in height to 30 feet, and six sluices were to be installed at the height of 1365 ft which were to be closed with concrete plugs one year after filling the reservoir.

[287]NHPC is an Indian Hydropower generation company that was incorporated in the year 1975 with a purpose to plan, promote and organize an integrated and efficient development of hydroelectric power in all aspects.

[288]Zubair Ahmed Dar, "Power Projects in Jammu and Kashmir: Controversy, Law and Justice," *Harvard Law and International Development Society*, (2011-2012): 8. (Hereinafter Dar, "Power Projects in Jammu and Kashmir,"8).

[289] Article 1(2) of IWT 1960 defines the term tributary. "The term tributary of a river means any surface channel, whether in continuous or intermittent flow and by whatever name called, whose waters in the natural course would fall into that river, e.g. a tributary, a torrent, a natural drainage, an artificial drainage, a *nadi,* a *nallah,* a *nai,* a *khad,* a *cho.* The term also includes any sub-tributary or branch or subsidiary channel, by whatever name called, whose waters, in the natural course, would directly or otherwise flow into that surface channel."

[290] Part 1, Para 2 (g) Annexure D defines run of river projects that means a hydro-electric plant that develops power without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage.

[291] BHPP, was located in Chanderkote in Doda district of J & K at a location 150 km upstream of the international boundary on the river Chenab

[292]Khattak, "World Bank Neutral Expert's Determination,"92.

claimed that the design of the said dam was not according to the criteria provided by IWT 1960.[293]

a. Alleged Violations with Respect to Baglihar Power Project

Pakistani concerns regarding the dam were initially about its design that provides for gated spillways (submerged gated spillways or huge gated structure).[294] It was alleged that these spillways will affect the flow of water thus reduces its quantity by 7000 cusecs per day.[295]

Pakistan claimed that the BHPP is inconformity with the criteria provided by Annexure D of the IWT.[296]It was alleged that the dam has the capacity of artificially raising the water level in the operating pool above the full pondage level.[297]According to the IWT, the project should not be capable of artificially raising the level above the full pondage level.[298] Secondly, Pakistan claimed that Baglihar pondage exceeded twice the pondage required for firm power.[299]The excess of Baglihar pondage was in violation of the criteria provided by the treaty.[300] Pakistan has also claimed that that the design of the Baglihar plant was not based on correct estimation with respect to the discharge of maximum flood.[301]

The most important objection was related to the spillways of the dam as it will allow India to control the flow of water. India has proposed an orifice spillway or drawdown flushing

---

[293]Part 3, Paragraph 8 of Annexure D deals with the criteria for the construction of Run of River projects.

[294]Siyad A C, "Indus Waters Treaty,"3147.

[295] Ibid.

[296] Pakistan claimed that the Baglihar plant did not conform to criteria (a), (c), (e) and (f) of paragraph 8 of Annexure D to the Treaty.

[297] Part 1, Annexure D, paragraph 2 (f) defines "Operating Pool" as the storage capacity between Dead Storage level and Full Pondage Level whereas the same para (d) define the "full pondage level " as the level corresponding to the maximum pondage (Live Storage of only sufficient magnitude to meet fluctuations in the discharge of the turbines arising from variations in the daily and the weekly loads of the plant).

[298]Part 3, paragraph 8 (a), Annexure D, IWT 1960.

[299] Ibid, part 1, paragraph 2 (i) Annexure D define firm power. It states "that Firm Power means the hydro-electric power corresponding to the minimum mean discharge at the site of a plant...." Or the power produced by the plant with no risk.

[300] Ibid, Part 3, Paragraph 8 (c), Annexure D.

[301] Salman M. A Salman, "The Baglihar difference and its resolution process- A triumph for Indus Waters Treaty," *Water policy*, 10 (2008):111.

spillway for the disposal of flood.[302] Moreover, the treaty allowed the installation of gated spillways but Pakistan rejected it on the ground that it was not located at highest level as required by the treaty.[303]

After series of requests, Indian Commissioner met with Pakistani Commissioner in February 2003 and proposed to refer the matter to the third party.[304] India rejected the proposal as it was reluctant to involve third party because it would not be possible for India to dictate its term in the presence of third party.[305] In the meanwhile, Pakistani government served a notice to India to meet three conditions i.e. all the works on the dam be suspended till the satisfactory solution of the issues, on-site inspection, and both parties should reached at the agreement till 30th September, 2003.[306]Further Pakistan stated that failure to fulfill the following conditions will reserve its right to approach NE.[307]

From 2000 to 2005 there had been a series of talks between Indian and Pakistani commissioner regarding the design of the dam but they were not result oriented.[308] Finally on 25th April 2005, Pakistan approached the NE under Article IX (2) of IWT 1960.[309]

---

[302] Orifice spillways are in vogue for the dams in the hilly regions where the spillway has to serve the dual function of flood disposal and flushing of sediment through the reservoir.

[303] Part 3, Paragraph 8 (e), Annexure D of IWT provided for gated spillways. It states that "If the conditions at the site of a Plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design and satisfactory construction and operation of the works."

[304]Hussain, "*Political and Legal Dimensions*," 232.

[305]Ibid., 233.

[306] Ibid.

[307] On Inspection of the site in October 2003, Pakistan found that the design of the plant is in the violation of treaty.

[308]Hussain, "*Political and Legal Dimensions*," 232-240.

[309] Article IX (2), IWT 1960 is about the settlement of disputes. It states that if the commissioner failed to reach on an agreement, then the matter will be referred to the Neutral expert on the request of either commissioner. If the Neutral Expert is of the opinion that difference should be treated as a dispute then it shall be dealt accordingly.

b. Decision of Neutral Expert on Baglihar Dam

In 2005 WB appointed a NE Raymond Laffitte (a Swiss Civil Engineer) as Baglihar dam was clearly a complex engineering issue and required an engineer to address the issue.[310] International Centre for the settlement of Investment Disputes (ICSID) was asked by the WB to coordinate between the two parties.[311] The NE appointed assistant as engineer and legal advisor with the approval of the parties.

Both the parties invoke the principles of interpretation mentioned in the Vienna Convention on Law of Treaties (VCLT) 1969.[312] Article 31 of the VCLT provides that the interpreter of the treaty is under an obligation to interpret the treaty in good faith and to give ordinary meaning to the terms of the treaty in the light of its object and purposes.[313] Moreover, if the meaning is ambiguous or absurd, the interpreter is allowed to have recourse to Article 32 of the VCLT, which talks about supplementary means of interpretation.[314]

India is not a signatory of the convention, whereas Pakistan has signed the convention but didn't ratify it.[315] However the convention widely reflects the rules of customary law with respect to its interpretation.[316]

---

[310] Sergei Vinogradov, Patricia wouters, and Patricia Jones, "Transforming Potential Conflict into Cooperation Potential: The Role of International Water Law," UNESCO, SC-2003/WS/67, 22.

[311] ICSID is an international arbitration institution established in 1966 for the settlement of legal dispute and conciliation between international investors. Pakistan became a party to this convention in 1966 whereas India is not the signatory of the said convention.

[312]Article 31 and 32 of Vienna Convention on Law of Treaties 1969 deals with General rule of interpretation and supplementary means of interpretation respectively.

[313] Article 31 (1) of VCLT 1969 states that "A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."

[314] Article 32 of VCLT 1969 states that "Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31: (a) Leaves the meaning ambiguous or obscure; or (b) Leads to a result which is manifestly absurd or unreasonable."

[315] Pakistan has signed the Convention in 1970 but it has not ratified the same.

[316] Territorial Dispute (Libya vs. Chad) ICJ Reports, para 21-22, 1994 and Oil Platforms (Iran vs. US) 1996.

In the Kishanganga case, Pakistan relied on supplementary means of interpretation with emphasis on preparatory works and circumstances of the conclusion of treaty whereas India relied on general rule of interpretation.[317]India was of the view that the object and the purpose of IWT were mentioned in its preamble and it stressed on 'complete and satisfactory utilization' of River Indus.[318] Therefore, it should be interpreted in the light of its preamble. Pakistan was of the view that the preamble is not a substantive part of the treaty and hence it cannot control the substantive provisions of the treaty.[319]Pakistan also outlined the circumstances which led to the conclusion of treaty.[320]

NE supported Indian stance with respect to the interpretation of treaty.[321] He held that the provisions of treaty should be interpreted in there ordinary meaning and in good faith and according to him common intention of the parties should be instrumental in the interpretation of rights and obligations mentioned in Annexure D of the treaty.[322]

He indicated the rule of science and state of art practices and justified the outlets incorporated in the Indian Design on the basis of said practice.[323] He also invoked the Bulletin

---

[317]Hussain, "*Political and Legal Dimensions*," 245.

[318] The preamble of the IWT states that "The Government of India and the Government of Pakistan, being equally desirous of attaining the most complete and satisfactory utilization of the waters of the Indus system of rivers and recognizing the need, therefore, of fixing and delimiting, in a spirit of goodwill and friendship, the rights and obligations of each in relation to the other concerning the use of these waters and of making provision for the settlement, in a cooperative spirit, of all such questions as may hereafter arise in regard to the interpretation or application of the provisions agreed upon herein, have resolved to conclude a Treaty in furtherance of these objectives....."

[319] Hussain, "*Political and Legal Dimensions*," 247.

[320] The treaty was concluded to avoid future conflicts and had limited the possibility of both the states to interfere with waters allocated to each other. The treaty also provides detail criteria with respect to the future projects to avoid conflicts. The intention of the treaty was to ensure the non-interference of India with the waters of western rivers and to control this; the treaty has provided limitations with respect to the run-of-river project so that India has a minimum capability to interfere with the flow of river. It was a treaty signed between hostile countries which don't trust each other. Therefore, the intention of the treaty was clear i.e. to ensure the security of the flow of western rivers.

[321]Adeel, "Indus Water Treaty,"5.

[322] Ibid.

[323]Hussain, "*Political and Legal Dimensions*," 250.

no. 115 of the ICOLD in support of drawdown flushing.[324] The three out of four objections raised by Pakistan were accepted by NE and the fourth objection regarding the installation of low level spillway on the basis of hydrology, sediment control, topography, and seismography was rejected.[325]

Both states claimed the victory. The then Pakistan's Minister for Water and Power, Liaqat Jatoi stated that India was under a moral obligation to accept the decision.[326] Whereas, Indian minister Safuddin Soz, observed that the changes suggested by the NE were minimal and the structure of the dam remained intact.[327]

The decision of the NE with respect to spillways was in violation of the treaty. It was a major objection that was raised by the then President of Pakistan Pervez Musharaf.[328]Pakistan could have asked the WB to reopen the case on the issue of spillways but it didn't happen. Soon after the decision of the NE, India filled the Baglihar Dam reservoir. Despite of repeated requests by Pakistani Commissioner India didn't give information with respect to the initial filling of the dam.[329] Pakistani Commissioner has protested against the reduction in the flow of water at Merala.[330] India also refused to share hourly data for the initial filing of dam. Moreover, the filling of the dam added fuel to fire and there was an apprehension that India would use the

---

[324]Bulletin is the heart of ICOLD activity and ICOLD is an NGO formed in 1928 for the sharing of professional information and knowledge of the design, construction, maintenance, and impact of large dams. On a single precise subject, the experts have met during 3 to 5 years and they produced a « state of the art » with recommendations for engineers from all over the world and ICOLD Bulletin no 115 provides that "Bottom outlets may be used for under sluicing of floods, emptying of reservoirs, sluicing of sediments and preventing sediment from entering intakes."

[325]Hussain, "*Political and Legal Dimensions*," 255.

[326]Ijaz Hussain, "Not Treated according to the Treaty", The Daily Times, 28th February, 2007.

[327] Ibid.

[328]Ibid.

[329]Ali, Bukhari, and Siddiqui, "Analysis of Indus Waters Treaty,"232.

[330] The then Pakistan Indus Water Commissioner Syed Jamat Ali Shah was alleged that the filling was in violation of treaty and despite of the assurance given by Indian Commissioner the water level started declining at Marala and went to a record low of 23,000 cusecs. He added that water level was fluctuating between 30,000 and 35,000 cusecs, still far away from the original 55,000 mark.

capacity to manipulate the flow of water as upper riparian. The compensation demanded by Pakistan was refused by India and thus it fails to make the loss.

In 2010, the differences on the initial filling were resolved in assurance that India would be careful in future but Pakistan's concerns with respect to the reduction of the flow of Chenab remain intact. Construction of BHEPP along with other storage projects on river Chenab poses a threat to Pakistan's waters.[331] After invoking the NE in Baglihar dam's case now whenever India will decide to launch a project on Indus Basin, Pakistan will approach a NE for its judgment and adjustments.[332]The legal proceedings under the treaty are time taking during which India formalizes its construction which shows the ineffectiveness of the treaty.[333]

2.3. Baglihar Project Under International Watercourse Law

The applicable law before the CoA is IWT itself, but the Treaty provides for the application of international conventions establishing rules that are expressly recognized by both nations. Customary international law (CIL) may also be applied for the interpretation and application of treaty.[334]The UNWC provides that a riparian state should avoid causing a significant harm to another state in utilizing international watercourses.[335]It prohibits significant harm and according to International Law Commission (ILC) there must be a real damage which has a detrimental effect on public health, property, and the environment of the other state.[336]

---

[331]Dar, "Power Projects in Jammu and Kashmir," 9-14.

[332]Adeel, "Indus Water Treaty,"5.

[333] Ibid.

[334]Annexure G, Para 29, IWT 1960.

[335] Article 7 (1) of Convention on the Law of the Non-navigational Uses of International Watercourses (UNWC), 1997 states that "Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States."

[336]Report of the ILC on Draft Articles on Watercourses, Year Book of the International Law Commission, 1988.

Pakistan objection to the BHPP was apparently based on Hormone doctrine for exclusive appropriation of the western rivers.[337] It further added that the structure of the gated spillways will allow India to manipulate the flow of water and will cause significant harm. The harm is considered as legal if it causes substantial damage, and the harm is considered as factual if it causes minor changes. Moreover, no-harm rule is accompanied by a principle of equitable utilization so it means that the harm can be tolerated if it doesn't causes inequitable utilization.[338]

Therefore, in case of BHPP it is a matter of harm as the gated spillways structure will deprive Pakistan from 7,000 cusecs of water daily and affect its irrigation system.[339]The right of equitable utilization is customary in nature and it prevails over no-harm rule. In *Hungry vs. Solovakia*, the court reaffirmed the customary status of the principle of equitable utilization of an international water-course. The court stated:

> Modern development of international law has strengthened this principle for non-navigational uses of international watercourses as well, as evidenced by the adoption of the Convention of May 21, 1997, on the Law of the Non-Navigational Uses of International Watercourses by the United Nations General Assembly.

Therefore, if harm is of such nature that it affects equitable utilization of water then that harm should not be caused as in the case of BHPP. The only installation of a plant will affect the flow of water.

---

[337] Siyad A C, "Indus Waters Treaty,"3150.

[338] McCaffrey. S C, *The Law, of International Watercourses: Non-Navigational Uses* (NewYork, Oxford University Press, 2001) 369.

[339] Siyad A C, "Indus Waters Treaty,"3150.

2.3.1. Reservations on other Projects on Chenab

Pakistan has shown severe reservations on India's intention to construct more HEPP projects on Chenab River which will include PakulDul dam 1000 MW (Mega Watt),[340]Miyar dam (120 MW),[341] Lower Kalnai (48 MW),[342]Ratle dam (850 MW),[343] Bursar dam (800 MW),[344] and Swalkot dam (1.906 MW).[345] These dams were discussed in a meeting at commissioner's level.[346]

Pakistani commissioner has requested India to provide data regarding the design of said dams but received no reply.[347] India has again failed to share data at planning stage of these dams. Pakistan has shown its major concerns and objections over Ratle dam, PakulDul dam and Lower Kalnai dam and the minor objections with respect to the remaining power projects.[348]Pakistan's objections to the Ratle dam were based on free board, spillway gates and

---

[340] The PakalDul dam is a proposed concrete-face rock-fill dam on the Marusadar River, a tributary of the Chenab River, in Kishtwar district of the Indian state of Jammu and Kashmir. The primary purpose of the dam is hydroelectric power generation. It will divert water to the south through a 10 km (6.2 mi) long headrace tunnel and into power station on the reservoir of the DulHasti dam, on the Chenab. The construction on the said dam was started in 2018 and its estimated date for opening is 2023.

[341]Miyar Hydro Electric Project (120 MW) is located on the Miyar River, a tributary of Chenab River in state of Himachal Pradesh. It is run-of-river scheme, which envisages diverting the flow by constructing a barrage, through a water conductor system to a surface power house near Udaipur town and finally discharging into Chenab River.

[342] It is a hydropower project on lower kalnai nalla, a tributary to river Chenab in Doda District of Jammu and Kashmir.

[343] The Ratle Plant is a run-of-the-river hydroelectric power station currently under construction on the Chenab River, downstream of the village of Ratle, near Drabshalla in Kishtwar district of the Indian state of Jammu and Kashmir. Former Indian Prime Minister Manmohan Singh and ruling Indian Congress leader Sonia Ghandi jointly inaugurated it.

[344] The Bursar HEPP is a storage project in which the flow of water can be regulated not only to the benefit of this project but all downstream projects i.e. PakalDul, DulHasti, Rattle, Baglihar, Sawalkot and Salal Hydroelectric Projects, thereby enhancing the potential of all downstream schemes. The dam site is located near village Pakal on river Marusudar which is one of the major tributary of river Chenab. The storage provided is intented to be used for additional power generation during lean flow months and releasing regulated flow in the downstream

[345] The Sawalkot Dam and HEPP, which is located in India, is being constructed across the Chenab River.. It is constructed for power generation and it has an installed capacity of 1.906 MW.

[346]Hussain, "*Political and Legal Dimensions*," 316.

[347] Ibid.

[348]Meena Menon, " Headway on Chenab Dams", *The Hindu*, June 2, 2016.

the intake structures, which it wants to be at highest level ,and if India go with the same design the flow of Chenab would be reduced by 40% at Head Merala.[349]

A three-member delegation headed by Permanent Indus Water Commissioner (PIWC) Syed Mehar Ali Shah visited India to inspect PakulDul and Lower Kalnai HEPP.[350] India has rejected Pakistan's objections over the said dams. Moreover, a nine member delegation was led by IIWC which arrived in Pakistan on August 29, 2018 to talk on controversial projects of PakulDul dam and Lower Kalnai.[351]It was the first meeting between both since Prime Minister Imran Khan took the oath. Pakistan has raised objections to the pondage and freeboard of Lower Kalnai,[352] and pondage, filling criteria and spillway of PakulDul dam, as the dam is three times larger than KHEPP.[353]

Pakistan demanded to reduce the height of water storage capacity of PakulDul dam, and further demanded to raise the height of spillway above sea level.[354]The meeting between the delegations was held in Lahore and it remained inconclusive as India has refused to accept the demands.[355]

It is pointed out that these dams are on different tributaries of Chenab River. India has promised to meet in March 2017 to change the design of dams but failed to fulfill the promise

---

[349]Hussain, "*Political and Legal Dimensions*," 317.

[350] "Pak delegation visiting India to inspect PakalDul, Lower Kalnaihydel power projects", *The Times of India*, January 27, 2019.

[351] Ali Waqar, "Pakistan's concerns over India's hydropower projects remain after opening round of talks", *Dawn*, August 29, 2018. (Hereinafter Waqar, "opening round of talks,")

[352] Pakistan has raised objections to its freeboard, pondage and intake of the dam. It is of the view that the depth of bridge girder and provision of freeboard should be close to 1 meter and considers 2 meter freeboard as 'excessive' as the dam provides for 2 meter freeboard.

[353] Pakistan is of the opinion that the tunnel spillway of PakalDul should be raised closer to the dead storage level because its placement is 40 meters below the dead storage level and it could allow drawdown flushing which is not permitted by the treaty. See Part 3, Paragraph 8 (e), Annexure D of IWT 1960.

[354]Raja Riaz, "Talks on PakalDul, Lower Kalnai dams inconclusive", *Arab News*, August 30, 2018.

[355] Ibid.

and instead of meeting Narendra Moodi, the then Prime Minister laid the foundation of PakulDul Dam in May, 2019 without addressing Pakistan's concerns regarding the design of the dam.[356]

2.4. Indian Hydropower Projects on Jhelum River

India has not only constructed hydropower projects on Chenab but also on Jhelum River in lieu of the permission granted to it by the IWT.[357] The heavy construction led to the reduction in the flow of river. The most controversial projects constructed by India on Jhelum River are Wullar Barrage/Tulbul Navigational project and KHEPP. It has been alleged that the design of the said dams was also in violation of the criteria provided by Annexure D of IWT, 1960.

2.4.1. Dispute of Wullar Barrage/ Tulbul Navigational Project

The dispute between India and Pakistan initiated again after India planned to construct another (HEPP) on Jhelum River. Pakistan called it as Wullar Barrage whereas India called it as Tulbul Navigational project.[358]The reason behind of giving it a name of Wullar Barrage is India's intention to use it for irrigation in violation of IWT.[359]India called it as Tulbul navigation project in order to emphasize that the project is for navigational purposes as provided by the treaty.[360]

The Tulbul Navigational project was conceived in 1980 and work began in 1984, and its purpose was to increase the water in the lake during the lean season (late October to mid-February) when there is less rainfall.[361]India informed Pakistan about the project in 1986 despite of the fact that it has to provide technical information at least 6 months prior to the construction

[356] Waqar, "Opening round of Talks,".
[357] Article III (2) (d), IWT 1960.
[358]Hussain, "*Political and Legal Dimensions*," 222.
[359] Article III (2), IWT 1960.
[360]Ibid., Article 1 (11`).
[361]Dar, "Power Projects in Jammu and Kashmir," 8-9.

of the project.[362] The project is 439 m long with a gated weir and under sluices. It has 12 m wide navigation lock and having a maximum discharge capacity of 50,000 cusecs and therefore, it might be possible to manipulate additional storage of 0.336 MAF water in the lake.[363]

Pakistan was of the view that India has violated the treaty as it prohibits both the parties to interfere with each other's waters.[364] It alleged that the construction of said dam will decrease the flow of river. Moreover, the treaty also prohibits from the construction of storage works on western rivers except for the purpose of generation of hydroelectric power.[365]The construction of the said project will result in the creation of storage on Jhelum River allocated to Pakistan and could affect the vast agricultural lands in Pakistani Punjab[366] Moreover, IWT is also silent as to how many power projects should be allowed to India for the generation of hydroelectric power because too much construction will lead to the reduction of flow of the western rivers.

India is allowed to construct an incidental storage on the Jhelum Main or the Chenab Main not exceeding 10,000Acre Feet (AF)[367] whereas the capacity of the Wullar Barrage is 30,000 AF.[368] The construction of the said project will effect Pakistan's availability of water especially during the Rabi season (October to March) when the river flows are reduced to one-fifth of the Kharif season.[369] The threats are serious if India decides to withhold water and it would also results in floods and droughts in Pakistan and effects Mangla dam.[370]

---

[362] Annexure E, Sub-paragraph 12, IWT 1960.

[363]Ali, Bukhari, and Siddiqui, "Analysis of Indus Waters Treaty,"231-232.

[364]Ibid., Article 1 (15)(b) states that "Any man-made obstruction to their flow which causes a change in the volume (within the practical range of measurement) of the daily flow of the waters....."

[365]Ibid.. Article III (4).

[366]Chakraborti and Nasir, "Indus Basin Treaty."58.

[367]Ibid,. Annexure E, sub-pargraph 8 (h).

[368]Dr Shahid Ahmed, "Indus Water Treaty and Managing Shared Water Resources for the Benefit of Basin States – Policy Issues and Options." IUCN, (2010):4. (Hereinafter Ahmed, "Indus Water Treaty,"4).

[369]Ibid., 5.

[370] The project, once completed will provide India to threat Pakistan by releasing water that could ruin the Triple Canals project i.e. Upper Jhelum canal, Upper Chenab Canal, and the Lower Bari Doab Canal. See Mirza. M Nasarullah, "Wullar Barrage," *Pakistan Horizon*, 47:1, (January 1994): 49.

It was alleged that one of the purposes behind the project is to make man-made lake which will help Uri I, Uri II,[371] and Jehlum power projects to generate electricity in lean season.[372] The treaty prohibits a man-made construction which affects the volume of water.[373]

Due to the severe protest, Indian government stopped the work in 1987.[374] The Commissioners of the both the countries negotiated to resolve the matter but failed to do so due to which Pakistan has threatened to recourse to the NE.[375]However, they agreed to refer the matter to their respective governments but till March 2012, there have been fourteen rounds of secretary level and the issue is still under consultation with India.[376] In May 2011, India has offered to modify the design of the dam but Pakistan has refused the same and asked India to abandon the project. [377]

Keeping in view the above violations, Pakistan should refer the matter to CoA instead of negotiations because the project will damage Pakistan's economy.

2.4.2. Construction of Kishanganga Hydroelectric Power Project

India is constructing KHEPP on a main tributary of Jhelum River (Kishanganga) in J&K, which is known as Neelum River after it enters into Pakistan.[378]It is located 160 Km upstream of Muzzaffarabad and involves a diversion of water through a 22 km long tunnel to the Bonar

[371] Both Uri-1 and Uri-II are HEPP located on Jhelum river in the area of Baramullah district J&K..
[372]Hussain, "*Political and Legal Dimentions*," 224.
[373] Article 1 (15)(b), IWT 1960.
[374]Ahmed, "Indus Water Treaty,"3.
[375] Article IX (2b), IWT 1960.
[376]Hussain, "*Political and Legal Dimensions*," 224.
[377]Ibid., 228.
[378]Ibid., 281.

Nallah.[379] It is a 330 MW project and according to Pakistan the said project is in violation of IWT as it causes a diversion of waters of Neelum River.[380]

Pakistan has raised objections over the said dam with respect to the structure of gate, height and size, diversion plan, storage capacity, power intake, and free board.[381] Pakistan has made efforts to resolve the dispute through bi-lateral negotiations at commissioner's level as provided by the Treaty but failed to resolve the same.[382] The two countries met in July 2010 and agreed to resort to the CoA.[383]Pakistan has resorted to CoA under Article IX (5), Annexure G of the IWT.[384]

2.4.3. Fundamental Objections to the Project

Pakistan and India have recourse to arbitration over the issue of KHEPP in 2011. Pakistan claimed that project will affect the flow of water particularly in the areas of AJ&K.[385] moreover, it will also affect the power generation capacity of NJHEPP on Neelum River, downstream of KHEPP.[386]The CoA has to decide two issues regarding Kishanganga dispute. The first issue was

---

[379] Bonar Nallah is another tributary of Jhelum River. Moreover the diversion will change the course of the river by about 100 Km and will then join it through the Wullar Lake near the town of Bandipur in Baramullah district.

[380] Fatima Riffat and Anam Iftikhar, "Water Issues and its implications over India- Pakistan Relations," *JPUHS*, Vol 28: No 2, (July- December 2015):14.

[381]Hussain, "*Political and Legal Dimensions*," 281.

[382]Ibid, 282.

[383] Ibid.

[384] Article IX (5) of IWT states that "A Court of Arbitration shall be established to resolve the dispute in the manner provided by Annexure G (a) upon agreement between the Parties to do so; or (b) at the request of either Party, if, after negotiations have begun pursuant to Paragraph (4), in its opinion the dispute is not likely to be resolved by negotiation or mediation; or (c) at the request of either Party, if, after the expiry of one month following receipt by the other Government of the invitation referred to in Paragraph (4), that Party comes to the conclusion that the other Government is unduly delaying the negotiations."

[385] According to the available data, it is estimated that, "the dry spell is likely to extend to eight months per year. The lack of water is going to have an adverse impact on the agriculture in over thousands of acres in Azad Kashmir, which are dependent upon the flow of River Neelum."

[386] Muhammad Rashid Khan, "Crucial Water Issues between Pakistan and India, CBMs and the role of Media," *A Research Journal of South Asian Studies*, 28:1 (January- June 2013): 215. (Hereinafter Khan, "Crucial Water Issues," 215).

about the diversion of Kishanganaga River into Bonar Madmatti Nallah. It was alleged that the said diversion was in violation of India's obligation towards Pakistan i.e. to let flow all the waters of Western rivers without any interference[387]and maintenance of natural channel.[388] In other words Pakistan alleged that the inter-tributary transfer of water is in violation of Article III (2) of IWT 1960.

As in Baglihar case, India relied on preamble which emphasizes on the most 'complete and satisfactory use' of the Indus Waters but it doesn't mean that it provides India unilateral rights of use or development. Therefore, the treaty doesn't give an absolute right to India for the construction of these projects because the construction is backed by the certain restrictions.[389]

Pakistan claimed that diversion of water would increase the catchment area in the violation of Treaty and would give India control over storage and release of water.[390]It also claimed that the said diversion is incompatible with para15 (iii) of Annexure D, IWT that doesn't allow permanent diversion of waters in order to create the potential for the generation of hydroelectric power.[391] It only allows diversion of waters of tributary of Jhelum River in case of emergency exit and in this case the diversion of KHEPP was not deemed as necessary.[392]

---

[387] Article III (2), IWT 1960 states that "India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (c) (ii) of Paragraph 5 of Annexure C) 1 in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof : (a) Domestic Use ; (b) Non-Consumptive Use ; (c) Agricultural Use, as set out in Annexure C ; and (d) Generation of hydro-electric power, as set out in Annexure D."

[388]Ibid., Article IV (6) states that "Each Party will use its best endeavors to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party."

[389] Annexure D, IWT 1960.

[390]Malik Muhammad Ashraf, "Violations of Indus waters Treaty", *Pakistan Today*, May 15, 2015.

[391] Para 15 (iii) of Annexure D, IWT states that "where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected."

[392]Ibid.

Article IV (6) of IWT provides the parties to maintain natural channels. It further provides that if the plant is located on a Tributary of Jhelum River and that tributary is used for agriculture and hydroelectric purpose then the water released can be delivered in to another tributary but it should not adversely affect the former tributary.[393]India is under an obligation to avoid obstructions to the flow of waters but KHEPP will damage the environmental ecology of the channel because of its diversion from the natural channels.[394]Moreover, India had neither carried an EIA nor provided with adequate information despite of repeated requests.[395]The project will also adversely affect the agricultural and power generating uses of Kishanganga/Neelum River and ultimately it will reduce power generation capacity of NJHEPP.[396]

The second dispute was regarding the dead storage level. Pakistan alleged that India is not allowed to bring the reservoir level of run of river plant below dead storage level, and to adopt drawdown flushing technique.[397]The said issue was not limited to KHEPP but to all run of river plants that India is planning to construct on western rivers.

2.4.4. Denial of Allegations by India

Indian experts denied allegations of diverting the waters of river Jhelum. India argued that the provisions of the treaty must be interpreted according to the purpose and objective of the preamble.[398]According to India, it provides for the "most complete and satisfactory utilization of

---

[393] Article IV (6) states that "Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party."

[394]Hussain, "*Political and Legal Dimensions*," 287.

[395] Pakistan relied on the Pulp Mills case to support its contention. See Pulp Mills on River Uruguay (Argentina v. Uruguay), *ICJ Reports*, 2010.

[396]*The Indus Waters Kishanganga Arbitration*, Partial Award, Permanent Court of Arbitration, (February 18, 2013) Hereinafter Kishanganga Arbitration, Partial Award)

[397]Hussain, "*Political and Legal Dimensions*," 288.

[398] Ibid.

waters" and it should interpreted in the light of same. This utilization allows India to use the full power generating potential of upstream stretch of Kishanganga River. Earlier in the Baglihar case India emphasized on the same point that the treaty should be interpreted in the light of its preamble and NE supported the same. But preamble is not the substantive part of the IWT and hence it doesn't control the provisions of the Treaty. It just outlines the purpose of the Treaty. Further it argued that Article III (2) of IWT allows India to use the waters of western rivers for the generation of hydroelectric power but it was discussed above that the said usage is not absolute as the Annexure D to IWT laid down the criteria for the construction of run-of-river plants.[399]

India was also of the view that KHEPP is in conformity with the criterion provided by Annexure D and that the Para 15 (iii) of IWT 1960 doesn't forbid from permanent diversion of the waters into another tributary, but said provision doesn't allow to divert the water into another tributary unless it is necessary to divert. The term "necessary" was defined in the Order for the Interim Measures, September 23, 2011 as required, needed or essential for a particular purpose.[400] The Order was consistent with India's interpretation of the text that diversion was justified for power generation.[401]

Moreover, India claimed that Para 15 (iii), Annexure D of IWT only protects existing uses in terms of agriculture and hydroelectricity and it requested Pakistan back in 1994 to give information regarding existing uses but it failed to specify the area. [402] The agriculture in the Neelum Valley is not dependent on the channels fed by side stream rather than

[399] Annexure D, IWT 1960.
[400] *Kishanganga Arbitration*, Partial Award , para 225-227.
[401] Ibid.
[402] Ibid., Para 206-209, 70 to 80, 225-227, 81-83, 232-238.

KHEPP.[403]Therefore it doesn't adversely affect the agriculture in Neelum Valley. The NJHEPP was announced in 2008 whereas KHEPP was conceived earlier when CWPC wrote a letter for the construction of Kishanganga project in 1960 and there were no preparatory works when India visited in 2008.[404]Pakistan's plea for restricting the uses of waters to its drainage basin was rejected by India on the grounds that Article III (2d), IWT doesn't prohibit the transportation of power outside the drainage basin.[405]India has also conducted EIA in 2007 and according to which KHEPP will not affect environment.[406]

As far as second dispute is concerned, India challenged the Court's jurisdiction on the ground that it was within the jurisdiction of NE. It said that a drawdown flushing was not known as sediment control practice in 1960 but since then it has become a state-of-the-art technique.[407] It referred to the Baglihar determination where the NE allowed the drawdown flushing and considered it as an authoritative precedent. [408]

2.4.5. Role of Permanent Indus Commission in Resolving Kishanganga Dispute

With respect to the KHEPP, PIWC requested to provide information on the project in 1988.[409] Correspondence between the two commissioners started in 1989, when IIWC requested Pakistani Commissioner to provide data regarding the agricultural uses. It also provided details of KHEPP under para.12, Annexure E of the IWT in 1994.[410]

---

[403] Ibid
[404] Ibid.
[405]Ibid., 259-62.
[406] Ibid.
[407]Ibid., 297-302.
[408]Ibid., 347-349.
[409] www.ips.org.pk/ips-seminar-reviews-kishanganga-award last accessed, June 12, 2019.
[410] Para.12 of Annexure E states that India must inform Pakistan about the construction of storage works in writing prior six months the start of construction.

The inspection of the Neelum Valley was conducted in 1991 and 1996 during which Indian Commissioner was satisfied that Pakistan has very little agriculture use as the NJHEPP was just a proposal at that time. The matter was again discussed at the meeting in 2004 and 2005 but remained unsettled as Pakistan has raised objections to the design of KHEPP. In 2006, PIWC has told its counterpart that it has gained the status of a dispute and provided a report to its counterpart to be submitted to the respective governments[411]Pakistan's objections were discussed in four meetings from 2007 to 2009 but these meetings were not result oriented.[412] Therefore, the representatives of both the countries decided to refer the matter to ICA as permanent Indus Commission failed to resolve the dispute.

2.4.6. Partial and Final Award of Court of Arbitration

The CoA announced its partial award in February 18th, 2013 on the two issues which were placed before it. On the first issue it decided that the KHEPP is a run-of-river project therefore, India is entitled to divert the waters for the generation of hydroelectric power.[413]But at the same time it directed India to maintain minimum flow of water in Kishanganga/Neelum River which the Court would determine later.[414] Moreover, it was observed that the treaty allows for the transfer water from one tributary of the Jhelum River to another and it doesn't impose geographic restrictions on the use of electricity resulting from the use of waters.[415]

The CoA explained that IWT is about the maintenance of the physical conditions rather than the timing of the flow.[416]It also thought that diversion of water is an integral part of the

[411] Article 9 (2) a and b, IWT 1960.
[412] www.ips.org.pk/ips-seminar-reviews-kishanganga-award last accessed, June 12, 2019.
[413]*Kishanganga Arbitration*, Partial Award , para 201.
[414] Ibid.
[415]Ibid., 137-42, 360-380.
[416] Ibid.

design and operation of the Treaty. It has found its justification in CWPC's letter which showed a diversion scheme at the conclusion of Treaty.[417]

Moreover, the CoA considered that KHEPP met the conditions of inter-tributary transfer.[418]Three conditions are required for inter- tributary transfer i.e. the project must be a run-of river project, it must be located on the tributary of Jhelum and lastly it must be in confirmation with the para 15 (iii) of Annexure D of the IWT.

In the current case the CoA observed that KHEPP met the first condition whereas second one is controversial as Pakistan claimed that the project was not located on the tributary of Jhelum rather it is 23 Km away from Kishanganga River but the Court concluded that it should be regarded as located on Kishanganga River as works that trap and channel the water feeding the KHEPP are located on the Kishenganga., and lastly it is in confirmation with the para 15 (iii) Annexure D of the IWT. Para 15 (iii) comprises of two elements: the criteria of necessity and the place where the water delivered from the Kishanganga is released after passing through the power house. The Court concluded that KHEPP met both the conditions.[419]

The Court further provides that the reservoir depletion is linked with the permissibility of controlling sediment through the drawdown flushing procedure. The Court reviewed the process of sedimentation in the reservoirs of hydroelectric plants. It concluded that the primary objective of the IWT is to limit the storage of water by India and therefore, India is not entitled to include dead storage of any capacity in the design of run-of-river plant or storage work because it is understood to be dead.[420]

---

[417] Ibid.
[418] *Kishanganga Arbitration*, Partial Award , para 381-399, 141-148.
[419] Ibid.
[420] Para 495-503.

The Court also pointed out that Para.8(d) of Annexure D of the IWT[421] imposes design restrictions on the low-level outlets which are required for reservoir depletion (to bring the reservoir level below the dead storage level).[422]Such restrictions are allowed only when depletion is equally restricted. It also held that the right to generate hydroelectric power could only be protected if it is allowed to develop on a sustainable basis.[423]Moreover, IWT not only prohibits the depletion of the reservoirs below the dead storage level but also prohibits drawdown flushing. It concluded that number of techniques is available for sediment control and hydroelectric power can be generated without flushing. [424]

The ruling of the CoA on the second point should not be considered of having a retrospective effect on all the power plants that are operative and under construction. [425]

It is also pertinent to mention that during proceedings Pakistan has appealed for interim measures from CoA which in turns barred India from construction of any permanent works on River Neelum at Gurez in J&K.[426]After the announcement of Award, India requested the CoA on May 20, 2013 to clarify the part of the Award relating to the second dispute under Annexure G of IWT.[427] On December 30, 2013 the Court gave its decision by reaffirming its previous ruling

[421]Para. 8 (d) of Annexure D states that "There shall be no outlets below the Dead Storage Level, unless necessary for sediment control or any other technical purpose ; any such outlet shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the works".

[422] Para 495-503.

[423] Ibid.

[424] Ibid.

[425] Ibid.

[426]Khan, "Crucial Water Issues," 216.

[427]Para. 27, Annexure G of IWT allows the party to clarify its award. It states that "At the request of either Party, made within three months of the date of the Award, the Court shall reassemble to clarify or interpret its Award. Pending such clarification or interpretation the Court may, at the request of either Party and if in the opinion of the Court circumstances so require, grant a stay of execution of its Award. After furnishing this clarification or interpretation, or if no request for such clarification or interpretation is made within three months of the date of the Award, the Court shall be deemed to have been dissolved."

with respect to the second issue.[428]The Court stated that prohibition on the reduction below the dead storage level is of general application i.e. it is not specific to the site or the project.[429]

In its final award, the Court pronounced that India should have access to at least half of the average flow at KHEPP site during the driest months of the year. It fixed the minimum flow at 9 cumecs.[430] The Court was of the view that this will slightly affect the environment but even then justified it on the basis that it will maintain appropriate balance between environment and India's need to power generation.[431]

With respect to agriculture, Pakistan argued that in future the agriculture in the Neelum valley will depend on the uninterrupted flow of river but failed to provide any data in support of its stance.[432] Both Pakistan and India presented hydrological data regarding the flow in Neelum/Kishanganga River. Pakistan has also submitted plans to increase irrigation in the Valley for agriculture uses but failed to provide estimate of the said development. [433]

The CoA recommended the parties that they should practice quality assurance on hydrological data and share with each other through PIC.[434]As Pakistan has failed to provide quantitative data regarding its development therefore, the CoA observed that minimum flow should be maintain that would ensure enough water for development.[435]

Dealing with the hydroelectric uses with respect to NJHEPP, the Court accepted that diversion of water would slightly reduce the downstream generation under almost any minimum

---

[428]Kishanganga Arbitration, India's request for clarification or interpretation dated May 20th 2013, PCA, December 20, 2013, para. 34.

[429] Ibid.

[430] The term cumec is also used, as shorthand for "Cubic meters per second". It is commonly used for the measurement of water flow through natural streams and civil works.

[431]Hussain, "*Political and Legal Dimensions*," 301.

[432]Kishanganga Arbitration, final Award, PCA, December 20, 2013, para. 17-19.

[433]Ibid.,para. 54-70.

[434]Ibid.,para. 89-91.

[435]Ibid.,para. 93-94

flow regime.[436] It encourages both the parties to focus on environmental aspects of hydroelectric projects and suggested a flow of 12 cumecs on the basis of environmental conditions.[437] The Court concluded that Kishanganga project should not be constructed in violation of the restrictions specified by the Treaty and the customary international law regarding the right to use the shared waters.[438]

a. Analysis of the Decision of Court of Arbitration

As we discussed above that two disputes were under consideration before CoA. As far as the first dispute is concerned the Court decided in favor of India and allowed it to divert water from Kishanganga/Neelum River for generation of hydroelectric power by KHEPP. This was a major setback for Pakistani government as their claim was rejected by the CoA. The Court itself admitted the fact that diversion will slightly affect the potential energy generated by NJHEPP.[439] The above situation could be avoided if Pakistan has started construction of NJHEPP earlier than India and claimed the priority.

Moreover, the Court has decided the minimum flow in the final award on the basis of hydroelectric and environmental aspects as Pakistan has failed to provide quantitative data on the agricultural uses of water from Kishanganga/Neelum River.[440] This was the failure of Pakistani government that forced the Court to decide the flow of water on its own rather than on the data

---

[436]Ibid.,para. 95

[437]Ibid., 97-104.

[438]Preety Bhogal and Katarzyna Kaszubska, "The Case against Weaponizing Water," *ORF (Observer Research Foundation) Issue Brief*, Issue: 172, (February 2017): 3-4.

[439] Para 95 of the final Award states that "On the basis of the data submitted by Pakistan, it is apparent that the operation of the KHEP will reduce the potential energy generated by the NJHEP under nearly any minimum flow scenario...."

[440]Hussain, "*Political and Legal Dimensions*," 305.

that was not provided by Pakistan. It could have secured more flow of water if it supported its claim by providing a required data for its agricultural uses.[441]

Second dispute was about bringing the reservoir level of run-of-river plant below the dead storage level. The Court ruled in favour of Pakistan that India is not allowed to bring the reservoir level below the dead storage level as the IWT clearly prohibits the same. It is quite clear that the CoA has not endorsed the decision of NE in *Baglihar* case where India was allowed drawdown flushing for the future run-of-river projects. Although India claimed the decision of NE as precedent which should be followed by CoA but Court rejected the same on the basis of IWT. While deciding the future cases with respect to the construction of hydroelectric power plants on the western rivers the NE or CoA should follow the precedent set in *Kishanganga* case rather than in *Baglihar* case.

b. Options Available to Pakistan

Injured states might be able to bring a case before ICJ against the state responsible for the incident giving rise to the damage. The question arises that whether Pakistan can recourse to ICJ or not? The jurisdiction of the Court in relation to such disputes can arise in at least two ways. The most obvious avenue is for jurisdiction to be conferred by special agreement between the parties or presence of a clause in a treaty as provided in Transboundary Watercourses Convention[442] but in case of IWT, there is no such clause which gives right to both of the parties to recourse to ICJ and even no right to appeal has been provided to parties against the decision of CoA.

---

[441] www.ips.org.pk/ips-seminar-reviews-kishanganga-award last accessed, June 12, 2019.
[442] UNWC 1997 and Water Convention 1992.

ICJ can also hear a dispute on the request of one of the party and the states concerned must give its consent to the ICJ's considering the dispute in question.[443] In this case it is not possible that both India and Pakistan recourse to ICJ regarding Kishanganaga Arbitration as India has made the dam in dispute operational in 2019 but Pakistan may recourse to ICJ on the basis of compulsory jurisdiction for the favourable interpretation of Treaty.[444]

2.5. River Indus and Indian Hydropower Projects

In addition to the HEPP discussed above, India has also constructed two more dams on Indus River i.e. NimooBazgu and Chutak Dam. Pakistan has reservations with respect to the design NimooBazgu Dam.

2.5.1. NimooBazgu and Chutak Dam

NimooBazgu is located on Indus River near the village Alchi.[445] It is the highest HEPP in the world.[446]It was conceived in 2001 and construction began in 2005.[447] Pakistan has raised objections regarding the height and design of the dam which was out rightly rejected by

[443] Article 36, ICJ Statute

[444] Ibid Article 36 (2) The States parties to the present Statute may at any time declare that they recognize as compulsory *ipso facto* and without special agreement, in relation to any other State accepting the same obligation, the jurisdiction of the Court in all legal disputes concerning:*(a)* the interpretation of a treaty;*(b)* any question of international law;*(c)* the existence of any fact which, if established, would constitute a breach of an international obligation;*(d)* the nature or extent of the reparation to be made for the breach of an international obligation.

[445] The NimooBazgo Power Project is some 70 kilometers from Leh in J&K. The project involves construction of a 57-high m (187 ft) concrete dam with five spillway blocks of 13 m (43 ft) each having ogee profile.

[446]Hussain, "*Political and Legal Dimensions*," 311.

[447] Ibid.

India.[448]The most important objection on the said dam was related to the submerged gated spillways.[449]

The Chutak Dam is 42 m high and located on the river Suru.[450]According to Pakistan, the design of the dam is in accordance with the Treaty because New Delhi has made holes in the wall of the pondage to avoid stoppage of water.[451]

a. Carbon Credits

In March 2006, Indian government applied for carbon credits for NimooBazgu and Chutak dam.[452] The government applied for the carbon credits on the basis of issuance of transboundary EIA by Pakistan.[453]It is a certificate which allows the holder to release CO2 or other greenhouse gases into atmosphere and it is issued by the Executive Board of UNFCC.[454]

The purpose of the Kyoto Protocol is to control the increase of CO2 emissions.[455] IWT is silent on the environmental aspect of power projects but it doesn't mean that India and Pakistan can ignore the environmental effects of HEPP. Maintenance of clean environment is considered

---

[448]Ibid,. 312.

[449] The main objection raised by Pakistan regarding every HEPP on western rivers includes the issue of gated spillways which allegedly reduce the water flow of Indus River.

[450] The Chutak Hydroelectric Plant is a run-of-the-river power project on the Suru River (a tributary of Indus) in Kargil district in J&K.

[451] Khalid Mustafa, "India Rejects Pakistan's Objections over Another Power Project", *The News*, October 9,2011.

[452]Hussain, "*Political and Legal Dimensions*," 312.

[453] United Nations Environment Program defines EIA as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

[454] The United Nations Framework Convention on Climate Change is an international environmental treaty adopted on 9 May 1992.

[455] The Kyoto Protocol is an international treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions, based on the scientific consensus that global warming is occurring and it is extremely likely that human-made CO2 emissions have predominantly caused it. The Kyoto Protocol was adopted in Kyoto, Japan; on 11 December 1997. It sets emissions targets for developed countries which are binding under international law.

as a preemptory norm.[456] In *Hungry vs. Solovakia* case the court has declared the norm of environmental law as a peremptory norm.[457] Moreover, International Commission on Large Dams also recommends states to carry EIA before the start of any power project.[458]

UNFCC has made mandatory to submit TIER in order to seek carbon credits for the project that is under construction.[459]India was awarded carbon credits in 2008 for Nimoo Bazgu and Chutak dam. It was alleged that the then Pakistani Indus Water Commissioner Jamat Ali Shah has never undertook inspection of the site of the project and issued EIA reports.[460] However, after investigation he was exonerated and held the then President of Pakistan Pervez Musharaf responsible for the construction of said dam by India.[461] No Pakistani Agency has ever issued EIA reports to India and there is a possibility of providing fake information to UNFCC.[462]Pakistan has not approached CoA as India has already completed the construction of dam in 2011.

2.6. Effects of the Hydropower projects on Western Rivers

The Hydropower projects on western rivers will in any case affect the flow of water. The decision of NE in *Baglihar* case was totally based on technical grounds rather on legal grounds. It has tested the dispute resolution mechanism by invoking a NE for the first time. However, this invocation brought the two sides of the dispute into focus i.e. an insight of the NE about the provisions of the treaty and problem in its implementation. The verdict of the NE calls for the

[456] A peremptory norm is a fundamental principle of international law that is accepted by the international community of states as a norm from which no derogation is permitted.

[457]Hungry vs. Solovakia, ICJ, 1992, para.97, 59.

[458]Both India and Pakistan are members of ICOLD.

[459]UNFCC, "Transboundary Carbon Capture and Storage Project Activities", (November 1, 2012):12.

[460]Hussain, "*Political and Legal Dimensions*," 313.

[461]Ibid., 315.

[462] Noor Aftab "Pakistan Authorities in a Fix as India secures Carbon Credits", *The News*, January 14, 2007.

reanalysis of the treaty on the basis of the change in environmental conditions and technological factors.[463] Pakistan's approach to the dispute was legal while Indian's viewed it from engineering point of view.[464] The NE also took into account the best practices in the field of construction and operation of hydroelectric plants and the decision of the NE based more on technical grounds rather than legal grounds.[465]

Pakistan was not satisfied by the decision with respect to the determination of gated spillway. The than PIWC, Jamat Ali Shah revealed that earlier Raymond Lafitte has accepted Pakistan's stance regarding gated spillways but later on in the final verdict he supported Indians stance by using the words "international practices" and "state of art" technology.[466] The Commissioner alleged that World Bank expert has deviated from IWT.[467]NE findings in BHPP are important in the matter of treaty interpretation whereas the Kishanganga Arbitration has highlighted the principle of equitable and reasonable utilization that requires India to release 100% flow of water.[468]

Pakistan raised objections to the construction of Wuller barrage and kishanganga HEPP that they violate the provisions of treaty.[469] The PIC has failed to resolve the issues and the matter was referred to a NE and CoA respectively. The decision of Baglihar and Wullar went against the position taken by Pakistan but in kishanganga's case CoA did address Pakistan's concerns about maintaining the reservoirs below the Dead Storage Level.[470]

---

[463]Dar, "Power Projects in Jammu and Kashmir," 10.

[464]Ravindra Pratap, "Building Peace over Water in South Asia: The Watercourse Convention and SAARC," *Athens Journal of Law*, Vol, 4: Issue 1, (January 2018): 11-12. (Pratap, "Building Peace over Water,"12).

[465]Jahangir, "International Water Law and Foreign Policy of Pakistan," *Jahangir's World Time*, January 21, 2015.

[466]Baglihar Hydroelectric plant, Expert Determination, (final draft), October 30, 2006, 85.

[467]Khattak, "World Bank Neutral Expert's Determination," 96.

[468] Pratap, "Building Peace over Water,"12.

[469] Siyad A C, "Indus Waters Treaty," 3147.

[470]Malik Muhammad Ashraf, "Violations of Indus waters Treaty", *Pakistan Today*, May 15, 2015

2.7. Termination of Treaty

Tensions between Pakistan and India have increased after the constitutional changes to the status of J&K in 2019. Diplomatic ties have been affected and bilateral trade has also reduced. IWT has been threatened due to increase in tensions between two states. This is not the first time that the GoI has threatened to terminate the treaty unilaterally but the scrapping of Treaty was discussed by the Indian government after attack on its Parliament and Uri Attacks in 2001 and 2016 respectively.[471]

Pakistan has also warned India that unilateral termination of Treaty will result in the violation of international treaty obligations.[472] VCLT 1969 provides that the termination of the treaty or the withdrawal of a party from the treaty may take place either in accordance with the provisions of particular treaty or by the consent of all parties in consultation with the contracting states.[473] If the treaty contains no provision regarding the termination then it cannot be terminated unless intended by the implied nature of the treaty.[474] IWT doesn't provide for unilateral termination of the treaty.[475] It states that the Treaty shall continue in force unless terminated by a duly ratified treaty concluded between the two governments.[476]

The termination of the treaty is possible if both states agree in writing regarding the termination of the Treaty.[477] In other words neither Pakistan nor India can unilaterally revoke

---

[471] EPW Engage, " India, Pakistan, and a History of Water Sharing: Revisiting the IWT", *Economic and Political Weekly*

[472] Muhammad Sufyan Zia, "Is unilateral revocation of Teaty is permissible under international law" JURIST – Commentary, November 21, 2018, https://www.jurist.org/commentary/2018/11/sufyan-zia-revocation-indus (Hereinafter Zia, "Is unilateral revocation of Teaty is permissible under international law", 2018)

[473] Article 54, VCLT 1969.

[474] Ibid., Article 56.

[475] Article XII (4) IWT 1960.

[476] Ibid.

[477] Ibid.

the treaty.[478] If any of the party unilaterally revokes the treaty it would lead to the violation of principle of *Pacta Sunt Servanda* which is the core principle of CIL. Even if there were no IWT, an upper riparian, under the IWL, has no right to stop the water flow to a lower riparian.

2.7.1. Grounds for Termination of Treaty

Terrorism is also one of the grounds for the termination of Treaty advanced by Indian critics. It has been argued by the Indian side that the Pakistan is involved in the acts of terrorism against India.[479] Under VCLT 1969, a treaty can be terminated by one of the parties in the cases of material breach[480] or fundamental change of circumstances.[481] Now we have to examine that whether the act of terrorism falls under a fundamental change of circumstances or whether it amounts to material breach. The fundamental change of circumstances has its basis under the customary principle of *rebus sic santibus*.[482] According to VCLT 1969, a fundamental change of circumstances which has occurred with regard to the existing at the time of conclusion of treaty and which was not foreseen by the parties at the time of the conclusion of treaty cannot be invoked as a ground of termination unless the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty and the effect of the change must be radically to transform the scope of obligations still to be performed under treaty.[483]

Therefore, a fundamental change of circumstances can be pleaded in situations where either the subject matter of the treaty has been destroyed or the purpose of the treaty has been

---

[478] The obligation to consult and obtain consent of the other parties to the treaty has its origin in the 1871 London Declaration which states that, "it is an essential principle of the Law of the Nations that no power can sliberate itself from the engagement of the treaty, nor modify the stipulation thereof, unless with the consent of the contracting parties by means of an amicable arrangement".

[479] Zia, "Is unilateral revocation of Treaty is permissible under international law", 2018.

[480] Article 60, VCLT 1969.

[481] Ibid., Article 62

[482] Fundamental change in circumstances.

[483] Article 62, VCLT 1969.

frustrated and an act of Terrorism per se neither finds its support in article 62 of VCLT nor in its commentary issued by the International Law Commission.[484] An act of terrorism would have resulted in the fundamental change if the performance of a treaty cannot be carried out because of it.

One of the other grounds advanced by Indians to terminate the Treaty is its obsoleteness. According to Indians the Treaty was concluded in response to the water problems that Pakistan and India faced in twentieth century whereas the issues that they confront in the twenty-first century are totally different.[485] Lots of changes have been occurred since the formation of treaty but it is debatable that whether these changes amount to a fundamental change of circumstances or not? In our view these changes are not affecting the performance of a treaty rather the treaty is lacking provisions regarding minimum flow, the change in the climatic conditions, groundwater management and the number of the power projects to be constructed on western rivers. Therefore the termination of Treaty is not the solution rather it should be reviewed in order to fill the loopholes.

2.8. Indus Waters Treaty and Jammu & Kashmir

The absence of J&K from the treaty is also very tragic besides the fact that water resources originate there. Kashmiris are claiming that the Treaty has deprived them from using water flowing through their own land and they are against the IWT.[486]Because of the IWT Kashmir loses 60 billion Indian rupees annually as it cannot store water for generating electricity or for

[484] Zia, "Is unilateral revocation of Treaty is permissible under international law", 2018.
[485]Hussain, *Political and legal dimensions*, 364.
[486] Shakil Ahmed Romshoo, "Indus river basin common concerns and the roadmap to resolution", Centre for Dialogue and Reconciliation, New Delhi, (March, 2012), 22.

irrigation purposes.[487] J&K Assembly passed a Resolution on March 3rd 2003 regarding the reconsideration of IWT in order to safeguard the interests of the people of Kashmir.[488] The construction of Baglihar Dam and Kishanganga Dam has brought the issue of Kashmir at the center stage of Indus waters issue because both of the projects faced pressure from the political parties of J&K. The IWT has ill-effects on its energy harnessing potential due to the restrictions of Treaty.

IWT permits J&K to use the waters of the rivers covered under the treaty to irrigate only 17.03 lac acres of land. Along with the running water irrigation potential of 13.43 lac acres, it also permits J&K to irrigate 3.6 lac acres through storage of water.[489] However, the state is utilizing the waters of Chenab, Jehlum and Sindh to irrigate just 8 lac acres. There is a huge gap of unutilized water exceeding 9.00 lac acres which J&K has over all these years allowed to flow down for its failure to utilize the same.[490] In fact, the areas under irrigated agriculture are consistently decreasing in the state due to the rampant land system changes from water intensive paddy culture to horticulture.

The IWT divided the share of waters of J&K between India and Pakistan. The territory of J&K is affected with the change in the relationship between India and Pakistan. India always threatens Pakistan to stop its water but without knowing that this stoppage will not only affect the agriculture of Pakistan but also J&K as the valley will be drowned into floods. Therefore, there is a need to revive the Treaty in order to save the interests of the people of Kashmir.

---

[487] Ibid.
[488] Ibid., 21.
[489] Ibid., 23.
[490] A. Azad, "JK uses only half of allowed water share for irrigation", Greater Kashmir, May 13, 2012.

2.9. Conclusion

The absence of J&K from the IWT is one of its major drawbacks along with environment and river flow because water resource has originated there. This drawback has put a question mark on the success of the Treaty.[491]Moreover, disputes over the diversion of water of western rivers have made clear that the treaty is lacking a provision regarding the number of power projects on western rivers

As mentioned above that dispute over *Salal* dam was resolved in 1970's by two foreign Secretaries ending into an agreement. Pakistan was satisfied by the conclusion of agreement. Whereas, in *Baglihar* case it lost to India as the NE allowed India to divert waters. The decision of the NE regarding diversion of waters was against the IWT and later on it was reversed by CoA in *Kishanagna* case. However, the Court admitted the fact that generation of hydroelectric power will slightly affect the river flow. Moreover, Pakistan may recourse to ICJ for the favourable interpretation of treaty under compulsory jurisdiction

There is no provision in the IWT which allows India to construct a certain number of dams nor any provision that restrict India from making dams beyond a certain number. The problem starts when India planned a construction of power projects on western rivers. The Treaty provides technical specifications for buildings. Moreover, the Treaty has not mentioned the minimum flow neither the CoA has decided the same. It is evident from above discussion that India's actions have become a serious cause of concern for Pakistan. Thus this issue needs to be settled by adopting a clear legislation involving all stakeholders.

[491]Waseem hayat, "An Insight of Indus Water Treaty and Kishanganga Dam", Department of Environmental Sciences, University of Hazara (Haripur), (Jan 16,2012): 4.

Pakistan also draws water from the Kabul River. Therefore, the construction of hydropower projects on the river by Afghanistan will also be an issue of concern. Being the lower riparian state in this case, Pakistan reserves certain rights; however, no such water sharing agreement exists between the two neighbors. Construction of storages and hydropower projects is expected to lead to decrease of around 17% in the annual river flows. Hence, there is a need for an official agreement between the two countries that defines the terms of sharing and construction of hydropower and other water storing facilities on the Kabul River.[492]

[492] State Bank of Pakistan. "Water Sustainability in Pakistan: Key Issues and Challenges" (2016-2107), 97.

CHAPTER THREE: INDUS WATERS TREATY AND ISSUES OF REGIONAL AND GLOBAL SECURITY

3. Introduction

Water constitutes the life blood of human environment and it has no substitution. People relied on it in many ways. It is the most abundant resource on earth however only 2.53 % is a fresh water which is used for agricultural, human ingestion and industrial purposes.[493] A significant part of this fresh water is in the form of icebergs, glaciers, ponds, rivers, lakes and, streams.[494]

We are powerless to separate ourselves from water like nature. It is indispensable and creates a bond between those countries that shares international watercourses. In many parts of the world, human beings have been proved as most dangerous in handling and polluting the water resources.[495]Over the last century water consumption has increasd due to increase in population and climate change which results in water scarcity especially in the areas that are arid. Worldwide tsunamis, rapidly melting glaciers, rising of sea levels, and environmental degradation are due to drastic climatic change. Along with the climate change, construction of hydroelectric power projects by India also results in rise of environmental concerns in Pakistan and thus violates the established principles of International law.[496]

The chapter will discuss about the drastic climate change and water scarcity, and will focus on the reasons behind these changes. It will also discuss about environmental degradation

---

[493]Chusei Yamada, "Shared Natural Resources", First report on shared natural resources: Outlines A/CN.4/533 and Add.1, (30 April and 30 June 2003): 123.

[494] Ibid.

[495] The 1991 Gulf War resulted in Water crises in Iraq. Out of the seven major water pumping stations, four were destroyed by bombing by US. The targeting of sewage and water treatment plants contributed to the mass contamination of the Trigris River, and it has caused many waterborne diseases. The bombing during the 2003 Iraq invasion again targeted civilian infrastructure, and left many southern Iraqis with little or no access to water in the first weeks of the occupation.

[496]Khattak, "World Bank Neutral Expert's Determination," 100.

and its impact on river flow. The chapter will also discuss international regime on climate change and criticize IWT for ignoring such an important issue. The possibility of a war due to unavailability of water is also a point of discussion. It will further examine the impact of the power projects and provides a detail discussion on management of river water under international watercourse law.

3.1. Pakistan Security Concerns Regarding Western Rivers

Pakistan's water shortages, India's construction of HEPP, and diversion of waters are a source of increasing tensions between India and Pakistan. Water shortages would increase pressure on Pakistani government to ask for more share in the Indus as it is solely dependent on the waters of Indus for its survival.[497]

Although the IWT allowed India to generate hydroelectric power but didn't mention the number of these power projects to be constructed on these rivers which aggravates the water security threat because alone the installation of these projects will affect the river flow.[498] Besides these power projects, water scarcity and climate change are the factors affecting the flow of Indus Basin

[497] The Indus River Basin encompasses 1.12 million square kilometers (km2), with 47 percent of this area falling in Pakistan, 39 percent in India, eight percent in China, and six percent in Afghanistan. In turn, 65 percent of the total area of Pakistan, 14 percent of the Indian land mass, 11 percent of Afghanistan, and one percent of China's land area lie within the Indus Basin. In this backdrop, Indus is considered as the life-blood of Pakistan, which could not function without the support of this mighty river.

[498] Article III (2) d, IWT 1960.

3.1.1. Water Scarcity

An area qualifies to be water stressed when annual water supplies drop below 1,700 m3 per person and it is water scarce when the supplies drop below 1,000 m3.[499] According to the said statistics, Pakistan is getting closer to a water scarce country because its water availability has dropped from 5000 cubic meters to 1,017 cubic meters.[500]The issue of water scarcity increases due to rapid economic growth in the form of increased infrastructure, population growth and pollution. These factors affected the water supply.

Water scarcity is threat to international peace and security.[501]Despite of the presence of international law, the water disputes still persist world-wide.[502]These disputes involve the controversies regarding upstream and downstream uses of river water but the issue of water scarce resources is complex for all users. It has a solid foundation under UNWC 1997.

---

[499]Water scarcity | International Decade for Action 'Water for Life' 2005-2015. [online] Available at: http://www.un.org/waterforlifedecade/scarcity.shtml

[500]Ahmer Bilal Soofi, "Filling the Missing Gaps in the Indus Waters Treaty", *Islamabad Papers*, No.31, (2016) (Institute of Strategic Studies Islamabad):7.

[501] Dr. Patricia Wouters, "The legal response to International Water Scarcity and Water Conflicts: The UN Watercourse Convention and beyond", (May/June 2003), www.africanwater.org/pat_wouters1.htm last accessed, July 3, 2019.

[502] In the Middle East, Israel and the Palestinians continue to negotiate their respective rights and obligations concerning their shared waters. Allocation of the uses of the limited waters of the Jordan River, shared by Lebanon, Syria, Israel and Jordan, are of particular concern to the downstream States, Israel and Jordan, who now experience problems in implementing the water-related provisions of their Treaty of Peace. In the same region, Turkey's development of the upstream parts of the Tigris and Euphrates basins, primarily for the purposes of hydroelectric power production and irrigation, has resulted in a serious controversy with Syria and Iraq, especially during the filling of Turkey's Ataturk Dam. In Asia, China has plans to build dams on the upper reaches of the Mekong, which is regulated only in its lower part by a recent agreement concluded between Vietnam, Cambodia, Laos and Thailand.[31] The most acute transboundary problems in Central Asia involve the Aral Sea basin where more than 20 million people in five basin States struggle to share the "shrinking and polluted" resource.

The principle of reasonable and equitable utilization plays an important role in determining the legal entitlement of water.[503]The Convention also discusses the relevant factors for achieving this utilization.[504] These factors includes the social and economic needs of the watercourse states concerned,[505] the effects of the use of watercourse in one state over another state,[506] the existing uses of the watercourse state and the population dependent on the watercourse in each state.[507] When the IWT was concluded in 1960 these factors were taken into consideration but the treaty didn't focus on future utilization of watercourse states neither it provides for an amendment except its Article VII. The utilization of waters of the Indus River has increased with the passing time due to increase in population and economic growth.

Similarly, 1992 Water Convention/UNECE also offers a legislative model for the bilateral cooperation on the issue of handling water scarcity.[508] It provides for adaptation of the existing rules and principles necessary for the prevention and the reduction of transboundary impacts.[509] IWT also provides for future cooperation but it is only restricted to the future engineering works.[510] It didn't include any formation of the joint bodies to explain and elaborate joint programs regarding water quantity and quality.[511]

---

[503]Article 5, UN Watercourse Convention (UNWC) 1997 states that "1. Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse. 2.Watercourse States shall participate in the use, development and protection of an interna tional watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention."

[504]Ibid., Article 6 (1).

[505]Ibid., Article 6 (1)(b).

[506]Ibid., Article 6 (1)(d).

[507]Ibid., Article 6 (1)(c).

[508]Article 9, Water Convention 1992

[509] Ibid.

[510] Article VII, IWT 1960.

[511]Article 9 (2) (b), Water Convention 1992.

These watercourses conventions have played an important role in the management of transboundary waters; therefore, there is a need to renegotiate IWT in the light of principles of international watercourse law. As Pakistan is dependent on this single basin therefore, increase in water scarce resources will leads to future conflicts between two riparian states.

a. Pollution

Pakistan is facing numerous transboundary issues regarding the water pollution because most of the rivers pass through Indian territories which are ruined due to reduced water flow and pollution.[512] The increase in pollution is affecting the quality of water and aquatic ecosystems. The construction of dams, barrages, and reservoirs has severe environmental affects because the construction led to the fragmentation of larger rivers into dams, diversions and canals.[513]

Due to construction of hydropower projects on Chenab river cold water fish and macro-invertebrates are highly affected.[514]There are many reports of decreasing of fish diversity in Chenab at Head Marala in Pakistan due to transboundary water regulation.[515] River Ravi is highly polluted as it receives major amount of pollutants from India and Pakistan through Hudiara drain.[516]

---

[512] Abdul Qadir, Safdar Ali Anwar, Nadia Jameel, and Arshad Makhdoom Sabir, "Potential effects of human and climate change on freshwater resources in Pakistan", *Understanding Freshwater Quality Problems in a Changing World* Proceedings of H04, IAHS-IAPSO-IASPEI Assembly, Gothenburg, Sweden, (July 2013): 331 (Hereinafter Qadir, Ali, Jameel and Sabir, "Potential effects of human,"331)

[513] Ibid.

[514] A macro-invertebrate is a term used for invertebrate fauna that includes arthropods (insects), molluscs (snails), annelids (segmented worms), and nematodes (round worms).

[515] Qadir, Ali, Jameel and Sabir, "Potential effects of human,"332.

[516]Hudiara drain originates in Batala of Gurdaspure District, India and enters Pakistan near Laloo village. This drain is one of the main tributaries of River Ravi. The total length of Hudiara drain is 98.6 and 44.2 km in Indian territory and 54.4 in Pakistan territory. This drain was a storm water drain; however, dumping of industrial and domestic wastewater has turned it into a perennial drain. Its annual average discharge at its confluence with the Ravi is 178 cusecs. There are approximately 84 industries of different nature situated along Hudiara drain in Pakistan, which dump effluent into it. In addition, wastewater of some parts of Lahore city and of other small villages also enters this drain.

Jammu Tavi River is an important tributary of the Chenab and it is continuously receiving harmful wastes from Jammu city.[517] The toxic pollutants in these rivers are not only affecting marine life but also humans.

Under international law states are bound to take measures for the prevention of pollution and removal of dangerous hazardous that are released into watercourses by factories.[518] Berlin Rules also urges the states to maintain the quality of the water by making environmental assessments of their water resources. Polluted water is harmful for the crops as both states depend upon agriculture for food. Article 29 of *Berlin Rules* 2004, talks about EIA and stresses the states to make assessment of their programs.[519] Berlin Rules also prohibits states from causing harm to the environment.[520] India should make certain arrangements to prevent harm of the Indus Basin because the power projects constructed by India have environmental Impacts.[521]

UNWC provides means and methods to reduce pollution of a watercourse state.[522] The precautionary principle plays a very important role in identifying the environmental risks in a

---

[517] The river joins Chenab after flowing through Jammu city. Municipal sewage and industrial effluents are continuously discharged into the Tawi River, causing deterioration of its water quality. There is no sewage treatment plant in the Jammu area to treat the sewage waste. This highly polluted water enters Pakistan and degrades the water quality of Chenab.

[518] Article 27-33, Berlin Rules, 2004.

[519] "Ibid., Article 29 states that "states shall undertake prior and continuing assessment of the impact of programs, projects, or activities that may have a significant effect on the aquatic environment or the sustainable development of waters. 2. Impacts to be assessed include, among others: a. Effects on human health and safety; b. Effects on the environment; c. Effects on existing or prospective economic activity; d. Effects on cultural or socio-economic conditions; and e. Effects on the sustainability of the use of waters."

[520] Ibid., Article 8 states that "States shall take all appropriate measures to prevent or minimize environmental harm."

[521] The final award of the PCA, in *Kishangnaga Arbitration* however, ruled that "certain amount of downstream water be maintained so that downstream environment is protected as is provided for by the United Nations (UN) Watercourse Convention. Before its final award, the PCA asked Indian to provide it with Environmental Impact Assessment report (EIA) in 2013, which led to the deferring of the award. India so far has not shared with Pakistan a comprehensive transboundary EIA report to evaluate hydrological and environmental consequences of its projects for the lower riparian, Pakistan. According to a United States Institute for Peace (USIP) report, there is a lack of transparency in data sharing between India and Pakistan, and this trust deficit between them has the potential to heighten tensions in the South Asian region."

[522] Article 21, UNWC 1997.

planned project.[523] This principle is also embodied in Rio Declaration on Environment and Development, 1992.[524]In addition to watercourse conventions there are numbers of customary international legal rules and principles that play an effective role in protecting environment of international water courses.[525]These rules are derived from the provision of treaties, recommendations of international organisations and resolutions [526]

CIL also plays an important role in the settlement of environmental disputes related to shared water resources.[527] In *Pulp Mills* case ICJ has made very important contribution to international law related to shared water rsources and international environmental law.[528] The Court stated that inter-state notificaton of the new projects is obligatory in order to avoid transboundary harm.[529] The Court also considered that EIA is an essential requirement under CIL and it held that duty to notify and duty to conduct EIA exist in CIL and it appled to all the states iirespective of ratification.[530]Therefore, India is under an obligation to carry EIA of HEPP on western rivers before contruction.

---

[523] According to Redgwell, the principle generally provides that "where there is a threat to the global environment, yet scientific uncertainties persist, steps can and should be taken that will benefit the present generation in any event and mitigate suspected adverse impacts upon future generations."

[524] Principle 15 of Rio Declaration on Environment and Development 1992 states that, "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

[525] Such legal rules include the obligation to prevent transboundary pollution, the rules relating to responsibility and liability for such pollution, the obligation to co-operate, and the requirement for environmental impact assessment for projects having transboundary effects. These customary principles include the precautionary principle, sustainable development, intergenerational equity, and common-but differentiated responsibility.

[526] Owen Mcintyre, "The Role of Customary Rules and Principles of Environmental Law in the Protection of Shared International Freshwater Resources," *Natural Resources Journal*, Vol: 46, (winter, 2006): 160-161 (Hereinafter Mcintyre, "The role of Customary rules," 161).

[527] Ibid.

[528]*Pulp Mills case* (Argentina vs. Uruguay) ,para 205, ICJ, 2010, 73.

[529] Ibid.

[530] Ibid.

All the riparian states are under an obligation to preserve eco-system.[531]The countries should be aware of their obligations under the Sustainable Development Goals (SDGs).[532] As the SDGs forms a key national policy for all UN Member states, and Pakistan and India are under an obligation to conserve and restore the use of terrestrial ecosystems by 2020.[533]The UNWC endorses the protection of natural environment.[534]The KHEPP violates this basic principle. The extent of water diversion by upper riparian through KHEPP effects groundwater basins and eco-systems.[535]Though India is not a signatory of this UNWC but it is duty bound to follow the same as it observes a status of customary international law. Thus IWT has failed to form transboundary water management institutions for the long term sustainability of Indus ecosystem.[536]

As we have disused earlier in the second chapter that construction of the HEPP by India on western rivers affect the river flow. The construction of said projects will result in rise of environmental concerns in Pakistan[537] and thus violates the established principle of International law. According to international practice if the pollution is causing trouble for the downstream country, the upstream country may use the option for a treatment plants in order to reduce

---

[531]Article 20, UNWC 1997.

[532] Sustainable Development Goals (SDGs), adopted at the historic UN Summit in 2015, which officially came into force in January 2016. The SDGs build upon the success of the Millennium Development Goals (MDGs) and call for all countries to act and take ownership in establishing national frameworks for the achievement of the 17 Goals set out in the 2030 Agenda for Sustainable Development.

[533] Goal 15 of SDGs states that "Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably AManage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss".

[534]Article 21, UNWC, 1997.

[535]Mian Ahmed Naeem Salik, "Implications of Kishanganga Hydro-Power Project for Pakistan's environment", *Institute of Strategic Studies*, (April 26,2016): 3 (Hereinafter Salik, "Implications of Kishanganga."3).

[536]Aditya. K. Kaushik, "Regulating Water Security in Border regions: The Case of India and Pakistan", (2017), 7 (Hereinafter Kaushik. "Regulating Water Security,"7).

[537] See chapter two of the dissertation.

withdrawals.[538] The HRs also prevents the states from causing any harm to the environment of other states.[539] Changes in pollution have challenged the effectiveness of the IWT.

The IWT has addressed the issue of pollution of waters of the rivers and tributaries of the Indus system and stressed to take all reasonable measures to prevent from undue pollution but failed to define the term 'reasonable measures'.[540]Pakistan has asked India to stop contamination of water in Hadiara Nallah during the meeting of Indus Waters Commissioners held in July 2010.[541] This nallah flows near Lahore and pollute Ravi and Kasur drains.[542] The issue of Baramullah waste polluting Jhelum River was also the point of discussion during the meeting. India has agreed to conduct a joint survey to monitor river pollution but still no efforts have been made to conduct a joint survey. Moreover, International Watercourse laws emphasizes on controlling transboundary pollution.[543] Therefore, efforts are needed from both sides to control water pollution.

Furthermore, IWT doesn't provide for an effective watershed management programs in order to address the problem of storm water runoffs.[544] A watershed is a basin like area that captures rainfall and conveys the flow to an outlet in the main flow channel.[545] Watershed is a

---

[538] Khattak, "World Bank Neutral Expert's Determination," 100.

[539] Article IV, Helsinki Rules, 1996.

[540] Article IV (10), of IWT states that "Each Party declares its intention to prevent, as far as practicable, undue pollution of the waters of the Rivers which might affect adversely uses similar in nature to those to which the waters were put on the Effective Date, and agrees to take all reasonable measures to ensure that, before any sewage or industrial waste is allowed to flow into the Rivers, it will be treated, where necessary, in such manner as not materially to affect those uses : Provided that the criterion of reasonableness shall be the customary practice in similar situations on the Rivers."

[541]Shaheen Akhter,"Quest for re-interpreting the Indus Waters Treaty: Pakistan's Delimma," *Margalla Papers*, NDU (2011), 38 (Hereinafter Akhter, "Quest for re-interpreting,"38).

[542] Ibid.

[543] Helsinki Rules on the uses of International rivers (1966), UN Convention on Protection and Use of Tranboundary Watercourses and International Lakes (1992), and UN Convention on Non-Navigational Uses of International Watercourses (1997).

[544]Mingxin Guo, "Effective watershed Management: Planning, implementation and Evaluation," Hydrology Current Research, 5:4 (2014):1.

[545] Ibid.

first step in effective watershed management and it includes planning,[546] characterization,[547] and implementation.[548] It helps in reducing water pollution and restoration of damaged eco-systems because water pollution has affected millions of people and the reason for the deaths of Indus River dolphins.[549] Therefore, IWT should be renegotiated to bring it in the line of contemporary IWL and HRs related to the environmental sustainably, and climate change in order to address the issue of water scarcity.[550]

b. Population

Increase in population is another factor which has aggravated the issue of water scarcity in Pakistan. The demand of the water has increased due to increase in a population in both India and Pakistan. Increased population has put a stress on the water supply for food, industrial production, power generation and environmental flows.[551]

Pakistan is running short of water due to increase in population.[552] However, the population of Pakistan reached to 204 million whereas India's population has increased to 1.368 billion.[553]It is clear from the abovementioned stats that water will become more less if not managed through proper mechanism. The IWT only talk about the management of water ways in India and Pakistan but doesn't monitor bordering states due to which the actions of the other

[546] Scientific planning is to characterize the present watershed conditions, identify and prioritize problems, define management objectives, and develop protection or remediation strategies and practices. A management plan starts with partnership establish with stake holders who can implement or affect implementation of the decisions. They will help to identify the issues to set long term management goals.

[547] It reveals the water problems that management should focus on.

[548] Implementing a watershed management plan involves various expertise and skills such as technical expertise, group facilitation, project management, data analysis, communication, and public relations.

[549]Kaushik, "Regulating Water Security," 7.

[550] Danish Mustafa, "Hydropolitics in Pakistan:, Indus Basin United States Institute of Peace," (November 2010), 2.

[551]Shahid Ahmad, "Water Security: A threat for Pakistan and India", Atlantic Ocean, (September 2012), 6.

[552] Natalie A. Nax. "Looking to the Future: The Indus Waters Treaty and the Climate Change." (Masters Diss, University of Oregon, June 2016),12.

[553] www.worldometers.info/world-population/india/pakistan-population Last accessed, July 7th, 2019.

states within the Indus Basin i.e. China and Afghanistan are not counted. Thus, there are no restrictions on those states of accessing the waterways and ultimately it will affect the usage of water.

3.1.2. Climate change

It is debatable that whether climate change is a result of human activity or some other factors are behind this phenomenon. UNFCC defines a climate change as a change which is directly or indirectly attributed to human activity.[554]Intergovernmental Panel on Climate Change (IPCC) also refers climate change as a change due to natural variability or due to human activity.[555]Therefore, according to the above definitions it has been clear that principally human activity is responsible for climate change. Moreover, human influence on climate system is clear and the recent climate changes have widespread effects on human and natural systems.[556]

The Indus River has a total annual flow of 146 MAF out of which 106 MAF is diverted to canals and Pakistan receives about 50-80% of the total average river flow.[557]Indus River is very sensitive to climate change as large amount of water for the river is derived from the melting of glaciers. About 70-80% of the water in the Indus is provided by Himalayan Glaciers.[558] These

[554] Article 1 (2), of UNFCCC 1992 states that "Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.

[555]IPCC Synthesis Report 2007, Summary for Policy Makers, 30.

[556]Hussain, "*Political and Legal Dimensions*," 340.

[557]Planning Commission, "Water", 11th five year plan (2013-201), Ch. 20, 223.(223-233) www.pc.govpk/web/yearplan (last accessed July 2, 2019).

[558] The flow of water in Indus River Basin (IRB) depends upon the temperature. When the temperatures are high, glaciers melt and provide more water to the Indus catchment areas and when the temperatures are cold, it provides less water. Thus temperature controls the flow of water in the basin.

glaciers also melt during the summer season which generates large flow of water that combines with the rain water of monsoon rainfall.[559]

As a result of this rainfall, India also discharges a large amount of water to Pakistani rivers in order to protect its own land from flooding, thus increasing the water level in Indus River beyond sustainable level. The flood level becomes more dangerous if the amount of water discharged by India is high.[560]These floods have damaged the existing water management facilities and resulted in breaking of dams and barrages. Due to change in climate conditions, the glaciers will irregularly change the flow of river thus results in floods and droughts.[561] Both sides of Indus River have face deforestation and environmental degradation due to lack of institutional framework provided by the IWT.

According to IPCC, the freshwater systems are more vulnerable to the climate change as increased precipitations will likely results in floods and less rainfall.[562]There are small lakes and ponds for storing water but these lakes and ponds have dried up due to low rainfall.[563]A recent drought in Sindh Province (Tharparkar and Dadu) has resulted in significant water shortage. Climate change also results in increase of rainfall during monsoon season from July to September due to which flow of water increases in the Indus River Basin.[564]

---

[559]Dr. Waseem Ahmed Qureshi, "Indus Basin Water Management under International Law," University of Miami International and Comparative Law Review, 25:4, (2017):90 (Hereinafter Qureshi, "Indus Basin Water,"90)

[560] The 2010 flood directly affected an estimated twenty million people. More than 2,000 people died and the homes of 1.6 million people were destroyed by the flood, while crops were devastated over a large area. The damage to the livestock sector was estimated at 48 billion PKR (457 million USD). The total monetary value of the damage by the flood was estimated to be 9.8 billion USD. For Details See Shahid Hassan Rizvi & Syed Iazaz Ahmad Bukhari, " Impact of 2010 floods on Pakistan's agriculture," *environmental. Analytical toxicology*, (2017).

[561] Sindh witnessed massive floods in 2010 and 2011, and severe drought in Thar Desert, AchhroThar, Nara Desert, Kachho region, and Kohistan since 2013. The 2010 floods alone caused an estimated USD 9.7 billion in damage, twice that of the massive 2005 earthquake in the Kashmir region. For details see Zulfiqar Kunbhar, "Pakistan's Sindh struggles to respond to Climate change challenges," (March 20, 2018) www.thethirdpole.net Last accessed, June 28, 2018.

[562] Gabriel Eckstein, "Water Scarcity, Conflict and Security in a Climate Change World: Challenges and Opportunities for International Law and Policy," *Wisconsin International Law Journal*, 27: 03 (2009): 414.

[563]Qureshi, "Indus Basin Water,"89.

[564] Ibid.

Through the IWT, an unfair advantage has been provided to upper riparian by allowing them to build storages over western rivers.[565] It seems to be insufficient to cater these issues. The Challenges as a result of climate change should be catered by adopting integrated approach and by involving all the stake holders. Pakistan and India both are facing the same situation but they are vesting to create maximum water resources by hydropower, diversions and irrigation. Every mega project must be designed to be eco-friendly and the past projects must be modified to make them sustainable.

3.2. Environmental Degradation and Its Impact on River Flow

Environmental degradation is any change in the environment which effects humanity.[566]Air, water and soil are the essential components of the eco-system and with the passage of the time the environmental conditions are getting worse.[567] It has resulted from the careless attitude of the humans towards environment and due to rapid industrialization. Moreover, deforestation, desertification, polluted atmosphere and scarcity of the water resources are adding to the environmental degradation.[568]

In South Asia, the depletion of water resources is a major crises and it undermines the natural support system given by the water. The environmental degradation in the upper reaches of western rivers will affect the downstream flows of western rivers.[569]The increasing water

[565] Abdul Rauf Iqbal, "Environmental Issues of Indus River Basin: An Analysis," *Institute for Strategic Studies, Research and Analysis* ISSRA (2013):93.

[566] It is the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems; habitat destruction; the extinction of wildlife; and pollution. It is defined as any change or disturbance to the environment perceived to be deleterious or undesirable.

[567] Maryam Mastoor, "Environmental Degradation: Focus on Water Scarcity in South Asia," *Regional Studies*, 27:1, (Winter 2008-2009):1.

[568] Ibid., 2.

[569]Wullar Lake is facing environmental degradation. It is Asia's largest water reservoir that feeds Jhelum River and fills Mangla dam in Pakistan.

stress and the continued deforestation in J&K region will affect the downstream flows of Indus River.[570] This environmental change can be considered as most dangerous source of insecurity and conflict in the region and considered as one of the ten threats by the "High Level Threat Pannel" of the United Nations.[571] Due to this reason there is a need to form a treaty ensuring ecological harmony with managerial projects with a focus on environmental degradation

3.2.1. Transboundary Management of Indus Basin

The economy and population of Pakistan are heavily dependent on the flow of IRS flowing mainly through J&K . According to many national and international reports Pakistan is fast moving from water stressed to water scarce country.[572] The transboundary management of the Indus Basin is facing new challenges from climate change and environmental degradation. The Kolahoi glacier in J&K is melting faster than Himalayan glaciers.[573] The glaciers are melting fast due to drastic change in climatic conditions.[574]Over-abstraction of ground water in Indus-India basin (closer to Pakistan's border) has serious effects on aquifers of Indus-Pakistan.[575] Therefore, there is a need to manage the aquifers of the basin states.

IWT has not given importance to the sustainable management of the water bodies by preserving the socio-ecological systems rather it gave independent control to both sides over

---

[570]Ibid., 27.

[571]The United Nations High-level Panel on Threats, Challenges and Change was created in 2003 to analyze threats and challenges to international peace and security and to recommend action based on this analysis

[572]Akhter,"Quest for re-interpreting,"18-19.

[573]Kolahoi Glacier is a valley glacier in the northwestern Himalayan Range situated 26 kilometers north from Pahalgam and 16 kilometers south from Sonamarg, in the state of Jammu and Kashmir. Kolahoi Glacier is among the victims of global warming, and has receded in area from 13.57 km2 to 10.69 km2 in 2005 over the past three decades.

[574] There are 459 glaciers stretched over 1,414 Km2 in Chenab basin, but until 2004, they had retreated to 1,110 km2. The Siachen glacier, which is a major source of Indus waters, is melting fast and it will affect the lives of the millions of people across Pakistan dependent on Indus River.

[575] When water is taken from aquifers, groundwater levels fall. If the amount of water taken is greater than the amount of water falling as rain, it is called over-abstraction.

their respective basin.[576] Thus there is a need to adopt Integrated Water Resource Management (IWRM) strategy for the management of water.[577] The technique will be discussed in detail in the last chapter of this thesis.

3.2.2. Groundwater Management

The IWT clearly lays rules for the use of surface water but it is silent about groundwater management and no joint strategy has been adopted for filling this vacuum.[578] As we discussed before that being an agrarian both Pakistan and India are heavily dependent on agriculture. Both India and Pakistan are the first and fourth largest users of groundwater in the world respectively.[579]

60% of the India's irrigated area is groundwater and its utilization is extremely high in states of Punjab, Haryana and Rajistan.[580] The province of Punjab in Pakistan produces 90% of the country's food and 40% of its total crop water requirement has been fulfilled with this groundwater. [581] According to the report of International Union for Conservation of Nature, Indian projects could bring the induction of groundwater recharge in India thus restricting the surface water flow to Pakistan.[582] The IWT should account for the groundwater management

---

[576]Akhter,"Quest for re-interpreting,"28.

[577] IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems".

[578]Dhanasree Jayaram, "Why India and Pakistan need to review Indus Waters Treaty," 2nd August, 2016 (hereinafter Jayaram, "Indus Waters Treaty,").

[579] National Groundwater Association (NGWA), "Facts about Global Groundwater Usage," www.ngwa.org last accessed, June 23, 2019.

[580]Vasant. P. Ghandi and VaibhavBhamoria, "Groundwater Irrigation in India Growth, challenges and Risks," (2011), 90.

[581]Dr Muhammad Akram Kahlown, Muhammad Ashraf, Abdul Rauf, and Zia-ul-Haq, " Determination of Crop water Requirement of Major Crops under Shallow Water-Table Conditions," *Pakistan Council of Research in Water Resources*, (2003): 32.

[582] Jayaram, "Indus Waters Treaty,".

because Pakistan is fully dependent on the groundwater of Indus Basin for its survival and as far as India is concerned, Indus Basin has a key role in country's food security.[583]

Draft Articles on the Law of Transboundary Aquifers (DALTA) play a significant role in managing a ground water and served as a customary law in the absence of regional arrangement.[584] DALTA was promulgated by the ILC in 2008 and it establishes the same principles as UNWC.

Increased temperatures and retreatment of glaciers in the Himalayan region could result in increasing water demand. Groundwater is expected to decrease in the near future especially in spring and summer seasons. Therefore, there is a need to review the IWT according to the principles set by DALTA.

3.3. Fears of a Water War

Conflicts over international waters arise due to inadequate supply of water.[585] The fear of losing sovereignty and control over shared waters will also results in a water conflict.[586]The last official water war took place some 4,500 years ago between the city-states of Lagash and Ummah on the issue of diverting the water to canals.[587] Since then, no declared water war has been fought. In

---

[583] Ibid.

[584]Waseem Ahmed Qureshi, "The IWT and UNWC: Commonalities and Differences," *Ocean and Coastal Law Journal*, 23:1, (January 2018): 87.

[585]Sergei Vinogradov, Patricia Wouters, and Patricia Jones, "Transforming Potential Conflict into Cooperation Potential: The Role of International Water Law," UNESCO, SC-2003/WS/67, 3 (Hereinafter Vinogradov, Wouters and Jones, "Transforming Potential Conflict,"3).

[586] Indus Basin, tensions between Pakistan and India. Brahmaputra river basin, tensions between India's and China's because of their unilateral plans to exploit water resources and hydropower potential upstream and extend the fear of severe water shortage to downstream Bangladesh.

[587] The first recorded water war occurred more than 4,500 years ago in modern-day Iraq, near the confluence of the Tigris and Euphrates rivers. Fought between the neighboring ancient city-states of Lagash and Umma over the region known then as "Gu'edena" ("edge of paradise"), the conflict started when the king of Lagash diverted water to canals, depriving Umma from a fresh water supply. This ancient "resource war" is one of the earliest known organized battles in history.

the current scenario the tensions between the states increased in the cases where there are shared rivers and one state controls the downstream flow.[588]

Water resources have shrunken due to the increase in the demand of water.[589] Therefore, there is a need to adopt an agreement in order to reduce environmental disaster in South Asia because failure to adopt the agreement will add fuel to the fires of discontentment and terrorism.[590].

Nationally the state manages its water carefully and at international level it maintains its relationship with its co-riparian for the long term access to the shared waters.[591] Water scarcity, a wider conflict, and aggressive public statements are the reasons for future water wars.[592] Moreover, water remains one of the unresolved issues between the two nuclear states which need to be sorted out for maintaining the peace of South Asian region.[593]

3.4. Conclusion

IWT is rigid document as it offers very little for the management of water resources. It doesn't provide any provision with respect to the action taken by both countries during the time of increased water demand. Thus, there is a need to incorporate adaptive water management to manage the trans-boundary waters of Indus. Furthermore, it doesn't provide a provision for environmental assessment of hydropower projects because in 1960 there were no concept that

---

[588] Adam Rahim, "The Security implications of water: Prospects for Instability or Corporation in South and Central Asia", (Masters of Art in Security Studies diss. Naval Postgraduate School, California , March 2010), 1

[589]Ibid., 2.

[590]Ibid., 9.

[591]Undala Z. Alam, "Questioning the Water Wars Rationale: A case study of Indus Waters treaty," *The Geographical Journal,* Vol 168: No, 4 (December 2002): 347.

[592] Ibid.

[593]Ravindra Pratap, "Building Peace over Water in South Asia: The Watercourse Convention and SAARC," *Athens Journal of Law*, Vol, 4: Issue 1, (January 2018):8 (Hereinafter Pratap, "Building Peace over Water,"8).

such projects will have devastating effects in the long run. These power projects have ability to affect the natural flow thus affecting biodiversity, and availability of drinking water.

IWT is apportionment of water not an equitable and reasonable utilization.[594]A large population of the world is facing a water security.[595]According to UN Report, one sixth of the world population doesn't have access to safe water and by 2025 half of the countries will become water stress countries.[596] Extreme climate change enhances the problem of water security. Moreover, there is no mechanism to address these challenges and the water crisis is increasing stress between two countries. The IWT is under a lot of pressure due to change in demographic, political and economic environment and Pakistan being a lower riparian is suffering from water stress.

Moreover, the Treaty should address the disproportionate division of water and require the parties to reallocate the same for downstream flow. It may stipulate that the upstream state may deliver a minimum flow in order to maintain health and ecological functions. So there is a need for flexible allocation under which India would deliver water to Pakistan to make up their loss. The allocation of water should be according to respective population of both India and Pakistan. It doesn't mange the catchment areas located across the border.[597]

It is necessary to include China, as it forms 8% of Indus and the headworks of both Indus and Sutlej are in China. China can construct dams which results in degradation of water. Therefore, the Treaty should be renegotiated in order to include the states bordering the Indus River.

---

[594]Shafqat Kakakhel, "The Indus River Basain and Climate Change," *Criterion Quarterly* ,Vol 10: No 3, (August 1, 2015).

[595] It is the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability

[596]Mian Ahmed Naeem Salik, "Water Security: Challenges of Transboundary Water Issues," 2.

[597]Natalie A. Nax. "Looking to the Future: The Indus Waters Treaty and the Climate Change, (Masters diss.,University of Oregon, June 2016), 24.

CHAPTER FOUR: INTERNATIONAL WATER COURSE LAW AND INDUS WATERS TREATY

4. Introduction

IWL provides a comprehensive legal regime for resolving water disputes.[598] It further strengthens the cooperation among water sharing states. The basic role of IWL is to determine the rights of those states who are entitled to its benefits and establishes certain conditions for developing resources. It is very difficult to separate IWL from international law as fundamental principles of international law are equally applicable to IWL.[599]

The primary sources of IWL are both customs and treaties. However, general principles of law, judicial decisions and resolutions of international organizations are its secondary sources.[600]Since 1966, International Law Association (ILA) has adopted number of resolutions[601]of non-binding nature but they are widely adopted and acknowledged by the states and considered as authoritative statements of international law dealing with transboundary water resources.[602]

The chapter will discuss in detail the legal regime with respect to the sharing of transboundary waters including the customary status of the basic principles of IWL and will

---

[598] The term watercourse is defined in a case *Lyon vs. Winter* (1899) 25 V.L.R. 464 "as a stream of water flowing in a defined channel or between something in the nature of banks. The stream may be very small and need not always run, nor need the banks be clearly or sharply defined. But there must be a course, marked on the earth by visible signs, along which water usually flows."

[599] Sovereign equality of states, non-interference in matters of exclusive national jurisdiction, responsibility for the breach of state's international obligations, and peaceful settlement of international disputes.

[600]Vinogradov, Wouters, and Jones, "Transforming Potential Conflict,"12.

[601] These resolutions covered the issues of transboundary water resources, flood control, international ground waters, regulation of flow, and pollution,

[602] Transboundary waters are physically shared between two or more countries and are some of the most important and vulnerable freshwater resources on the planet. The states concerned have a responsibility to protect them, and to work together to manage them in a sustainable and integrated manner.

analyze IWT in perspective of IWL. Moreover, it will suggest the formation of new treaty regime by involving all stake holders.

4.1. Legal Regime on Transboundary Transfer of Water

International water treaties regarding transboundary transfer of water dates back in 2500 B.C, when first treaty was solemnized between the states of Lagash and Umma.[603] The treaty ended a long water dispute over Tigris River.[604] After the conclusion of said water treaty, many treaties have been emerged and the international community has recognized the importance of bilateral and multilateral legal regimes for managing transboundary waters.[605] The majority of these legal regimes deal with navigation and boundary demarcation but during the last century the focus of these treaties have been shifted to use, protection and development of water resources.[606]

The regime on transboundary transfer of water includes the customary rules governing the use of international watercourses, international watercourse conventions and treaties, and international regional agreements for the management of water resources.

[603] They were Samerian city-states in ancient Mesopotema.

[604]Mesilim was the ruler of Kish, a kingdom north of Lagash and Umma, which held a traditional 'hegemonic' position in the loose alliance of small adjoining Sumerian city-states in the region between the Tigris and Euphrates rivers, south of what was to become Babylon. Because of the prevailing precarious rainfall conditions, the agricultural economy of the entire delta area has always been crucially dependent on irrigation mainly from the 'great Tigris', through an elaborate system of canals and levees which inevitably require close inter-community cooperation. The geographic focus of the bilateral Lagash-Umma agreement, concluded under Mesilim's authority as external arbiter, was the fertile Gu-edena valley; roughly ten by four kilometers wide and irrigated by Tigris waters from a canal named Lum-magimunta (probably the modern Shatt al-Hayy) on the border between Umma and Lagash, and with boundaries marked by stone steles.

[605]Theodor Okonkwo, "A glimpse into International Regimes Governing the Use of the transboundary Freshwater Resources," *Journal of Law, Policy and Globalization*, Vol 52 (2016): 12.

[606] Ibid.

4.1.1. Customary Rules on International Watercourses

CIL not only apply in the cases where there is no water sharing treaty but also apply to fill the gaps and loopholes in the existing treaties.[607] The customary rules of legal framework regarding IWL revolves around the principles of equitable utilization, no harm rule and principle of cooperation.[608] Moreover, state practices show at least four principles of water sharing i.e. absolute territorial sovereignty principle, absolute territorial integrity principle, equitable and reasonable utilization principle, and principle community of co-riparian state.[609] These are the core principles which laid the foundation of international water law. The principle of absolute territorial sovereignty and absolute territorial integrity has been discussed earlier in Chapter 1 of this thesis. Here we will focus on the other two principles.

Principle of community of co- riparian state is derived from the idea of community of interests and deals with the natural unity of watercourse where the whole water course is considered as a whole unit.[610] Moreover this principle was highlighted in two important cases i.e. Territorial Jurisdiction of the International Commission of *River Oder*,[611] and in *Hungry vs. Solovakia*.[612]

---

[607]Preety Bhogal and Katarzyna Kaszubska, "The Case against Weaponising Water", *ORF (Observer Research Foundation) Issue Brief*, Issue: 172, (February 2017): 4.

[608] Ibid.

[609]Pratap, "Building Peace over Water,"15.

[610] The concept of community of interests was endorsed by Grotius: "thus a river, viewed as a stream, is the property of the people through whose territory it flows, or of the ruler whose sway that people is .....The same river, viewed as running water, has remained common property, so that anyone may drink or draw water from it." See Itczchak E. Kornfled, "*Transboundary Water Disputes State Conflict And The Assessment Of Their Adjudication*," (Cambridge: United Kingdom), 2017, 73.

[611]In River Oder judgment 1929, Permanent Court of Arbitration states that "community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect quality of all riparian States in the user of the whole course of the river and the exclusion of any preferential privilege of any one riparian State in relation to the others." Also "If the common legal right is based on the existence of a navigable waterway separating or traversing several States, it is evident that this common right extends to the whole navigable course of the river and does not stop short at the last frontier." (Territorial Jurisdiction of the International Commission of the River Oder, Judgment No. 16, 1929, P. C. I. J., Series A, No. 23, 27).

[612]Hungry vs. Solovakia, 1997 ICJ, Para 85, 56. (Herein after River Danube Case).

The purpose of the principle of equitable and reasonable utilization is to increase the benefits of watercourses and minimizes the burden on riparian states.[613] This principle was originated back in twentieth century.[614]This principle was also applied by the US Supreme Court in *Kansas vs. Colorado* in which it was announced that the right to the use of running stream is common to all riparians.[615] It is not only applicable to the quantity of water involved but also to all the projects that involves the use of water.[616] The states are under an obligation to obtain maximum satisfaction without harming the other riparian state.

Under international law no state has right to use or allow such use which effects the property of the other state or people therein.[617] Every state is under an obligation not to allow its territory contrary to the rights of others.[618] The principle has received a customary status under international law and has been incorporated in many treaties.[619]Moreover, states are not allowed to cause transboundary environmental harm.[620] The principles which are applicable more frequently are reasonable and equitable use and no harm principle. No transboundary harm principle is accompanied by two other principles i.e. precautionary principle, and duty to

---

[613]Gayathrid Nayak and Rohini Bhavan, "Dispute settlement mechanism in transboundary freshwater allocation: an interference of international trade law and environmental law- A way forward to sustainable development,"http://www.uncitral.org/pdf/english/congress/Papers_for_Congress/102-NAIK_and_SHENOI-Dispute_settlement_mechanism_in_trans-boundary_freshwater_allocation.pdf last accessed, June 29, 2019 (Hereinafter Uncitral, "Dispute settlement Mechanism in transboundary fresh water,")

[614]Kansas v. Colorado, 206 U.S.46 (1907), Wyoming v. Colorado, 459 U.S.419 (1922); Connecticut v.Massachusetts, 282 U.S.660 (1931); Washington v. Oregon, 297 U.S 517(1936).

[615] The right to the reasonable and beneficial use of a running stream is common to all the riparian proprietors and so on, each is bound so to use his common right, by all the proprietors.

[616] Uncitral, "Dispute settlement mechanism in transboundary freshwater ," 6.

[617] Trail Smelter Arbitration (United States vs. Canada), 1941.

[618]Corfu Channel Case (United kingdom vs. Albania), 1949.

[619] Helsinki Rules 1966, UNWC 1997 and Water Convention 1992.

[620] Pulp Mills Case on River Uruguay (Argentina vs. Uruguay) 2010 and Use of Nuclear Weapons Case, 1996.

notify.[621]Both these principles deal with the rights of other riparian states with respect to the use of water by their fellow states.[622]

ILA has played an important role in the formation of rules regarding transboundary water resources.[623] In 1966, it has adopted HRs that codified the law governing the utilization of water of international drainage basin.[624]The UNWC codified many rules of customary international law.

The United Nations General Assembly (UNGA) has also adopted resolution regarding the codification of international law relating to international watercourses.[625]The UNGA has recommended ILC to study the law of the non-navigational uses of international watercourses and to codify the same.[626]A decade earlier the UNGA adopted a resolution and recognized the importance of codification of IWL.[627]ILC has been very conscious regarding the importance of preventing transboundary harm and has adopted The Draft Articles of 1991.[628] This was an effort to codify rules of international waters law derived from case laws and state practices.[629]

---

[621] Owen Mcintyre, "The Role of Customary Rules and Principles of Environmental Law in the Protection of Shared International Freshwater Resources", *Natural Resources Journal*, Vol: 46, (winter, 2006), 162 (Hereinafter Mcintyre, "The Role of Customary Rules,"162).

[622]Uncitral, "Dispute settlement mechanism in transboundary freshwater," 9-10.

[623] ILA a professional non-governmental organization created in 1873 for the purpose of study, elucidation and advancement of international law.

[624] Vinogradov, Wouters, and Jones, "Transforming Potential Conflict,", 12-13.

[625] On 8 December 1970, the General Assembly adopted resolution 2669 (XXV), entitled "Progressive Development and Codification of the Rules of International Law Relating to International Watercourses".

[626]www.legal.un.org Last accessed, February 27, 2018.

[627] UNGA has adopted resolution 1401(XIV) on 21 November 1959. In that resolution, the Assembly had indicated that it was "desirable to initiate preliminary studies on the legal problems relating to the utilization and use of international rivers with a view to determining whether the subject is appropriate for codification".

[628] Report of the International Law Commission, Draft Articles on the Law of Non-Navigational Uses of International Watercourses, U.N. GAOR, 46th Sess., Supp. No. 10 at 161, U.N. Doc. A/46/10, (1991) [hereinafter Draft Articles of 1991].

[629] David J. Lazerwitz, " The flow of International Water law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses," *Indiana Journal of Global Legal Studies*, Vol 1: Issue 1, (1993):248 (Hereinafter J. Lazerwitz, "The flow of International water law,"248).

4.1.2. Codification of International Watercourse Law

ILA has codified the law of international watercourses in 1966 with the creation of HRs.[630] The said rules were considered as a reflection of customary practices[631] and were applicable to the international drainage basin (IDB).[632]

The customary law relating to the transfer and sharing of water was codified in the form of UNWC in 1997.[633] It deals with the shared freshwater resources. It consists of comprehensive framework applicable to international watercourses.[634] It was enforced in 2014.[635] It codifies three essential principles of IWL i.e. equitable and reasonable utilization of water,[636]no harm principle and principle of cooperation between watercourse states.[637]These principles are a part of CIL.[638] It requires the states to achieve an equitable balancing of interests including environmental and non-environmental considerations.[639]

The first principle of reasonable use provides the utilization of international watercourses in equitable and reasonable manner.[640] This principle should be adopted by the states in order to

---

[630] Joseph W. Dellapena, "The Customary International Law of Transboundary Waters," *Int. J. Global Environmental Issues*, Vol 1: No 3/4 , (2001), 273.

[631] Ibid.

[632] Article 2 of Helsinki Rules 1966 defines IDB "as a geographical area extending over two or more States determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus."

[633]The Convention on the Law of Non-Navigational Uses of International Watercourses (UNWC Convention) is an international treaty, adopted by the UNO on 21 May 1997. It deals with the issues pertaining to the uses and conservation of all waters that cross international boundaries, including both surface and groundwater.

[634] www.legal.un.org Last accessed, February 27, 2018.

[635]http://treaties.un.org Last accessed June 22, 2018.

[636] Article 5, Convention on the Law of Non- Navigational Uses of International Watercourse, 1997 (UNWC)

[637] Ibid., Article 7 and 8 respectively.

[638]UN Water, "Transboundary Waters:Sharing benefits, Responsibilities", 2008, www.unwater.org Last accessed, February 4, 2018,5.

[639] Article 6, UNWC 1997.

[640] Ibid., Article 5.

attain justifiable utilization along with the protection of watercourses.[641]It doesn't prohibit the use of watercourses unless it hampers the rights of other watercourse state by exceeding its limits.[642]It is duty of the state to determine what is reasonable and equitable.[643]The primary rule of reasonable and equitable use also requires the states to prevent harm.[644] In *River Danube Case*, ICJ declared an equitable and reasonable utilization of shared resources of international watercourses as a basic right.[645] Under Mekong Accord 1975, equality of right doesn't mean equal share of water but it includes the right to use water on the basis of social and economic needs of riparian states.[646]

The second basic principle enshrined in UNWC is "duty to cooperate."[647] The state is under an obligation to cooperate on the basis of sovereignty, equality, and good faith.[648] This principle connects substantive and procedural laws and it is necessary to maintain cooperation because it helps in achieving other factors i.e. exchange of information, notification, consultations, and sometimes successful negotiations.[649]Moreover, states are under an obligation to take all these appropriate measures to prevent harm.[650] No-harm principle must be brought

---

[641] Ibid.

[642] Vinogradov, Wouters, and Jones, "Transforming Potential Conflict,"18.

[643] Article 6 (1) of the UNWC 1997 states that "Utilization of an international watercourse in an equitable and reasonable manner within the meaning of Article 5 requires taking into account all relevant factors and circumstances, including: (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character; (b) The social and economic needs of the watercourse States concerned; (c) The population dependent on the watercourse in each watercourse State; (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States; (e) Existing and potential uses of the watercourse; (f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect; (g) The availability of alternatives, of comparable value, to a particular planned or existing use."

[644]Mcintyre, "The Role of Customary Rules,"189.

[645] River Danube case, Para 78, 54.

[646] Aaron. T. wolf, "Criteria for Equitable Allocations: The Heart of International Water Conflict," *Natural Resources Forum*, Vol 23:No. 1, (February 1999):13 (Hereinafter T. Wolf Criteria for Equitable Utilization,"13).

[647] Article 8,. UNWC, 1997.

[648] Ibid.

[649]FAO Water, "International Watercourses/River Basins including Law, Negotiation, Conflict Resolution and Simulation Training Exercises," 2008, 32.

[650] Article 7., IWC 1997.

into conformity with the principle of reasonable and equitable utilization.[651] In addition to UNWC, many other international instruments talk about no-harm principle and oblige the states to control damage to the areas beyond their territorial jurisdiction.[652]ICJ also emphasizes on the states to ensure respect of the environment of the other states.[653]It has also stressed on the necessity of cooperation among the states that result in alleviation of the problems regarding navigation, flood control, and environmental protection.[654]Merging of the two principles requires the accommodation of some harm and in fact the UNWC also give importance to the principle of equitable utilization.[655]

In addition to UNWC, nations have engaged in cooperation over water at regional level.[656] The efforts of these nations resulted in a formation of a legal and international framework to promote transboundary environmental cooperation.[657] It is the basis for adopting many agreements in Europe.[658] The regional success of the Water Convention paved the way for its accession by all the UN members.[659] The Convention also protects transboundary water and

---

[651]Kerstin Mechlem, "Water as a vehicle of Inter-State Cooperation: A legal Perspective", FAO Development law Service, FAO legal Papers online no 32 (August 2003):12 (Hereinafter Mechlem Water as a Vehicle," 12).

[652] Art. 3 of the Charter of Economic Rights and Duties of States, GA Res. 3281(XXIX), U.N. GAOR, 29th Sess., Supp. No. 31 (1974), 14 ILM 251, Principle 21 of the Stockholm Declaration (Declaration of the United Nations Conference on the Human Environment, 16 June 1972, UN Doc. A/Conf.48/14/rev.1), Principle 2 of the Rio Declaration on Environment and Development, UN Doc. A/CONF.151/5/Rev. 1, 31 ILM 874 (1992).

[653] River Danube Case, Para 37, 34.

[654] Ibid.

[655] Article 7, para 2, IWC, 1997.

[656] Jacob D. Petersen-Perlman, Jennifer C. Veilleux & Aaron T. Wolf "International Water Conflict and Cooperation: Challenges and Opportunities," *Water International*http://dx.doi.org/10.1080/02508060.2017.1276041 (19 Jan 2017) 09 (Hereinafter D. Petersen-Perlman, C. Veilleux and T. Wolf, "International Water Conflict,"9).

[657] United Nations Economic Commission for Europe (UNECE) developed the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) which was signed in 1992 and entered into force in 1996.

[658] The most important is 1994 Convention on the Cooperation for the Protection and Sustainable Use of the Danube River

[659]Petersen-Perlman, C. Veilleux and T. Wolf, "International Water Conflict,"9

ground water by using it equitably and reasonably.[660] It also protects the ecosystem and reduces pollution.[661]

4.1.3. Rights of Upper and Lower Riparian

International law provides many principles for the regulation of use of water for lower and upstream states CIL on transboundary water resources also provides for equitable utilization.[662]Madrid declaration also deals with the rights of upper and lower riparian.[663] The Declaration provides that when a stream forms the frontiers of two states, neither of the state is allowed to make alterations and utilization of water in such a way which proves to be detrimental to the bank of the other states.[664]Similarly, Montevideo Declaration of 1933 safeguards the interests of riparian states.[665]

The water environment in the upstream state has a direct effect on the nature of downstream river.[666] Adverse actions taken by one watercourse state will create a potential difference in the watercourse of other state. Extensive development by the upper riparian will reduce the flow to the lower riparian and deprive it from the adequate share of water. Similarly, a construction by a downstream river will impact the rate of flow in the entire river.[667]

In *Lake Lanoux Arbitration*, the PCA states the principle according to which states are sovereign to carry their hydroelectric developments but without injuring the interests of other

---

[660] Article 2 (2) (c), Water Convention 1992 states that the duty of the State is "to ensure that transboundary waters are used in a reasonable and equitable way, taking into particular account their transboundary character, in the case of activities which cause or are likely to cause transboundary impact."

[661] Ibid Article 2 (2) (d) and Article 2 (3).

[662]Fahim Zaman, "International Law on Water Rights", *Dawn*, October 31, 2016.

[663] Madrid Declaration, 1911.

[664] Ibid., Article I.

[665]Article 2 of Declaration of Montevideo 1933 points that no state may, without the consent of the other riparian state, introduce into water courses of an international character, for industrial or agricultural exploitation of their waters, any alterations which may prove injurious to other interested states

[666] J. Lazerwitz, "The flow of International Water law," 249.

[667] Ibid., 251.

states.[668]The riparian rights in the international river are placed in three different categories i.e. territorial supremacy, territorial integrity, and the unity of the River Basin.[669]Under the principle of territorial integrity, a lower riparian has a right to demand the continuation of natural flow from the upper riparian without concerning its needs.[670] The concept of the unity of the river is based on the fact that every river basin is an indivisible unit and it should be treated as an integrated whole.[671]

Upper riparian often invoke the principle of *Harmone* doctrine by claiming an absolute right over water resources as India did in early phases of negotiations over IWT,[672] as France did in *Lake Lanoux case*,[673] and Palestine over West bank aquifer.[674]Downstream riparians (Egypt and Pakistan) often claim the principle of absolute integrity on basis of their historical use.[675]

Thus, the CIL, declarations, HRs, and UN water conventions establish two important principles for all river basins. Firstly, it is the right of the people living in the basin to use water and secondly the shared waters could neither be stopped nor diverted without the consent of the other riparian state. In the case of River Indus, international law prohibits India to divert the waters in violation of the rights of the people of Pakistan without prior approval.

---

[668] Spain v. France, 24 I.L.R. 101, 111-12 (1957) [hereinafter Lake Lanoux Arbitration].

[669]Nitza Shapirao-Libai, "Development of International Rivers Basins: Regulation of Riparian Competition," *Indiana Law Journal*, Issue 1: Vol 45, (Fall 1969), 22.

[670]Ibid,. 23.

[671] Ibid.

[672] We have already discussed in our first chapter that India did invoke this doctrine of absolute supremacy but it was rejected and it didn't receive a popular support. Also see Chapter 1.

[673]Lake LanouxArbitration.November 16, 1957.

[674] Palestine and West Bank dspute, 1967.

[675] T. wolf, "Criteria for Equitable Allocations," 9.

4.2. Role of International Watercourse Law in Resolving Disputes

Violation of the rules of international law comes under the doctrine of state responsibility.[676]An act is considered as wrongful if it constitutes a breach of international law.[677] Thus a state has committed an international wrongful act if it has denied other state the right of equitable and reasonable utilization.[678] IWL provides a framework for resolving water disputes between the states. The disputes brought before ICJ were Hungry v. Slovakia,[679]and Argentina v. Uruguay.[680]The said disputes were regarding the construction of controversial dams.

In this section we will analyze the mechanisms provided by different treaties and then compare it with IWT. We will further determine that why the dispute resolution mechanism provided by IWT failed to resolve the disputes mentioned before and what is its solution.

---

[676] Peter Malanczuk, *Akehurst's Modern Introduction to International law* Seventh Revised Edition (Roultledge: New York, 2002), 254.

[677] Ibid.

[678]Vinogradov, Wouters, and Jones, "Transforming Potential Conflict," 9.

[679] In 1977 Hungary and Czechoslovakia signed a treaty obligating the States to cooperate in the construction of a system of dams and locks along a section of the Danube River that formed the border between the States. Construction commenced in 1978 but progressed slowly due to political and economic transformations in both States. In 1989, Hungary abandoned the project, justifying its decision on claims of changed circumstances and impossibility. In 1993, Czechoslovakia peacefully separated into two nations: Czech Republic and Slovakia. Slovakia assumed its predecessor's responsibilities under the treaty because the planned hydraulic system fell within its territory along the Danube River. After continued negotiations failed, Slovakia devised "Variant C," an alternative plan to complete the project. Under Variant C, Slovakia dammed the Danube and appropriated between 80 and 90% of the river water. The dispute came before the International Court of Justice in 1994 and was decided in 1997. The Court rejected Hungary's claims of changed circumstances and impossibility but also concluded that Slovakia, by putting Variant C into operation and unilaterally taking control of a shared resource, had violated international law and the 1977 Treaty. Ultimately, the Court ordered the parties to "re-establish co-operative administration of what remains of the Project."

[680] In 2003, Uruguay started the construction of pulp mills on Uruguay River. Argentina has initiated the proceedings in order to prevent Uruguay from construction of mills. Argentina claimed that Uruguay has violated the provisions of treaty regarding prior notification when the project is going to affect the water quality. On April 2010, the Court concluded that Uruguay has violated its obligations under international law and declared it as a breach. Such declaration was considered as a sufficient remedy for Argentina's claim.

4.2.1. Dispute Resolving Mechanism

Many international treaties provide mechanism for dispute resolution.[681]The United Nations Charter (UN Charter) provides methods for resolving disputes.[682] The charter prohibits the use of force and emphasized to settle the disputes through peaceful means in order to intact the international peace and security.[683]HRs 1966,[684] also provides mechanism for dispute settlement,[685]and laid down a detail procedure regarding the prevention and settlement of disputes.[686]These rules require the basin states to share information regarding the activities and use of international rivers in their territories.[687]Under these rules states are required to give prior notice with respect to the installations which would results in alteration of the regime of basin in order to avoid dispute.[688]

[681]Article 33 (United Nations Charter 1945), Article 22 (UNECE Convention UNECE Convention on the Protection and Use of Transboundary Watercourses and International lakes (Water Convention), 1992, Article 33 (Convention on the Law of the Non-navigational Uses of International Watercourses 1997).

[682] Article 33 (1), United Nations Charter, 1945 provides that " the parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice."

[683] Ibid., Article 2(4)

[684] International Law Association in its 52nd Conference at Helsinki adopted "The Helsinki Rules on the Uses of the Waters of International Rivers" which came to be known as Helsinki Rules.

[685] Chapter 6, Helsinki Rules 1966.

[686] Article XXVIII of Helsinki rules 1966 provides that 1. "States are under a primary obligation to resort to means of prevention and settlement of disputes stipulated in the applicable treaties binding upon them. 2. States are limited to the means of prevention and settlement of disputes stipulated in treaties binding upon them only to the extent provided by the applicable treaties."

[687]Ibid., Article XXIX (1) states that "With a view to preventing disputes from arising between basin States as to their legal rights or other interest, it is recommended that each basin State furnish relevant and reasonably available information to the other basin States concerning the waters of a drainage basin within its territory and its use of, and activities with respect to such waters."

[688] Ibid., Article XXIX (2) states that "A State, regardless of its location in a drainage basin, should in particular furnish to any other basin State, the interests of which may be substantially affected, notice of any proposed construction or installation which would alter the regime of the basin in a way which might give rise to a dispute as defined in Article XXVI. The notice should include such essential facts as will permit the recipient to make an assessment of the probable effect of the proposed alteration."

In case of any dispute related to the use of the waters of international drainage basin the states are recommended to refer the dispute to joint agency.[689]If the state fails to resolve the dispute through joint agency then they are recommended to adopt good offices or mediation.[690] The state can also form a Commission or adhoc conciliation commission in case of failure of its good offices.[691]States can also submit their disputes to permanent arbitral tribunal or to ICJ.[692] Though these rules are of comprehensive nature but it can be argued that they have non-binding nature unless they are adopted in the form of a convention.[693] However, these rules had strongly influenced the development of IWL particularly the UNWC of 1997.[694]

Water Convention (1992) also aims to protect and ensure the sustainable use of transboundary water courses.[695] It provides inter-governmental platform for the development of transboundary cooperation.[696]Information with respect to existing and planned uses of shared waters should be exchanged in fulfillment of procedural obligations.[697] The Convention made it

[689] Ibid., Article XXXI (1) states that "If a question or dispute which relates to the present or future utilization of the waters of an international drainage basin, the basin states should refer the question or dispute to a joint agency and request the agency to survey the international drainage basin and to formulate plans or recommendations for the most efficient use thereof in the interests of all the states concerned."

[690] Ibid., Article XXXII states that "If a question or a dispute is one which is considered by the States concerned to be incapable of resolution in the manner set forth in Article XXXI, it is recommended that they seek the good offices, or jointly request the mediation of a third State, of a qualified international organization or of a qualified person."

[691] Ibid., Article XXXIII states that 1. "If the states concerned have not been able to resolve their dispute through negotiation or have been unable to agree on the measures described in articles XXXI and XXXII, it is recommended that they form a commission of inquiry or an ad hoc conciliation commission, which shall endeavor to find a solution, likely to be accepted by the states concerned, of any dispute as to their legal rights."

[692] Ibid., Article XXXIV.

[693]Uncitral, "Dispute settlement mechanism in transboundary freshwater allocation," 14.

[694] Ibid., 15.

[695]Convention on the protection and use of Trans-boundary Watercourses and International Lakes (1992, Water convention).

[696]www.unece.org/env/water/pdf/watercon.pdf last accessed, February 28, 2018.

[697]Flavialoures, Dr. Alistair Rieu-Clarke and, Marie-Laure Vercambre, "Everything you need to know about the UN Watercourses Convention," WWF, (January, 2009), 01 (Hereinafter Flavialoures, Rieu-Clare and Vercambre, "Everything you need," 01).

compulsory to resort to arbitration and adjudication in case of failure to solve the dispute through negotiations.[698]

The UNWC 1997 provides the mechanism for settlement of disputes.[699] The UNWC provides that in case of dispute between the parties regarding the interpretation of the convention, they should settle it through peaceful means.[700] In case of failure of negotiations the parties may resolve the dispute through good offices, mediation, conciliation, by the involvement of a third party, any joint watercourse institution, arbitration or adjudication.[701]If the parties fail to achieve the solution by resolving to all these means, than the dispute shall be submitted to impartial fact-finding.[702] A fact-finding Commission shall be established in order to reach a solution,[703]and the Commission shall determine its own procedure.[704]The UNWC Convention has no binding dispute resolution mechanism that lessens its affectivity as compared to other water sharing treaties mentioned above. The parties may refer to adjudication and arbitration but it is not compulsory to seek out these methods.[705] Moreover the authority of the fact finding commission is very broad as it has power to access any territory and its equipment and construction.[706]It amounts to an infringement on territorial sovereignty of state.[707]Pakistan is displeased with the non-binding nature of dispute resolution mechanism provided by the UNWC.[708]

---

[698] Article 22 (2) a, b, Water Convention 1992.

[699] Article 33, UNWC 1997.

[700] Ibid., Article 33 (1).

[701] Ibid., Article 33 (2).

[702] Ibid., Article 33 (3).

[703] Ibid., Article 33 (4) talks about a fact-finding commission to establish the facts of an issue. It should be composed of one member nominated by each party concerned and in addition a member not having the nationality of any of the parties concerned chosen by the nominated members who shall serve as Chairman.

[704] Ibid., Article 33 (6).

[705] Ibid., Article 33 (2).

[706] Salman M. A Salman and Kishor Uperty, *Shared Watercourses and Water Security in South Asia: Challenges of Negotiating and Enforcing Treaties*, (Leiden, Netherlands), 82.

[707] Ibid.

[708] Ibid., 81.

The IWT also provides dispute settlement mechanism for resolution of disputes in order to avoid future tensions regarding distribution of waters. All the questions regarding the implementation of the Treaty shall be examined by the PIC. It works to maintain the sustainable bilateral cooperation over Indus basin. Moreover, it has power to deal with any other matter that might constitute a breach of the Treaty.[709] If the Commission fails to reach on an agreement between the parties, the matter must be transferred to the NE at the request of either Commissioner.[710] The NE will provide opportunity to both the parties and will decide the question that whether or not it falls under his jurisdiction.[711] NE is appointed as arbitrator.[712]

---

[709] Article IX (1), IWT 1960.

[710] "If the difference doesn't come under his ambit than he should inform the commission about its treatment as a dispute. It is the duty of the Commission to submit the report on the points of agreement and the points of dispute. Moreover, the report contains the views of each Commissioner on these issues. The dispute shall be settled in accordance with provisions of the Treaty by Court of Arbitration (CoA) in case of failure to resolve it through negotiations." See Article IX (2) a, b. Article IX (3 & 5).

[711] According to the Paragraph 1 of the Annexure F, either Commissioner may, under Article IX (2) of IWT refer to a Neutral Expert any of the following questions : "(1) Determination of the component of water available for the use of Pakistan . (2) Determination of the boundary of the drainage basin of The Indus or The Jhelum or The Chenab .(3) Whether or not any use of water or storage in addition to that provided under the Treaty is involved in any of the schemes and carried out by India on the Western Rivers.(4) Questions relating to the obligations with respect to construction or re-modeling or pouring of waters into, an y drainage or drain and, the maintenance of drainages .(5) Questions arising as to whether any action taken by either Party is likely to have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks. (6) Whether any of the data requested by either Party falls outside the scope of Article VI (2). (7) Determination of withdrawals to be made by India. (8) Determination of schedule of releases from Conservation Storage. (9) Whether or not any new Agricultural Use by India, on those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan, conforms to the provisions of the Treaty. (10) Whether or not the operation by India of an y plant constructed in accordance with the provisions of the Treaty. (11) Whether or not any new hydro-electric plant on an irrigation channel taking off the Western Rivers conforms to the provisions of the Treaty (12) Whether or not the operation of a Storage Work which was in operation as on the Effective Date substantially conforms to the provisions. (13) Whether or not any part of the storage in a Connecting Lake is the result of man-made works constructed after the Effective Date, (14) Whether or not any flood control work constructed on the Jhelum Main conforms to the provisions. (15) Whether or not any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use conforms to the provisions. (16) Whether or not the operation of any Storage Work constructed by India, after the Effective Date, conforms to the provisions and, to the extent necessary, to the provisions. (17) Whether or not the storage capacity proposed to be made up by India exceeds the storage capacity lost by sedimentation. (18) Modification of Forms under the provisions of the Treaty."

[712]Waseem Ahmed Qureshi, "Dispute Resolution Mechanisms: An Analysis of Indus Waters Treaty," *Pepperdine Dispute Resolution Law Journal,* Vol. 18: 75, (2018): 89.

However; with the emergence of recent tensions between India and Pakistan PIC has become ineffective in resolving the differences over the utilization of water.[713]

The dispute resolution mechanism provided by IWT is very slow and by the time the case reaches at the highest forum either the project has been completed or it has acquired so much cost that it cannot be taken back.[714] The slow process of dispute resolution mechanism defeats its purpose and adversely affects the interests of Pakistan as the treaty has failed to mention timeframe for the settlement of the dispute. Moreover, India didn't bother to inform Pakistan about the construction projects rather commences the project without any information that resulted in a delay in raising issues timely.[715]Pakistan was informed about the designs and plans on the hydroelectric project when India has almost completed its project which amounts to a violation of IWT.[716]

No safety measures have been provided by IWT to rely upon except arbitration in case of failure of negotiations. A dispute settlement provision could be included regarding the submission of dispute to the ICJ in order to get effective results.[717] Moreover, parties should use PIC not only to collect data for the purpose of optimum use but also to ensure that such use is ecologically sound in order to enjoy the continuous use of basin waters.[718]It requires more institutionalization, expansion and consolidation and there should be an equal representation and involvement of Kashmiri experts both from J&K and AJ&K. The Commission should be given a

---

[713]Ibid,. 90.
[714]Ibid,. 93.
[715] Ibid., 113-114.
[716] Annexure E, Clause 4, IWT 1960.
[717]*Vienna Convention for the Protection of the Ozone Layer,* art. III, UNEP Doe. IG. 53/5/Rev 1 (1985).
[718]Durgsheree Devi Raman," Governance of International Rivers threats Gaps and Challenges,"(PhD diss., The University of Waikatu, 2015), 115 (Hereinafter Raman, "Governance of International Rivers." 115)

broad mandate to promote cooperative development of the water resources of basin and it should be given an autonomous power in all spheres.[719]

4.3. Analysis of Indus Waters Treaty in the Light of International Watercourse Law

The cooperation between the watercourses states should based on the principles of sovereign equality, territorial integrity. All the watercourse states shall act in good faith in order to get the maximum utilization of water.[720]The increase in the water scarcity in South Asia is an early warning with respect to political tensions in the region. Under the circumstances peaceful sharing of the rivers seems difficult particularly when an upstream nation is politically and economically strong.[721] A major area of Indus River is shared by India and Pakistan. India has been engaged in large scale development of hydropower projects thus hampering the vital interests of other riparian states.[722] Pakistan and India have signed a treaty in isolation from the provisions of international law regarding water sharing.[723]

The most comprehensive framework with respect to water sharing is provided by the UNWC that applies to all surface and ground waters[724] and many other treaties were influenced by it.[725]The IWT is unusual out of all international water treaties as its allocation ia neither on the

[719] Muhammad Nasrullah, *Wullar Barrage* (1991), 110.
[720]Article 8(1), IWC 1997.
[721]Aslam, "Pakistan's Water Vulnerability,"31.
[722]Muhammad Nasrullah Mirza, "Indus Water Disputes and India-Pakistan Relations," (PhD diss., Department of Political Science, South Asia Institute, University of Heidelberg, Federal Republic of Germany,2016), 48-49.
[723] Muhammad Nasrullah, *Wullar Barrage* (1991), 110.
[724] Mechlem, "Water as a vehicle," 8.
[725] Revised Protocol on Shared Watercourse Systems in the Southern African Development Community Region (SADC), 2000 ,Incomati and Maputo Treaty 2002 and Mekong River Basin Agreement 1995.

basis of quantitative rule nor operating rule, rather its allocation is based on tributary location.[726] Moreover, all the co-riparian states didn't enjoy equitable utilization of its common waters in River Basins.[727]IWT provided for a territorial type of sharing that divides the Indus River between India and Pakistan thus enabled independent development of water resources rather than cooperative development.[728]It didn't allow for continuous sharing of the same river, whereas many treaties and conventions provides for equitable and reasonable use of water.[729]

Before 1947, Indus River was a national river but after partition it becomes an international river. Moreover, it is not the number of the rivers but the quantity of the water that counts. If we consider the drainage basin approach of HRs, 1966, the Indus Basin should have been treated as a single unit by giving the share on each tributary of Indus for both the nations.[730]

The exchange of hydrological and hydro-geological data on a regular basis is pre-requisite in many other water sharing treaties.[731]UNWC also regulates the collection of the data that is not available.[732]The states are also under an obligation to inform about the planned

---

[726] Mary Miner, Gori Patankar, Shama Ghamar and David J. Eaten, "Water Sharing between India and Pakistan: A Critical evaluation of Indus Waters Treaty," *Water International*, Vol 34, No 2 (June, 2009):211.

[727] 3 out of 5 riparians in the Jordan Basin, 2 out of 11 States in the Nile Basin and between 2 out of 4 States in the Indus Basin are utilizing common waters.

[728] Siyad A C, "IWT and Baglihar Project," 3149.

[729] 1966 Helsinki Rules (Articles IV, V, VII, X, XXIX [4]), 1997 UN Watercourses Convention (Articles 5, 6, 7, 15, 16, 17, 19), 1995 SADC protocol on shared watercourse systems (Article 2), 2002 Sava River Basin Agreement (Articles 7–9), 1996 Mahakali River Treaty (Articles 3, 7, 8, 9), 1995 Mekong Agreement (Articles 4–6, 26), 2004 Berlin Rules (Articles 10.1, 12, 13, 14, 16) and 1992 UNECE Water Convention (Article 2.2c).

[730] The drainage basin is an indivisible hydrologic unit, which requires comprehensive consideration in order to effect maximum utilization and development of any portion of its waters. This conclusion is particularly significant when it is recognized that a State, although not riparian to the principal stream of the basin, may nevertheless supply substantial quantities of water to that stream; such a State thus is in a position to interfere with the supply of water through action with respect to the water flowing within its own territory. Therefore, in order to accommodate potential or existing conflicts in instances of multi-use development and to provide the optimum rational development of a common resource for the benefit of each State in whose territory a portion of the system lies, the drainage basin approach has become a necessity.

[731] The two concise technical agreements concluded among Egypt, Libya, Chad and Sudan on Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System and on Monitoring and Data Sharing.

[732] Art. 9, para. 2 IWC 1997, regulates the collection and processing of data that is not readily available. It stipulates that states have to employ their best efforts when faced with a request for such data by another state and that they may condition their compliance with the request upon payment for the costs arising

measures.[733]This information enables the co-riparian states about the possible effects of the planned projects and helps to mitigate loss.[734] IWT is silent about ecological factors and specifically the ecological flows.[735] Allocation of three tributaries out of six to both the parties means that any disruptions to the ecological flows upstream will directly affect downstream (Pakistan).[736]Therefore it is necessary to incorporate the aspect of ecological flows in order to manage the river basin as enshrined in the UNWC and according to the good practices adopted by the UNECE.[737]

The duty to maintain a minimum flow does not exist alone but it has to be complemented by duty to prevent significant harm, regular exchange of data, preservation of ecosystem, and managing of a river basin as an integrated whole. Therefore, renegotiation of IWT should include groundwater exploitation, disaster management and environmental protection. It is also needed to incorporate all the customary principles and to adjust the basic provisions of the UNWC and HRs regarding the drainage basin approach because IWT has failed to consider long term changes in availability of water.[738]The ICJ has decided that the basic customary international law of watercourses is equitable utilization rather than the bi-lateral treaty and treated the UNWC as a modern development of international law by giving priority to the principle of equitable utilization over no-harm rule.[739]So, it is essential to re-visit water allocations in accordance with those changes. This will help in protecting the basic human needs by maintaining a fair balance between states.

---

[733] Ibid., Article 11.
[734] Mechlem, "Water as a vehicle,"17.
[735]Raman, "Governance of International Rivers ,"110-111.
[736] Ibid., 115.
[737] Article 6 (1) (a) and Article 9 (1), IWC 1997. Article 2 (b), and Annexure III (e), Water Convention 1992.
[738]Flavialoures, Rieu-Clarke and, Vercambre, "Everything you need," 05.
[739] Hungary v. Slovakia, 1997.

India and Pakistan are party to the UNWC and this is a right time to re-negotiate this half a century old Treaty including at least other riparian states. Afghanistan could be included in order to deal with the issue of over-extraction.[740]The use of Kabul River by Afghanistan will affect Pakistan's use as a downstream.[741]It is a major tributary to Indus and it is not covered by IWT.[742]China has certain advantage in this dispute because being an upper most riparian to both India and Pakistan it could choose to divert the waters of both Sutlej and Indus River and furthermore there is no international treaty to restrict their action.[743]Both these rivers originate in Tibet in China.[744]Therefore this situation cannot be overlooked.

Conclusion

The chapter concludes that IWL provides a comprehensive regime with respect to transboundary sharing of water in the form of customary rules, treaties and judicial decisions. Therefore, there is a need to reform the new treaty by incorporating the principles of IWL and by involving all the riparian states in order to avoid further water conflicts.

---

[740] Over- Extraction of water is the process of taking more water from any source then required, either temporarily or permanently, for flood control or to obtain water for, for example, irrigation. The extracted water could also be used as drinking water after suitable treatment.

[741]Raman," Governance of International Rivers,"110-111.

[742]Majed Akhter, "More on the sharing of Indus Waters," *Economic and Political Weekly*, vol: XLV, No: 17, (April 24, 2010) :99.

[743]Rabail Gul, "In the surge of healing the case of Indus Basin," (LLM diss., Malmo University faculty of Culture and Society, Spring 2017),13.

[744] Ibid.

CHAPTER FIVE: WATER APPORTIONMENT ACCORD AND INTERPROVINCIAL DISPUTES IN THE LIGHT OF INTERNATIONAL WATERCOURSE LAW

5. Introduction

In Pakistan, the average flow of Indus river waters is approximately 146 MAF.[745] More than 80% of this water arrives at the river basins due to melting of glaciers during the summer season. The flow of the river water indicates that availability of water in the Indus River tributaries have decreased since 1961.[746] Similarly in Chenab and Jhelum Rivers, the annual water flow has been decreased from 23 MAF and 26 MAF to 22 MAF and 25 MAF respectively.[747]The reduction in the annual flow of water is due to construction of HEPP by India on Western rivers, as discussed in second chapter of this dissertation because substantial amount of water of Indus river tributaries have been stored for these power projects.

Many contemporary problems in Pakistan i.e. water shortage, reduction in river flow, construction of hydropower projects, and large scale irrigated agriculture are due to the partitioning of Indus River.[748] However, the acceptance of IWT has aggravated the inter-provincial rivalry over the basin's water.[749] Pakistan is facing serious conflict regarding the distribution of water. The conflict is due to inequitable distribution of water between provinces

---

[745] Water-Planning Commission , "Water", 11th Five Year Plan, 223 https://www.pc.gov.pk/uploads/plans/Ch20-Water1.pdf last accessed, July 13, 2019.

[746] Qureshi, "Indus Basin Water," 78.

[747] Ibid.

[748] In 1951, David Lilienthal (Chairman Tennessee Valley Authority) proposed integrated management of the Indus Basin in an article published in Collier's but the negotiations for IWT has ruled out the possibility of integrated management of river and rather reversed the principles set out by David Lilienthal in 1951.

[749] Downstream Sindh suffered because the link canals which took water from the Indus to the areas of upstream Punjab that were irrigated by the eastern rivers before IWT were allocated to India.

despite of the presence of WAA 1991 and lack of effectiveness at institutional level. It is noteworthy that Pakistan lacks comprehensive legislation regarding the distribution of water and its water policy has failed to take cognizance of emerging water issues.[750] Moreover the existing laws are very old and not in accordance with the accepted principles of international watercourse law.

The chapter will discuss the distribution of water between the provinces before the conclusion of WAA in 1991. It will then explain inter-provincial disputes and their current status in the light of controversies regarding the construction of other dams and particularly Kalabagh Dam (KBD). The chapter will also highlight the lacunas in water legislation with a focus on WAA along with the failure of institutional framework for the management of water and will suggest for incorporating the norms of international watercourse law. The need for water diplomacy and affective water policy is also a point of discussion in this chapter.

5.1. Historical Overview on Distribution of Water

In the beginning of 19th century it became apparent that water resources were not in proportion to the irrigable land because the supply from Ravi River was insufficient while Jhelum River had a surplus.[751] To overcome this situation the Triple Canal Project (TCP) was constructed which linked Jhelum, Chenab and Ravi Rivers to transfer the surplus water of Jhelum and Chenab River to Ravi River.[752]

---

[750]Iram Khalid and Ishrat Begum, "Hydro-politics in Pakistan: Perceptions and Misperceptions," *A Research Journal of South Asian Studies*, 28:1, (January –June 2003):7 (Hereinafter Khalid and Begum, "Hydro-politics in pakistan,"7).

[751] SC Sharma, *Punjab The Crucial Decade* (New Delhi:Nirmal Publishers and Distributors, 1987), 38.

[752] It was named as TCP because it was composed of three distinct units i.e. The Upper Jhelum Canal, The upper Chenab and the Lower Bar Doab Canal.

The SVP was also completed in 1933.[753] During the same period, the Sukkur Barrage was completed and considered as a first modern Hydraulic structure on downstream Indus River.[754] Haveli and Rangpur Canals were opened in 1939.[755]

After Partition, Kotri, Taunsa and Guddu barrages were completed on the Indus River to provide irrigation to the areas served by inundation canals.[756] The Indus Basin Project (IBP) was developed in pursuance of the IWT.[757] It includes Mangla and Terbela dam, five Barrages, one syphon and eight inter-river link canals. Mangla and Terbela dam were the major storage reservoirs to mitigate the effect of diverting the eastern rivers.[758]Before partition, Sindh was allotted 75% of flow of Indus main by British India while 94% of the flow was allotted to the Punjab through Sindh-Punjab Agreement.[759]

---

[753] During 1921 the Sutlej Valley Project was sanctioned for the development of the Punjab, Bikaner (now in India) and Bahawalpur states areas. The Project consisting of four (4) weirs (a low dam built across a river to raise the level of water upstream or regulate its flow) on the Sutlej River at Ferozepur, Sulemanki, Islam and Panjnad

[754] ICID, "Irrigation and Drainage in the World-A Global Review", 9. www.icrd.org 1-16

[755] Muhammad Nawaz Bhatti and Muhammad Farooq, "Politics of Water Resource Development in Pre-Partition India," *Pakistan Journal of History and Culture*, XXXIX:2 (2018): 36 (Hereinafter Bhatti and Farooq, "Politics of Water,"36).

[756] The World Bank Group Archives, "Indus Basin Dispute-Indus Basin Irrigation Water Problem," 1954, 5.

[757] Engineer Syed Jamait Ali Shah, "Indus Waters Treaty under stress: Imperatives of Climatic Change or Political Manipulation," *Margalla Papers*, (2011): 5.

[758] Ibid.

[759] In the said agreement, water distribution was ensured and Indus River water along with its tributaries was distributed between Sindh and the Punjab. Majority of the water from the eastern tributaries of Indus (94%) were allocated to Punjab and remaining to the Sindh. Sindh was allocated with 75% water of the Indus main channel and Punjab with the remaining 25%.

Moreover the IWT has made the construction of link canals necessary for Pakistan in order to compensate the upstream loss of water.[760]As a majority of the link canals were to be constructed in Punjab, Sindh considered it as a conspiracy to compensate Punjab at the expense of Sindh's share.[761]

IRS has been used for irrigational purposes since ages.[762] Earlier there was a system of canals which drew supplies directly from the river and these withdrawals were directly governed by the level of the water in the river. The withdrawals in such canals were unreliable and steps were taken to control the variable water supply in these canals in 19th century.[763] However, conflict arises between former state of Bikankar, Bahawalpur and Punjab on water sharing.[764] Anderson Committee was established by the GoI in 1935 in order to resolve the said issues.[765]

The issue of distribution of water among the provinces remained there even after the conclusion of IWT. The adhoc water sharing agreement was followed up till 1990 before the formation of WAA in 1991.[766]

---

[760]Article IV, IWT 1960

[761] Muhammad Irfan, Abdul Qadir, Habib Ali, Nadia Jamil, and Sajid Rashid Ahmed, "Vulnerability of Environmental Resources in Indus Basin after the Development of Irrigation system," DOI: 10.5772/intechopen.86722 (June 25th 2019), https://www.intechopen.com/online-first/vulnerability-of-environmental-resources-in-indus-basin-after-t development-of-irrigation-system Last accessed, August 3rd, 2019.

[762] Muhammad Idrees Rajput, "Inter-provincial Water Issues in Pakistan," *PILDAT*, ISBN-978-969-558-=197-1 (January 2011):11 (Hereinafter Rajput, Inter-provincial water Issues," 11).

[763] Ibid. 12

[764] The conflict has been discussed in detail in chapter 1 of this dissertation.

[765] Anderson Committee set up to study the distribution of supplies from the Indus River for the various existing and proposed canals, submitted its report in 1935, on which the government of India passed orders in 1937. These related to additional allocation of water and the basis for sharing of shortage and utilization of surplus supplies

[766]Adhoc distribution of Indus waters was notified by Federal Govt. for each period/season of the year.

5.1.1. Impact of the Partition on Water Resources

Contentions over distribution of water continue even after independence. Till 1955, water distribution was regulated under Sindh Punjab Agreement of 1945.[767]

One Unit was imposed in 1955 and provinces remained under one unit till 1955.[768]Water Allocation and Rates Committee[769] was formed by the Governor of the then West Pakistan in 1968.[770] The Committee was chaired by Akhter Hussain and submitted its report on 30th June, 1970. The report went unnoticed because of division of One Unit.[771] Another committee was formed to look after the division of water of River Indus and its tributaries. Committee has submitted its report in 1971.[772]The committee was formed to recommend the apportionment of waters of Indus River System among the four provinces of West Pakistan.[773]The committee could not build a consensus on the apportionment of waters. Therefore, the ad hoc distribution of water was ordered and continued till the enforcement of WAA.

---

[767] Rafia Rauf, "Legal Framework for Resolution of Water Conflicts in Pakistan-A Historical Perspective," *LEAD*, (January 3, 2009), 2.

[768] This Scheme essentially dissolved the four provinces and Tribal areas in the western wing of Pakistan and merged them all into a West Pakistan; and the province of Bengal was dissolved into East Pakistan. The One Unit Scheme was done away with in 1970.

[769] This Committee was constituted to review water barrage allocations, pattern of the release of reservoirs, and use of ground water in relation to surface water deliveries.

[770]Lubna Kanwal, "Sind-Punjab Water Sharing Conflict,"*Pakistan Journal of Social Sciences*, 34:2 (2104):504.

[771]It was named as Akhter Hussain Committee after its chairman. This committee was formed to review barrage water allocations, reservoir release patterns, drawdown levels and ground water in relation to surface deliveries. The report of this committee couldn't gain any attention due to dissolution of one unit. West Pakistan was divided into four provinces.

[772] Pakistani government has set a committee on October 15, 1970 chaired by the then Justice of Supreme Court Justice Fazle Akbar. The Committee was appointed to recommend the apportionment of water allocations of groundwater. The committee submitted its report in 1971 but the recommendations were not followed. In the meanwhile, distribution of Chashma and Terbela reservoirs were made on adhoc basis among the provinces and it continued till the formation of WAA in 1991.

[773] The terms of reference and the report of the Committee introduced first time a new element in water resource calculation: that of ground water.

In 1977, GoP has established Indus Water Commission[774] to solve this problem. The Commission comprises of four chief justices of respective high courts and was headed by Chief Justice Anwar ul Haq. The commission was asked to submit its report within nine months but it could not submit its report due to the imposition of martial law in 1977.[775] In 1983, once again the task of distribution of water was given to the committee.[776] This committee had submitted its report in the same year. This report was not result oriented and the conflict continues for seven more years.[777] During these years ad hoc distribution of water was notified by the federal government that has increased bitterness among provinces.

On March 16, 1991, an agreement "Apportionment of Water of the Indus River System between the Provinces" was made at Karachi.[778] This Agreement was based on the existing and future needs of water of four provinces. According to this agreement, total water estimated to be 114.35 million Acre Feet (MAF) out of which 55.95 MAF was allocated to Punjab, 48.76 MAF to Sindh, 5.78 MAF to NWFP (now Khyber PakhtunKhwa (KPK)), and 3.87 MAF to Balochistan.[779]

---

[774] On the recommendation of the Council of Common Interests, which discussed the apportionment issue in its meeting on 31st December, 1976, the President of Pakistan constituted a commission in 1981. It was comprised of Chief Justice of Pakistan, Mr. Justice Anwar-ul-Haq as its chairman and chief justices of four High Courts as its members. The commission was asked to finalize its report within nine months but it could not finalize its recommendations. So, the President consulted on the issue with the Council of Common Interests, Ministry of Fuel and Power and the Governors of the four provinces. After consultations, a reference was made by the Federal Government on this point to the Chief Justice of the Supreme Court, who analyzed the position which was obtained in the case of 27th June, 1982. Ultimately, he suggested to the President that the distribution of waters of the river Indus and its tributaries may be based on the report of the Fazle Akbar Committee, which may be adopted with some modifications and adjustments to be made by the appointing an Indus River Authority

[775] Bhatti and Farooq, "Politics of Water," 212.

[776] Ibid.

[777] In 1977, the government of Pakistan again formed a commission to examine the issue of water apportionment. The report of the commission remained pending till the formation of water accord. Haleem Committee submitted its report to the president in 1983 and adhoc distribution of water continued.

[778] WAA 1991.

[779] Ibid., Section 2.

5.2. Domestic Legislation on Water

There are several laws in Pakistan related to the management of water resources, prevention of floods, and to mitigate the effect of abnormal increase or decrease in river watercourses.[780] Some of the laws were enacted during British Colonial rule,[781]and some have been enacted after partition.[782] Under the Constitution of 1973, the federal legislative list in the 4th Schedule of the Constitution consists of two parts but nowhere water was mentioned.[783] The Constitution of 1973 also provides the provinces the power to confer legislative authority to the federation and allow them to pass laws.[784] This power has been exercised in the past.[785]Presently, despite of the water scarcity no provincial assembly has passed a resolution requesting parliament to pass a law on the subject of water. Furthermore, 18th Amendment has no effect on water issue as subject of water has always been one of provincial legislative domain since Partition.[786]

---

[780] Qureshi, "Indus Basin Water," 75.

[781] One of the earliest water-related legislation enforced by the British in the Indus Basin was the Northern Indian Canal and Drainage Act, 1873, which extended to the territories of Punjab, United Provinces (now Uttar Pradesh), Central Provinces (now Delhi) and the (then) North-West Frontier Province. Because Sindh was not yet a separate province at the time and was governed from the Bombay Presidency, the Bombay Irrigation Act, 1879 regulated the water rights of the Provincial Government in Sindh.

[782] In post-Partition Pakistan, these laws are now referred to as the Punjab Irrigation and Drainage Act, 1873 Sindh Irrigation and Drainage Act, 1879. The Khyber Pakhtunkhwa Irrigation and Drainage Act, 1873 now applies to the territory of what was once the North West Frontier Province as well as the Provincially Administered Tribal Areas of Chitral, Dir, Kalam, Swat, and the Malakand Protected Area Punjab Soil Reclamation Act 1952, The Water and Power Development Authority Act (WAPDA) 1958, The Baluchistan Ordinance 1980, The Water Users Association Ordinance 1981, The Indus River System Authority(IRSA) Act 1992, The Provincial Irrigation and Drainage Authority (PIDA) Act 1997, and the Environmental Protection Act (EPA) 1997.

[783] Ahmed Rafay Alam, "A Constitutional History of Water in Pakistan," Policy Brief (Jinnah Institute), (January7 2019), 11.

[784] Article 144, Constitution of Islamic Republic of Pakistan 1973.

[785]The Seeds Act, 1976 and National Disaster Management Act, 2010 are both examples where provincial legislative subjects were made subject of Federal law after resolutions from Provincial Assemblies were passed to this effect.

[786] 18 Amendment of the constitution has granted provincial legislative autonomy.

The major law that deals with the distribution of water is WAA 1991. The Accord was signed in March 16, 1991 by four provinces. It was passed by the then PM of Pakistan Mian Muhammad Nawaz Sharif[787] and was ratified by the CCI on March 21, 1991.[788]

The Accord had been criticized because of its unequal distribution of water between provinces. It is not exhaustive as it only distributes water between provinces and that too very briefly which causes differences among the provinces. The Accord is silent about the rights of upper and lower riparian and further core principles of international watercourse law have been neglected.[789]

IRSA was constituted for the implementation of WAA. Moreover, 10 daily allocations were made part of the WAA by the CCI in September 16 1991.[790]The total water available to IRSA was estimated to 114.35 MAF below the rim station.[791] 55.95 MAF was allocated to Punjab, 48.76 MAF for Sindh, 5.78 MAF for KPK, and 3.87 MAF for Baluchistan.[792] The differences among the provinces on the interpretation of Accord were related to the construction of additional storage.[793]

The Accord has replaced all previous laws but it protects the existing uses.[794] It also divides the balance river supplies including food and future storages.[795] It has admitted the need of constructing new storages wherever feasible on the Indus and other rivers for future

---

[787] Ibid.

[788]Council of Common Interests (CCI) is a constitutional body in the GoP. It is appointed by the President on the advice of Prime Minister. The CCI resolves the disputes of power sharing between the federation and the Provinces. The Council works under Ministry of Inter-Provincial Coordination. It is responsible to both houses of Parliament.

[789] Principle of Equitable Utilization, no-harm rule and principle of cooperation are the core principles of international watercourse law.

[790] Annexures, WAA 1991.

[791] Habib-ullah Magsi and Salman Atif, "Water Management, Impacts and Conflicts: Case of Indus Distribution Water in Sindh, Pakistan," *International Journal of Rural Studies*, 19:2 (2012): 3-4 (Hereinafter Magsi and Atif, "Water Management."4).

[792] Section 2, WAA 1991

[793]Ibid., Section 6.

[794]Section 3, WAA 1991.

[795] Ibid, Section 4.

development.[796] Moreover, the Accord also provides the procedure regarding sharing of shortages.[797] The WAA also authorizes the provinces to undertake new projects within their provided share.[798]

The WAA allocated about 12 MAF of additional water to the four provinces for priority irrigation development.[799]Thus envisages long-term water development in Pakistan. It has specified 10 daily allocations of various provincial projects throughout the year.[800] WAA is a chief instrument governing provincial shares but it remains a challenge for IRSA to deliver fixed quantities of water.[801] In order to cater this, it has taken certain measures i.e. a three-tier allocation which protects the historical uses, and an exemption of provinces from sharing of shortages.[802]However the disputes between the provinces still exists despite of the fact that the Accord distributes water between the provinces. This chapter has tried to find the reasons of the same.

5.2.1. Analysis of Accord

The first clause of the accords refers to the water resources covered as "waters of Indus River System" but there is no clarity on the limits of these waters that whether this includes surface and

---

[796] Ibid, Section 6.

[797] Ibid, Article 14 (b)

[798] Ibid., Article 8.

[799] Lt. Col. Hammad Qadir, "Water- A Source of Conflict in South Asia," *NDU-Journal*, vol.11, (2008):171.

[800] Article 14 (b), WAA 1991.

[801]Erum Sattar, Jason Robison, and Daniel McCool, "Evolution of Water Institutions in the Indus River Basin: Reflections from the Law of Colorado River," *University of Michigan Journal of Law Reform*, 51:4, (2018):741(Hereinafter sattar, Robison, and McCool, "Evolution of Water Institutions,"741).

[802] On persistent complaints from Sindh, IRSA decided to share water on the basis of three-stage formula i.e. up to 105 MAF, from 105 to 117 MAF, and beyond 117 MAF. It decided to exempt Baluchistan and KPK from sharing shortage.

groundwater.[803] The waters of IRS cover the water which flows past a set of rim stations and includes only surface water.[804] It has freshwater reserves of 55 MAF, most of them are in Punjab.[805] Groundwater has become a major addition to canal water especially in the Upper Indus Basin and it accounts for half of all farms irrigation requirements but it is not a part of Accord.[806]

Moreover, the Accord doesn't specify the locations from where the water may be taken by the provinces rather according to the Accord each province can use its allocated water share anywhere in the province. It doesn't define the process for calculating that how much water is available or has been used by the provinces rather it provides for the creation of IRSA to implement accord.[807] The Accord doesn't limit the purpose to which water is put within their respective allocations.[808] Moreover, Sindh is denied from minimum environmental flow of river water over the sharing through the province and into an Arabian Sea.[809]

The need of fresh water is also recognized by accord in order to keep ecological balance of the mangrove forests but it didn't establish the quantity of fresh water needed.[810] Moreover, it doesn't bind the parties to determine such quantity. WAA also provides for minimum escapage to check sea intrusion.[811]The accord also provides to conduct a study regarding minimum

---

[803]A. Anwar and Muhammad Tauseef Bhatti, " Pakistan's Water Apportionment Accord of 1991: 25 Years and Beyond,"*Journal of Water Resources Planning and Management*, 144:1, (January 2018):2 (Hereinafter A. Anwar and Bhatti, "Pakistan's Water Apportionment,"2).

[804] Simi Kamal, Dr. Pervez Amir, and Khalid Mohtadullah, "Development of Integrated River Basin management for Indus Basin Challenges and Opportunities", WWF, (2012), 11. (Herein referred as Kamal, Amir and Mohtadullah, "Development of IRBM," 11).

[805] Kamal S and Panda S M, "Water Allocation within India and Pakistan," WWF UK, 2010.

[806] Ibid.

[807] Ibid., 4.

[808] Ibid., 6.

[809]Arif Anwar, "Pakistan's Provincial Water Dispute: a way forward", *Dawn,* July 26, 2016.

[810] Section 7, WAA 1991.

[811] Section 7, WAA 1991 states that "The need for certain minimum escapeage to sea, below Kotri, to check sea intrusion was recognized. Sindh held the view, that the optimum level was 10 MAF, which was discussed at length, while other studies indicated lower/higher figures. It was therefore decided that further studies would be undertaken to establish the minimum escapage needs downstream Kotri."

escapage but no study has been conducted. This will lead to disagreement between provinces over additional storage.

The Accord allocated surplus water for Left Bank Outfall Drain (LBOD) rather than a specific allocation.[812] Sindh has been suffered from water logging and salinity. LBOD is a major project for drainage of affected land.[813]The remedy against water logging is maintenance of proper drainage system during the construction of canal. The Accord doesn't address the impacts of pollution on the bio-diversity and ecology of lower riparian and delta ecosystem which is now a serious concern and it should be addressed. UNWC provides the comprehensive rules for the protection of eco system.[814]It also prevents the watercourse states to do any act detrimental to the interests of the riparian states.[815] WAA should be revisited to include these principles in order to overcome inter- provincial disputes.

WAA 1991 provides about pro rata shortage sharing at national level.[816]The sharing is based on adjustments to the canal and barrage systems.[817] In order to meet the short fall in supplies dependent upon eastern rivers that were given to India under IWT, two link canals were constructed from Indus River i.e. Chasma-Jhelum Link Canal (C-J) and Taunsa-Panjanad Link Canal (T-P) but the rules regarding the operation of these canals are not framed yet.[818] These two links transfer the surplus water of Indus River to Chenab and Jhelum in case of shortage of water and vis-a-vis.

---

[812] Section 12, WAA 1991.

[813]Left Bank Outfall Drain is a drainage canal in Pakistan. It was built between 1987 and 1997 using funding from the WB. The canal collects saline water, industrial effluents and Indus river basin floodwater from more than two million hectares of land of Shaheed Benazirabad, Sanghar, Mirpurkhas and Badin districts located in Nara River basin into the Arabian Sea.

[814] Article 20, UNWC 1991.

[815] Ibid., Article 21

[816]Pro rata means assigning an amount to one person according to their share of the whole. Here we can say that assigning certain amount of water to a province according to their share of the whole.

[817]Arif A. Anwar and Muhammad Tauseef Bhatti, "Pakistan's Water Apportionment Accord of 1991: 25 Years and Beyond", Journal of Water Resources Planning and Management, 144:1 (January 2018): 5. (1-13).

[818]Aquastat, "Irrigation in Southern and Eastern Asia in figures", (2011), 385.

The Accord doesn't provide for any dispute resolution mechanism between provinces except CCI which has power to adjudicate the disputes between the provinces.[819]CCI has failed to solve the disputes between provinces. The role of CCI in resolving the disputes will discuss later on in this chapter.

a. Objections to the Accord

Pakistan has faced the shortage of Indus Water due to severe famine and during this period of water shortage Punjab and Sindh differed seriously on their water shares.[820] Punjab argued that it had agreed to a reduced share of water in WAA i.e. 2.7 less than its historical share because of incentive of additional storage.[821]The additional storages have not been constructed so it should be given its historical share. Sindh opposed the same and argues that it was not given sufficient water in the months of April, May and June so that the intensity of the crop kept artificially depressed and demand for the water becomes low.[822]

Moreover, Sindh raised objections regarding the implementation of the WAA. First, the satisfaction of water demand of the Punjab particularly during the sowing season, when more water is needed before releasing the water for Sindh and secondly the link canals (CJ and T-P) are supposed to be operated only with the consent of Chief Minister of Sindh but in fact it is operated by IRSA.[823] The WAA has deviated from internationally and historically accepted criteria of water distribution on the basis of equitable apportionment. It has allocated 7.61 MAF

[819] Article 155, The Constitution of Pakistan 1973.
[820] Bhatti and Farooq, "Politics of Water,"214-215.
[821] Kamal, Amir and Mohtadullah, "Development of IRBM,"10.
[822] Ibid.
[823] Danish Mustafa, Giovana Gioli, Milan Karner and Imran Khan, "Contested Waters, Subnational Scale Conflict Water in Pakistan," *United States Institute of Peace*, No 125 (April 2017):16.

more water to Punjab as compared to the allocations under the draft Sindh-Punjab Agreement 1945.[824]

According to Sindh the distribution should be as per 10 day wise water share given to provinces.[825] However, Punjab objected that all clauses should be interpreted and implemented in accordance in conjunction with each other. Punjab also claimed that while signing a WAA, it was verbally agreed that the WWA will be implemented only if the KBD is constructed.[826] The implementation of WAA is not possible as KBD has not been constructed yet because the water they used prior to the WAA reduces during the period of low water availability. Therefore, according to Punjab the sharing of the water under WAA will not be possible till the construction of new reservoirs.

5.2.2. Principle of Equitable and Reasonable Utilization and Water Apportionment Accord

IWL is also concerned with the water resources situated entirely within a State. This principle has its origin within the jurisprudence of federal states.[827] It is considered as a cornerstone of international watercourse law. The water should be used in an equitable and reasonable manner in order to avoid harm to the riparian states. This principle is achieved only by means of cooperation. So, it is interrelated with no harm principle and principle of cooperation.

In the preceding chapter we have discussed in detail about these three principles that they are considered as a part of customary law and the IWT should be re-visited in accordance with

[824] Hamid Sarfraz, "Draft Pakistan Apportionment Water Accord for Resolving inter-Provincial Conflicts-Policy Issue and Options," International Union for Conservation of Nature, 2010, 7 (hereinafter Sarfraz, "Draft Pakistan Apportionment,"7).

[825] Rajput, "Inter-provincial Water," 09.

[826] Ibid.

[827] Berlin Rules on Water Resources, 2004 (International Law Association)

these principles. As far as Pakistan is concerned, the water of western rivers is distributed among the provinces under WAA 1991. Pakistan does not have set of water laws which define rights, uses, value, and polluter penalties except WAA that too deals only with the distribution of water among provinces.[828]

WAA 1991, distribute the water among provinces for *Rabi* and *Kharif* season.[829] According to WAA, the Sindh has been awarded 48.76 (MAF) of water for Rabi and kharif season but Sindh alleged that they have been receiving less than their share that has created agricultural and social crises in the province.[830] The distribution of water is a main source of conflict between Punjab and Sindh.[831] It has not been distributed on the basis of the principle of reasonable and equitable utilization as it has neglected Gilgit-Baltistan, Federally Administered Tribal Areas (FATA), AJ&K and Islamabad Capital Territory. This situation must be addressed otherwise it will led to inter-state water conflict.

5.3. Inter-Provincial Conflict

Inter-provincial water issues are harmful for Pakistan's survival.[832]The disputes on water sharing between Punjab and Sindh are not new.[833]They are still lingering on due to lack of legislation and effective water policy. Sindh being a lower riparian is always complaining about their share and alleged that the water shortage is due to the inequitable distribution by WAA 1991.

---

[828] Water Apportionment Accord, 1991
[829] Ibid., Section 2.
[830]Magsi and Atif, "Water Management," 2.
[831] Ibid.
[832]Rajput, "Inter-provincial Water Issues," 9.
[833]Shahid Ahmad, "Water Security: A threat for Pakistan and India,"Atlantic Ocean, (September 2012), 5.

One of the main causes of inter-provincial conflict in Pakistan is IWT, which allocated most of the water share of Pakistan Punjab to India under Sindh-Punjab Agreement 1945 and allowed to construct canals to share water of the western rivers of the Indus basin.[834]

5.3.1. Current status of Water Issue

Before partition there was only one barrage i.e. Sukkur barrage.[835]In the last 72 tears, there are 19 barrages, and 43 canal systems.[836] The water reservoirs in Pakistan were constructed at Mangla, Tarbela and Chasma with a live storage capacity of 15.73 MAF but due to silting the power capacity of these water reservoirs reduce to 11.47 MAF in 2010 and it will further reduce to 10.70 MAF in 2021.[837] There is a need to construct more reservoirs to mitigate the effects of silting. The federal government is of the view that existing storages are depleting due to silting and a serious irrigation water crisis is threatening.

The Accord admitted the need for storages on the Indus for planned future agriculture development.[838] The federal and the Punjab government alleges that this section particularly permit for the construction of kalabagh dam and Bhasha dam on Indus.[839] Sindh alleged that Punjab-Sindh Agreement 1945 has been violated by Punjab with the help of IRSA and WAPDA by diverting Sindh's due share.[840] Sindh is also of the view that Punjab has planned many

---

[834]Bhogal and Kaszubska, " The Case against Weaponizing Water," 8.

[835] The Sukkur barrage and its system of seven canals in the Lower Indus plain were completed in 1933 and was considered as the first modern hydraulic structure on the downstream Indus river.

[836] Ranjan, "Inter-Provincial Water," 115.

[837] Annexure F, Technical Committee on National Water Resources Development Program, WAPDA, December , 1994.

[838] Ibid.

[839]Humiara Shareef, "Inter-province Water Distribution Conflict in Pakistan," Joint Training of pakistan-Afghanistan Journalists on Conflict, 8.

[840]Altaf A. Memon, "An Overview of History and the Impacts of Water Issues in Pakistan," (Nov 9, 2002), 4-6.

projects without the consultation of Sindh and in violation of Sindh-Punjab Agreement.[841] Under international law upper riparian is under an obligation to share the information regarding the construction of water reservoirs but WAA has no such provision.[842]

a. Kalabagh Dam Controversy and the Reservations of the Provinces

Since the construction of Mangla and Terbela dam, no water reservoir has been constructed. The country needs to enhance its water storage capability by developing every possible reservoir. Pakistan is confronted with disputes not only on international level but also on national level. It is facing confrontation from KPK and Sindh with respect to the construction of Kalabagh Dam (KBD).[843]

The KBD was proposed in Pakistan during 1960's and approved by the World Bank for funding during 1970's and 1980's.[844] It is expected to have a storage capacity of 6.1 MAF and a power generation capacity of 3600 MW.[845] The project will have two spillways for the disposal of flood water and in the event of highest probable flood; it will have a discharge capacity of two million cusec water.[846]

---

[841] These projects include Kalabagh dam, Basha dam Kalabagh dam, Basha dam, Sukurdu dam, Satpara dam, DhokPathan dam, Sanjwal dam, Akhori dam, Bhater dam, Rohtas dam, Yugo dam, Chiniot reservoir, Hingol dam, Naulang dam, Gajnai dam, Mol and Khadeji dam, Rohtas dam, Mirani dam, Sabakzai dam, GomalZam dam, Kalam dam, Kachhi canal, Chashma right bank canal, greater Thal canal, Rainee canal, Sehwan barrage,

[842] Article 11, UNWC 1997.

[843] In December, 2005, former President of Pakistan General Musharraf made unilateral announcement for the construction of Kalabagh dam which was opposed by the provinces except Punjab.

[844] Aslam, "Pakistan's Water Vulnerability," 23.

[845] The Kalabagh dam is planned to be built at 210 kilometers downstream of the Tarbela dam on the Indus River. The proposed site for the dam is situated at Kalabagh in Mianwali District of the Punjab province, bordering the KPK Province in the north of Pakistan

[846] Usman Muhammad, "Hydro-politics and Interprovincial relations in Pakistan- A Case study of Kalabagh dam controversy,"(Masters diss., Swedish University of Agriculture Science, 2012), 20.

It has been alleged by the Sindh province that the dam is designed to deprive its due share of water and it will reduce the water flow.[847] The reduced flow will affect the sea water intrusion, droughts, ground water quality, and mangrove forests in the Indus delta.[848] Further it has raised objections to the project as there is no additional water available for new reservoir.[849]They also claim that more than 80 % of the groundwater in Sindh is saline which will compromise their water requirements.[850] Furthermore the ecology of the Indus Delta and thousands of Sindhi fishermen are also in danger due to the reduction in water flows.[851] The dam has no concern with the province of Baluchistan but people of Baluchistan are against the project.

According to KPK, Kalabagh Dam will cause flooding of Paeshawar valley and Nowshera Town. It will also affect the drainage of area surrounding Mardan, Pabbi and Swabi Plains.[852] It will also affect Operation of Mardan Salinity Control and Reclamation Project (SCARP).[853] Moreover fertile cultivable land would be submerged due to the construction of said dam. KPK has strongly objected the project and consider it as a threat to their land and populated areas. The province is reluctant to lend its support because of the bad record of Pakistani government for not paying earlier the compensations to those affected by these projects.

---

[847] Muhammad Irfan, Abdul Qadir, Habib Ali, Nadia Jamil, and Sajid Rashid Ahmed, "Vulnerability of Environmental Resources in Indus Basin after the Development of Irrigation system", DOI: 10.5772/intechopen.86722 (June 25th 2019), https://www.intechopen.com/online-first/vulnerability-of-environmental-resources-in-indus-basin-after-t development-of-irrigation-system (Last accessed August 3rd, 2019).

[848] Ibid.

[849]Kuntala-Lahiri-Dutt and Robert. J. Wason, ed, "*Water First, Issues and Challenges for Nations and Communities in South Asia,*" (New Delhi: India), 2008, 5.

[850] Danish Mustafa, "Hydro-Politics in Pakistan's Indus Basin," United States Institute of Peace, (November 2010), 10.

[851] Ibid.

[852] Muhammad Israr Khan, Dr.S. Muhammad Jamil, Dr. Liaqat Ali, Dr. Kamran Akhter and Dr. Muhammad SalikJaved, "Feasibility study of Kalabagh Dam," *Life Science Journal*, 11:9 (January 2014):459.

[853]The SCARP projects were initiated with the basic objectives to eradicate water logging and Salinity, to bring the areas thus rescued under crops through supplemental irrigation supplies, to Improve the agricultural productivity through better farm management increased inputs thereby raising the intensity of agriculture and yields, to lower the water table in the water-logged areas of Peshawar valley and to control and remove salinity in the identified SCARP area.

The question of sustainability arises here as whether the construction of KBD is sustainable in terms of environmental effects. It has been noted that many of the water projects in Pakistan has been constructed without carrying their EIAs except Mangla Dam.[854]In Pakistan the basic concept of environmental protection and assessment was legally recognized by Pakistan Environmental Impact Assessment Act (PEPA) 1997.[855] The KBD is located on the geological fault line which is located at 200 km from the proposed site and these plates are quite active and their movement will results in the rise of mountains ever year.[856]In a case of earthquake the dam will cause flooding of the Peshawar Valley and Noshera Town as alleged by KPK.[857] Moreover, the dam will have an adverse effects on environment causing severe damage to mangroves as alleged by the province of Sindh.[858]

Therefore, if the said dam is not to be built then the water shortage will continue to affect the present economy. However, the environmental impacts are not that severe as they would lead to stop the construction of said dam except the seismic activity but the chances are very rare.

b. Diamer Bhasha and Mohmand Dam

Another storage projects planned in the upper region of Indus River and its tributaries is DiamerBasha Dam in Diamer, Gilgit-Baltistan which was initiated with an estimated capacity of 7.3 MAF.[859] The foundation of the said dam was laid in 2006 but the dam has same issues as

---

[854] Sara Asif, Fizzah Zahid, Amir Farooq, and Hafiz Qasim Ali, "Is the Kalabagh dam Sustainable? An Investigation of Environmental Aspects (A Review)," *Sci-int* (Lahore), 28:3, (2016): 2305.

[855] Section 12, PEPA 1997 states that " all large scale developmental projects must file an EIA report to EPAs for obtaining environmental approval."

[856]Riaz Ahmed Abro, "Here I expose Kalabagh Dam",(2005).

[857] Considering the case of Tarbela dam, which is located 120 miles upstream of proposed Kalabagh dam and is located on the fault line, there was no damage to the dam structure as a result of severe earthquake in October 2008 in Pakistan.

[858] Mangroves, which are a source of timber, thus, resulting in reduced production of timber and fuel

[859]Sarfraz, Draft Pakistan Apportionment," 6.

KBD.[860] The dam is opposed by Sindh as it will lead to diminish water supply but despite of all the opposition the working on dam has been started.[861] Same is the case with Mohmand dam.[862]The working on both dams has been started and both dams will help to reduce water shortage. Moreover, there is a need to address the reservations of the province of KPK regarding payment of compensation as they have not been awarded compensations promised earlier at the time of construction of Tarbela Dam.

5.4. Provincial Water Rights

The plan of harnessing international rivers by the governments often resulted in a clash of national interests.[863] Such a clash has centered mainly on the uses of the waters and the benefits derived from them.[864] Punjab is the upstream province and therefore involves in the entire decision making regarding the management of water even though Sindh is highly dependent on the Indus waters.[865] Meanwhile, the province of Punjab justifies its action on the management of Indus Waters on the basis of territorial sovereignty.[866] However, this doctrine is tested with the no-harm principle because under international watercourse law an upper riparian is not allowed

---

[860]. In the region where the dam will be located, the Gilgit-Baltistan, there is alarm about its environmental and physical impact. The Basha dam will cover an area of about 110 km displacing some 100,000 people; there is nowhere in the Gilgit-Baltistan for these people to be resettled, and their unique culture means it will be hard for them to adjust to a new, distant locality. There are also fears that Chilas could be flooded. Given this potentially huge price, the Gilgit-Baltistan could well end up paying for the new dam, the people there are demanding compensation and that they receive royalties from generation of hydro- power at Basha. But plans for the dam indicate its power- generating turbines will be located in NWFP; that province is already laying claims to the revenue from power generation. Should this happen, there will be great anger in the Gilgit-Baltistan at what they perceive as a denial of justice.

[861] The CCI has approved the construction of these Diamer Bhasha and Mohmand dam in 2018.

[862]The Mohmand dam project is being constructed on Swat river in Mohmand tribal district of Khyber Pakhtunkhwa. It is a multi-purpose project with gross water storage capacity of 1.2 million acre feet and power generation capacity of 800 megawatt.

[863] Muhammad Tufail Javed, "Rights of the riparian States,"*Pakistan Horizon*, 17:2 (1964):140.

[864] Magsi and Atif, "Water Management," 2.

[865] Ibid.

[866] Under the theory of territorial sovereignty the upper riparian has power to use the waters within its territory regardless of its affects on lower riparian.

to use the water in such a way that it harms the lower riparian.[867] Under the doctrine of restricted territorial integrity the riparian state is free to use water without affecting the rights of other states. Similar doctrine applies within the state where the upper riparian (province of Punjab) should not do any act that is detrimental to the interest of lower riparian i.e. Sindh.

Sindh has always complained that they have received less water then there entitlement under WAA 1991. At present the flow of water is not sufficient to meet the requirement for sea intrusion.[868] Sea water comes 100 km up in land which adversely affects the eco-system.[869]The two link canals i.e CJ and T-P were constructed on Indus River in order to provide water during shortage of supply from Jhelum and Chenab Rivers. Sindh has also showed reservations of exempting Baluchistan and KPK in sharing of shortages because already both being small provinces have less share despite of the fact that there is no such provision in the WAA 1991 which grants exemption.[870]Whereas Baluchistan is concerned, the main hurdle in their development is the scarcity of water as WAA allocates 3.87 MAF to the province.[871] The canal capacities of Baluchistan are not sufficient.[872]Balochistan has alleged that Sindh being a lower riparian is using its water due to insufficient canal irrigation system.[873]

The main issue is the sharing of shortages because of current situation of water because of water scarcity. The province of Punjab (upper riparian) can do anything to fulfill their water demands without addressing the needs of Sindh (Lower Riparian). IWL has laid down the rules regarding the rights of upper and lower riparian. The same rules apply within the state.

---

[867] The traditional Customary law principle "*sic uteretuo it alienum non laedas*" means that one should use his own property in such a manner that it will not injure others.

[868] Khalid and Begum, "Hydro-politics in Pakistan," 19.

[869] Ibid.

[870] Ibid.

[871] Section 2, WAA 1991.

[872]Dr. Shahid Ahmed, "Integrated Water Resources Management Policy Baluchistan, Pakistan,"Baluchistan Resource Management Program Government of Baluchistan Asian Bank Development, (May 2005), 25.

[873] Two of Baluchistan's canals namely Patfeeder and Kirthar take off from Guddu and Sukur barrages. Sindh usually releases less water into these canals then their due share.

Therefore, under IWL, upper riparian is not allowed to use the water in a way that is detrimental to the interests of the lower riparian.[874]

5.5. Integrated Water Resources Management

Like many other terms, there is not a single and unanimously adopted definition of Integrated Water Resources Management (IWRM) but the definition adopted by the Global Water Partnership (GWP)[875] is widely used. It states that "IWRM is a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.[876]

The definition suggests the following essentials of the IWRM i.e. coordination for managing water resources; to gain maximum economic and social welfare in a just and equitable manner and to avoid damage and harm to the vital ecosystem and environment.

The need to IWRM is generally recognized as it is a way forward to eliminate the conflicts that are threat to stability both on regional and international level related to water resources. The transnational conflicts related to water are ubiquitous in advanced and poor parts

[874] Article 7, UNWC 1997.

[875] Global Water Partnership is an international network which works to foster an integrated approach towards the water resources. The network also intends to give advice that is more practical for the sustainable for the management of the water resources. The network is open for the membership to all the governmental and no governmental organizations, united nation's agencies, international banks, research institutions and professional associations. See, Falkenmark, Malin, and Carl Folke. "How to bring ecological services into integrated water resources management." *AMBIO: A Journal of the Human Environment* 29, no. 6 (2000): 351-353. Currently there are more than 3000 organizations that are associated to the GWP from 183 countries across the globe. See, Global Water Partnership. (2019). *What is the Network?*. [online] Available at: https://www.gwp.org/en/About/who/What-is-the-network/[Accessed 4 Jun. 2019]. The organization was founded in 1996 by the United Nations Development Programme (UNDP), World Bank and Swedish International Development Cooperation Agency (SIDA). In 2002 the organization became an intergovernmental organization as Global Water Partnership Organization (GWPO) having its main secretariat in Stockholm. See, Reinicke, Wolfgang H. "The other world wide web: global public policy networks." *Foreign Policy* 117 (1999): 44.

[876]Shimelis GebriyeSetegn and Maria Concepcion Donoso, *Sustainability of Integrated Water Resources Management Water Governance, Climate and Ecohydrology*, (New York: Springer International Publishing, 2015) 73

of the world. These conflicts pose a serious threat to the political, social, economic and environmental stability both in regional and international level. In such a situation the adoption and implementation of IWRM with true cooperation from the stakeholder nations can reduce the water related conflicts.[877]

The idea of adopting and implementing the IWRM was given in the UN Conference on Environment and Development (UNCED), in 1992 which had taken place in Brazil. In this conference more than 178 governments adopted the Agenda 21[878], the chapter 18 of which suggested IWRM and transnational cooperation for the management of shared water.

The chapter 18 and particularly the Articles 18.3-18.4,[879] Articles 18.6 -18.22,[880] Article 18.10,[881] 18.27, and 18.40 of the Agenda deal with the management of shared water.[882]The agenda emphasized and recognized the need of IWRM.[883]

---

[877]Muhammad Mizanur Rahman, "Principles of international water law: creating effective transboundary water resources management." *International Journal of Sustainable Society* 1, no. 3 (2009): 207. (Hereinafter Rahman, "Principles of International Law,"207).

[878]The Agenda 21 is a complete and comprehensive action plan suggested to be adopted in local and global levels by the organizations, governments, UN and major groups. The Agenda 21 was adopted and agreed upon at the UN conference on Environment and Development which had taken place in Rio de Janeiro, Brazil during 3- 14 June, 1992. More than 178 governments participated in the conference which produced the Agenda 21 or the Rio Declaration. In order to ensure the effective follow up of the Rio Declaration and Agenda 21, a commission namely The Commission on Sustainable Development (CSD) was created in December 1992. The task was the commission was to monitor and give report on the implementation of IWRM. See, for details, "Agenda 21". 2019. Sustainabledevelopment.Un.Org. https://sustainabledevelopment.un.org/outcomedocuments/agenda21. Last accessed, June 6, 2019.

[879] Agenda 21, Chapter 18, UNCED, 18.3 states that "The widespread scarcity, gradual destruction and aggravated pollution of freshwater resources in many world regions, along with the progressive encroachment of incompatible activities, demand integrated water resources planning and management. Such integration must cover all types of interrelated freshwater bodies, including both surface water and groundwater, and duly consider water quantity and quality aspects. The multisectoral nature of water resources development in the context of socio-economic development must be recognized, as well as the multi-interest utilization of water resources for water supply and sanitation, agriculture, industry, urban development, hydropower generation, inland fisheries, transportation, recreation, low and flat lands management and other activities. Rational water utilization schemes for the development of surface and underground water-supply sources and other potential sources have to be supported by concurrent water conservation and wastage minimization measures. Priority, however, must be accorded to flood prevention and control measures, as well as sedimentation control, where required" and 18.4 states that "Transboundary water resources and their use are of great importance to riparian States. In this connection, cooperation among those States may be desirable in conformity with existing agreements and/or other relevant arrangements, taking into account the interests of all riparian States concerned..

[880]Ibid., Articles 18.6 -18.22 deals with IWRM.

In 2002 the World Summit on Sustainable Development (WSSD) was held in Johannesburg, South Africa during August 26 and September 4, 2002. In that summit the strong need of the complete implementation of the Agenda 21 and the commitment to the Rio Declaration was re-affirmed. The efficient and effective implementation of the IWRM can successfully and potentially assures the achievements of the three core purposes of the IWRM including the social equality, the growth in the economy, and the protection of environment and eco-system.[884]

The IWRM is the process which involves making decision after taking into account different viewpoints and variation of the situations. These situations include river basin planning, control of the reservoir releases, task forces' organization, management of new capital facilities, regulation of the floods, and the framing and adoption of new laws and regulations. This decision making process is complex and time taking.

At provincial level the water policies are not in existence except in all three provinces except Baluchistan. Baluchistan has approved technique in 2006 with the technical assistance of Asian Bank Development despite of the fact that it receives only 32% of its surface water from the Indus River and its tributaries.[885] The said technique has failed because of its weak

---

[881] Ibid., Article 18.10 states that "In the case of transboundary water resources, there is a need for riparian States to formulate water resources strategies, prepare water resources action programmes and consider, where appropriate, the harmonization of those strategies and action programmes".

[882]Article 18.27 states that All States, according to their capacity and available resources, and through bilateral or multilateral cooperation, including the United Nations and other relevant organizations as appropriate, could undertake the following activities i.e. establish institutional framework, data systems and dissemination, and carry research in water resources assessment activities. Article 18.40 states that All States, according to their capacity and available resources, and through bilateral or multilateral cooperation, including United Nations and other relevant organizations as appropriate, could implement the following activities i.e. to implement water resources protection, prevention of water pollution, protection of groundwater, freshwater, aquatic ecosystems, and monitoring of water resources.

[883]Rahman, ""Principles of International Law,"208.

[884] Ibid., 209.

[885]Faiza Saleem, "Water Management practices in Pakistan,", *Institute of South Asian Studies,* No. 274, (16 October 2017): 6-7 (Hereinafter Saleem, "Water Management practices,"6).

implementation. Therefore, there is a need to develop a comprehensive policy both at national and provincial level to address the issue of water shortage.

Being a country with poor management, Pakistan's need for water is far greater than the available resources in the future. Therefore, management of water can be achieved by a number of efforts that include construction of water reservoirs, efficiency in the irrigation system, preserving the flood water, and adopting artificial ground water recharge technique which will integrate the rain fall and the excess of flood water and enable to supplement the depleting water.[886]

5.6. Institutional Framework for Management of Water

In the Ministry of Water and Power, water tends to feature low on priority because it has no policy department despite of the fact that it is supposed to set the country's strategy in water development and management. It has six joint secretaries and only one deal with water sector while others are assigned to power sector.

WAPDA was created in 1958. It is a semi autonomous body for the coordination of developmental schemes in the water and power sector. In the beginning it was very affective but with the passage of time it became very large and inefficient. In 2007, it was split in to two entities WAPDA and Pakistan Electric Power Company.[887] The reduced scope of WAPDA resulted in the decline of planning and design capacity.[888]

---

[886]Dr Allah Baksh Sufi, Zahid hussani, Syed Javed Sultan and Imran Tariq, "Integrated Resource Water Management in Pakistan," Symposium on "Changing Environmental Pattern and its impact with Special Focus on Pakistan" Paper No. 286, 42.

[887]WAPDA was responsible for water and hydropower development whereas Pakistan Electric Power Company was responsible for thermal power generation, transmission, distribution and billing.

[888]Saleem, "Water Management Practices," 4.

IRSA was established to implement WAA 1991. It was formed through an act of parliament on December 10, 1992 under Clause 13 of WAA 1991.[889]It has been authorized to distribute the surface water among the provinces under WAA 1991.[890] It is a five member body consisting of one representative from each province and one from the federal government which is headed by a Chairman.[891]The total water available to IRSA was estimated to 114.35 MAF below the rim station.[892] 55.95 was allocated for Punjab, 48.76 for Sindh, 5.78 for KPK, and 3.87 for Baluchistan.[893] Though IRSA is mandated to implement WAA but it has failed to ensure its implementation which led to inter-provincial disputes on water sharing. The decline of this institution is a breakdown of institutional framework for water in the country.[894]

WAPDA is supposed to operate under IRSA's authority to implement the WAA. The Accord prioritizes irrigation over all other uses including hydropower production.[895]The generation of hydropower affects not only the flow timing but also effects Accords operation during any ten day period of *warabandi*.[896] Due to this situation, IRSA becomes under an immense pressure to authorize WAPDA to release more water for hydropower production despite of the fact that Accord has given priority to irrigational uses.[897]Moreover, it lacks its own telemetry system and hence has to rely on provinces regarding information on river flows.[898]So there is a need to strengthen these institutions for the proper management of water.

---

[889] Section 13 of WAA 1991 states that "for the implementation of this accord, the need to establish an Indus River System Authority was recognised and accepted. It would have headquarters at Lahore and would have representation from all the four provinces".

[890] Section 8 (a), IRSA Act XXII, 1992.

[891] Ibid., Section 4.

[892] Magsi and Atif, "Water Management,"3-4.

[893] Section 2, WAA 1991

[894]Sattar, Robison, and McCool, "Evolution of Water Institutions," 741.

[895] Section 2, WAA 1991.

[896] It is a rotational method for equitable distribution of available water in an irrigation system.

[897]Sattar, Robison and McCool, "Evolution of water Institutions ," 742.

[898] State Bank of Pakistan. "Water Sustainability in Pakistan: Key Issues and Challenges," (2016-2107), 101.

CCI was established by Article 153 (1) of the Constitution of Pakistan 1973.[899] It is charged with resolving disputes between the federation and the provinces on a complaint about water supplies.[900] It can either decide the matter or request to form commission of experts.[901]There is only one tier to resolve disputes and in many cases a province may not wish to escalate a concern to that level in which case there is no mid-way. Furthermore, CCI like any Court of law will evaluate a dispute against the existing Accord, not debate the Accord itself. Since we see our water agreements as sacrosanct we will not discuss or debate them. The existence of dispute between the provinces over water sharing is an evidence of ineffectiveness of CCI. Therefore, there is a need to form a comprehensive mechanism to solve these disputes.

5.7. Water Policy and Diplomacy

The National Water Policy (NWP) was initially prepared in 2005. This policy was formed after a comprehensive study by WB. However, the policy draft failed to reach before cabinet. In 2010, a decision was made to revise NWP due to rapid climate change and water scarcity. A joint committee was formed to finalize the policy. In 2012, the committee submitted its final report to Ministry of Law and Justice but according to the said Ministry, water is not a subject matter of constitution as this was a provincial matter.

[899]Article 153 (1) states that "There shall be a Council of Common Interests, in this Chapter referred to as the Council, to be appointed by the President. [(2) The Council shall consist of—(a) the Prime Minister who shall be the Chairman of the Council (b) the Chief Ministers of the Provinces; and(c) three members from the Federal Government to be nominated by the Prime Minister from time to time and **the Council shall be responsible to** [3][Majlis-e-Shoora (Parliament)[4][and shall submit an Annual Report to both Houses of Majlis-e-Shoora (Parliament)"

[900] Article 155, Constitution of Pakistan 1973.

[901] Ibid, Article 155 (2).

After debate on NWP by the federal and the provincial government, the said policy was sent to CCI in 2017 and finally it was approved on April 24, 2018.[902] The policy has promised a mechanism for sharing transboundary aquifers and a joint watershed management. It also proposes for a regional mechanism in order to address Pakistan's growing weaknesses related to water issues but failed to provide a regional mechanism in South Asia to resolve issues related to Transboundary Rivers in the region.[903]Further the policy has promised to carry out a study for the evaluation of the impact of Indian developments in the upper catchment of western rivers on environment, agriculture and hydropower projects but the policy is silent that whether the study will be conducted unilaterally or it will be carried out in collaboration of India because IWT doesn't provide for such studies.

Water diplomacy in the region must be based on solid principles. It is not a bilateral matter with India only, and Pakistan is not the only country with which India has water issues. It has unresolved water disputes with almost all its neighbours from Bangladesh to China. Therefore, Pakistan should bring forth transboundary waters to bilateral discussions with all of its neighbors in order to overcome the problem of water shortage.

Transboundary water is not only a diplomatic issue but it is an issue of upstream investment for downstream economic needs. Pakistan has not made enough investments for downstream economic needs in order to secure its future use.[904] Pakistan can fund the construction of one or two dams in Afghanistan and in return it can secure both energy and water

[902]Daniya Khalid, "Pakistan's National water Policy", The Express Tribune, July 29, 2017

[903] Muhammad Abu Bakr, "Pakistan's Water Woes: Assessing the national water policy". The Express Tribune, September 14, 2018.

[904]Upstream investments in Bhutan by India have resulted in 3 hydel power projects of 1,416 MW and 3 more of 2,129 MW are under construction. It's a win-win proposition for two neighbors. India gets guaranteed electricity at a pre-negotiated price in return for her investment.

for its tribal areas. These upstreams investments in Afghanistan are in the strategic interest of Pakistan.[905]

5.8. Conclusion

WAA is a very old legislation so it should be revised in order to cover all the ecological and environmental aspects. It should be clear and exhaustive. It is noteworthy that Pakistan is not a signatory of UNWC 1997 but the principle of reasonable and equitable utilization, no harm rule and principle of cooperation have attained the status of CIL. Therefore, new agreement should be developed in accordance with the principles of international watercourse law which recognizes the rights of upper and lower riparian along with the right of reasonable and equitable apportionment of water.

It should also contain the dispute resolution mechanism in order to solve the inter-provincial disputes according to the established principles of international law because CCI has failed to resolve the disputes. Water can become a source of discontent that may get out of control of the government in near future, so there is a need to address the water shortage issue.

The standing committees on Water and Power should conduct public hearings by calling experts to clarify water issues. In order to meet the growing water demands there is a need to construct additional storage reservoirs for conservation of water. There is a need to improve institutional infrastructure for integrated management of water and to develop a regulatory framework.

As far as legislation on the water resources management is concerned, Pakistan did not make any domestic legislation specifically on the integrated water resources management.

[905] Ali Tauqeer Sheikh, "Indus Waters Treaty and Pakistan's Water diplomacy", LEAD, March 27, 2017

Therefore, it required to be incorporated into the water related legislation. Moreover, there is a need to replace an old Provincial Acts covering the subject of water legislated from 1873 to 1997 and particularly WAA which are not in accordance with international watercourse law. It will help to reduce misconceptions and misinterpretations regarding the prevailing water issues.

CONCLUSIONS AND RECOMMENDATIONS

The purpose behind the formation of domestic and international water legislation is to protect the rights of the riparian states and those water rights which accrued within a state. IWT was concluded to resolve the water disputes between the states but the treaty has not been able to resolve the water disputes. Since the conclusion of IWT, it has become difficult for Pakistan to manage its water resources within a state due to water scarcity, increase in population, weak legislation, and its fear regarding the construction of HEPP by India on western rivers.

The first issue was about the partition of Punjab and the study shows that the Partition of Punjab by the British Government was in violation of basic principle of majority population. This was a main reason behind Indo-Pak water disputes as Muslim majority areas were given to India. As a result of this demarcation Pakistan became dependent on India for its irrigation and later on it was proved when India illegally stopped the water in 1948 in violation of international law and equity as the customary international law provides for the equitable utilization of international watercourses and protect the existing uses.

It is also concluded that India's control over eastern rivers was well according to Indian wishes and the WB was biased towards India as US wanted India to be an ally because it was engaged in a struggle for global hegemony during the cold war and WB acts like a subset of US foreign policy.

The study shows that the Treaty has provided India with a right over western rivers for the construction of run-of-river plants for generation of hydroelectric power in addition to the use of water for domestic, non-consumptive and agricultural purposes but Pakistan is not provided with such right and no where justification has been given for this biasness.

The thesis also concludes that the construction of one or two power projects on western rivers is not a matter of concern but India has started constructing many power projects on western rivers which will result in reducing river flow. Moreover, there is no provision in the IWT which allows India to construct a certain number of dams nor any provision that restrict India from making dams beyond a certain number. The problem starts when India planned a construction of power projects on western rivers. The disputes over the diversion of water of western rivers have made clear that the Treaty is lacking a provision regarding the number of power projects on western rivers.

Moreover the thesis concludes that IWT cannot be terminated unilaterally and any such attempt by any of the party would amount to a violation of norms of international law. Even if there were no IWT, an upper riparian, under the International Watercourse Law, has no right to stop the water flow to a lower riparian. However, the treaty can be terminated as a result of material breach or a fundamental change of circumstances but in the current case the termination of treaty is not the solution rather the Treaty should be reviewed in the light of IWL.

One of the issues was about the determination of the river flow. The study shows that the IWT doesn't talk about the minimum flow and neither the CoA in *Kishanganga Arbitration* had decided the same. The CoA has allowed India to continue with the construction of KHEPP but accepted that the generation of hydroelectric power will slightly affect the river flow. So, it has affirmed Pakistan's view that the continuous construction would result in reduction of river flow.

On the issue of diversion of waters of the western rivers the CoA has rejected Pakistan's claim which is a major setback. The study also shows that Pakistan may recourse to ICJ under compulsory jurisdiction for its favourable interpretation. The most obvious avenue is for jurisdiction to be conferred by special agreement between the parties or presence of a clause in a

treaty as provided in Transboundary Watercourses Convention but in case of IWT, there is no such clause which gives right to both of the parties to recourse to ICJ and even no right to appeal has been provided to parties against the decision of CoA. ICJ can also hear a dispute on the request of one of the party and the states concerned must give its consent to the ICJ's considering the dispute in question. In this case it is not possible that both India and Pakistan recourse to ICJ regarding Kishanganaga Arbitration as India has made the dam in dispute operational in 2019 but Pakistan may recourse to ICJ on the basis of compulsory jurisdiction for the favourable interpretation of Treaty. Moreover, the dispute resolution mechanism of the treaty is ineffective and time taking and it should be reviewed in the light of IWL.

Environmental impact assessment is an essential requirement under customary international law along with the duty to notify. India is under an obligation to carry environmental impact assessment of HEPP on western rivers before construction. Moreover, the construction of said projects will rise an environmental concerns in Pakistan and thus violates the established principle of international law as according to international practice if the pollution is causing trouble for the downstream country, the upstream country may use the option for a treatment plants in order to reduce withdrawals. Furthermore, the treaty has no provision regarding environmental impact assessment of HEPP because the study shows that these power projects have ability to affect the natural flow thus affecting biodiversity, and availability of drinking water. The said lacunas have challenged the effectiveness of IWT.

IWT is a rigid document as it offers very little for the management of water resources. It neither provides any provision regarding the action to be taken in the case of increased water demand nor any provision regarding the management of groundwater. Thus, there is a need to incorporate adaptive water management to manage the transboundary waters of Indus. Moreover,

increased climate change enhances the problem of water security and there is no mechanism to address these challenges due to which water crises is increasing stress between two countries.

IWT should address the disproportionate division of water and require the parties to reallocate the same for downstream flow. It may stipulate that the upper riparian deliver a minimum flow in order to maintain ecological functions. So there is a need for flexible allocation under which India would deliver water to Pakistan to make up their loss. The allocation of water should be according to respective population of both India and Pakistan. It doesn't manage the catchment areas located across the border.

The thesis also concludes that IWT is silent about ecological flows. Allocation of three tributaries out of six to both parties means that any disruptions to the ecological flow will affect downstream. Therefore, it is necessary to incorporate the aspect of ecological flows in order to manage river basin as enshrined in UNWC. ICJ has decided that the basic customary international law of watercourses is equitable and reasonable utilization rather than bi-lateral treaty and treated UNWC as modern development of international law. Moreover, IWT is not an exhaustive document whereas United Nations Watercourses Conventions, customary rules for transboundary management of water, and judicial decisions provide a comprehensive legal framework for management of transboundary waters between riparian states. Therefore, it is essential to re-visit allocations according to the changes.

CIL establish two important principles for all river basins. Firstly it is the right of the people living in the basin to use water and secondly the shared waters could neither be stopped nor diverted without the consent of other riparian states. Thus the thesis concludes that in the case of River Indus, CIL prohibits India to divert the waters in violation to the right of people of Pakistan without prior approval.

IWT is a partitioning treaty instead of a water sharing treaty as it divides the Indus Basin River between India and Pakistan without involving all the stakeholders and particularly the representation of the people of J&K is necessary because the western rivers passes through this region. Hence the treaty doesn't fulfill the principle of reasonable and equitable utilization. Both India and Pakistan are not signatories of UNWC. Therefore it is a high time to renegotiate this half a century old treaty by forming a new treaty including at least other riparian states. Afghanistan could be included to deal with the issue of over extraction. The use of Kabul River will affect Pakistan's use as a downstream. It is a major tributary to Indus which is not covered by IWT. China being an upper most riparian to both India and Pakistan could choose to divert the waters of both Sutlej and Indus River and there is no treaty to restrict its action.

While dealing with the internal management of water within Pakistan, the study concludes that WAA is a very old legislation and it has failed to cover the ecological, environmental flows, water scarcity and additional storage. Moreover, the Accord is vague as it only deals with the distribution of water. Therefore, new agreement should be developed in accordance with the principles of IWL which recognizes the rights of upper and lower riparian along with the right of reasonable and equitable apportionment of water in order to reduce inter-provincial conflicts.

The issue regarding the weakness of institutional framework was also a point of discussion in the dissertation. The study concludes that IRSA has failed to implement the Accord and moreover CCI has failed to resolve the disputes. Therefore, WAA should be revisited and it should provide dispute resolution mechanism according to the established principles of international law.

In order to meet the growing water demands there is a dire need of constructing storage reservoirs as Pakistan has not constructed any major reservoir after Mangla and Terbela dam. There is also a need to improve institutional infrastructure for integrated management of water and to develop a regulatory framework. As far as legislation on water resources management is concerned, Pakistan didn't make any domestic legislation on IWRM.

Thus the research concludes that there is a need to reform a new treaty by incorporating the principles of IWL by involving all the riparian states in order to avoid further water conflicts because the Treaty has failed to address the core issues of water quality, environmental sustainability, and climate change that results in decrease of flow of Indus. Whereas internal management of water is concerned, Pakistan needs to adopt a clear and comprehensive water legislation according to the norms of IWL.

RECOMMENDATIONS

The inadequacy of current water legislation and lacunas in the Treaty are legal weaknesses in today's legal structure governing the distribution of transboudary waters. Due to this weakness it is easy for India to manage the water of Indus River arbitrarily and without sharing relevant information with respect to power projects on western rivers. The failure to improve the legal governance of transboundary waters and the integrated management of international watercourses will result in conflict over shared resources, increasing scarce and polluted supplies and deteriorating biodiversity. The lack of legal governance will also affect human health and economic development. Therefore, the recommendations regarding State's responsibility are given below.

- The government should make efforts to compel India for the timely exchange of data and utilization of waters of western rivers because the delay in exchange of data restrains Pakistan to review and adjudge the compatibility of these projects.
- The government should also make concrete efforts to make India to share hourly data for the initial filing of dam because failing to share that information will result in the manipulation of the flow of water.
- Pakistani government should make efforts to collect quantitative data on the agricultural uses and environmental aspects of the disputed dams in order to get a favourable decision.
- There is also a need for an official agreement between Pakistan and Afghanistan that defines the terms of sharing and construction of hydropower and other water storing facilities on Kabul River.
- There is a need to conduct comprehensive hydrologic study in order to avoid the conflict over Chenab water because Chenab River contributes about 19.2% to the average annual flow of western rivers.
- The timely provision of technical assistance in stream flow data in order to prevent further conflict. This proves to be an important step towards confidence building measure.
- The Treaty should also provide for a legislative model for the bilateral cooperation on the issue of water scarcity as provided by the Water Convention 1992.
- It should also include the joint bodies to explain and elaborate the joint programs regarding water quantity and quality.

- The Treaty should also include an effective watershed management programs in order to address the problem of storm water runoffs.
- The Treaty should provide a mechanism to monitor the actions of the bordering states within Indus Basin because no restrictions have been placed on those states regarding the access of waterways.
- The Treaty should also provide for ecological flows in order to manage the river basin as enshrined in UNWC.
- PIC should be given a broader mandate to promote cooperative development of the water resources of basin and it should be given an autonomous power in all spheres.
- Pakistani government should also make efforts to force India to carry EIA of hydroelectric power projects on western rivers before construction.
- Every mega project must be designed to be eco-friendly and the past projects must be modified to make them sustainable.
- There is also a need to adopt IWRM strategy for the management of water.
- To reform a new treaty in the line with the principles of equitable apportionment of water and other contemporary international legal doctrines by involving all stakeholders provided there is sufficient trust between India and Pakistan.

Domestic Legislation

It is the duty of the state to bring its surface and groundwater laws more in conformity with the principles of IWL and to revisit WAA.

- The Accord should provide for groundwater management as groundwater has become a major addition to canal water especially in the upper Indus Basin.

- The Accord should address the impacts of pollution on bio diversity, ecology of lower riparian and delta eco system as enshrined in UNWC.
- The Accord should provide for a dispute resolution mechanism.
- The Accord should provide for the rights of upper and lower riparian.
- There is a need to construct more reservoirs to mitigate the effect of silting because according to the federal government the existing storages are depleting due to silting and a serious irrigation water crisis is threatening.
- To provide training and technical assistance to address the long term legitimate storage needs of the country because the groundwater storage capacity and knowledge is extremely underdeveloped in Pakistan.
- There is also a need to strengthen institutions for the proper management of water.
- Pakistan should also bring forth transboundary waters to bilateral discussions in order to overcome water shortage problem.
- It is the duty of the state to address the legal weaknesses in the current water legislation with respect to the sharing of water of the Indus basin and as well as domestic legislation.
- It is also recommended to provide coherent policy with respect to the ratification and implementation of watercourse conventions, sharing of benefits and sustainable development.

BIBLIOGRAPHY

Articles

A.C, Muhammad Siyad. "Indus Waters Treaty and Baglihar Project: Relevance of International Watercourse Law." *Economic and Political Weekly*, Vol. 40, No. 29 (Jul. 16-22, 2005): 3145-3154.

Abbasi, Arshad H. "Indus Water treaty between Pakistan and India." *Pakistan Institute of legislative development and transparency*, (January, 2012): 1-12.

Adeel, Muhammad. "Indus Waters Treaty and the Case for Hydro-Hegemony" *CSCR (Centre for Strategic and Contemporary Research),* (2016), 1-9.

Ahmad, Azhar. "Indus Waters Treaty A Dispassionate Analysis." *Policy Perspectives*, Vol 8, No 2 (July-December 2011): 73-83.

Ahmad, Shahid. "Indus Water Treaty and Water Cooperation for managing apportioned Rivers-Policies, Issues and Options." *International Union for Conservation of Nature*, (2013): 1-6.

_____. "Indus Water Treaty and Managing Shared Water Resources for the Benefit of Basin States – Policy Issues and Options." IUCN, (2010):1-13.

_____. "Water Security: A threat for Pakistan and India." *Atlantic Council*, (September 2012): 1-6.

Alam, Ahmed Rafay. "A Constitutional History of Water in Pakistan." *Policy Brief* Jinnah Institute (January7, 2019): 1-19.

Ahmad, Tufail. "Water Disputes between Pakistan and India- A Potential Casus Belli".*Pakistan Water Concerns,* (July 31, 2009): 1-9.

Akhter, Shaheen. "Emerging challenges to the Indus Water Treaty, Issues of compliance & transboundary impacts of Indian hydroprojects on the Western Rivers."1-86, www. irs.org.pk/f310.pdf.

_____. "Quest for re-interpreting the Indus Waters Treaty: Pakistan's Delimma", Margalla Papers, NDU (2011): 15-46.

Akhter, Majed. "More on the sharing of Indus Waters." *Economic and Political Weekly*, Vol XLV, No 17 (April 24, 2010): 99-100.

Alam, Undala Z. "Questioning the water wars rationale: a case study of the Indus Waters Treaty." *The Geographical Journal*, Vol. 168, No.4 (December 2002): 341-353.

Anwar Arif. A and Muhammad Tauseef Bhatti. "Pakistan's Water Apportionment Accord of 1991: 25 Years and Beyond." *Journal of Water Resources Planning and Management*, Vol 144, No 1 (January 2018): 1-13.

Aslam, Rabia. "Pakistan's Water Vulnerability and the rise of Inter-State Conflict in South Asia." *Forman Journal of Economic Studies*, Vol. 9 (2013): 19-41.

Asif, Sara. Fizzah Zahid. Amir Farooq, and Hafiz Qasim Ali. "Is the Kalabagh dam Sustainable? An Investigation of Environmental Aspects (A Review)." *Sci-int* (Lahore), Vol 28, No 3 (2016): 2305-2308.

Biswas, Asit K. "Indus water treaty: The negotiating process." *Water International*, 17 (1992): 208-209.

Bhatti, Muhammad Nawaz and Muhammad Farooq, "Politics of Water Resource Development in Pre-Partition India." *Pakistan Journal of History and Culture*, Vol XXXIX, No 2 (2018): 23-48.

Bhogal, Preety and Katarzyna Kaszubska. "The Case against Weaponising Water." *ORF (Observer Research Foundation) Issue Brief*, Issue 172 (February 2017): 3-4.

Chakraborty, Roshni and Sadia Nasir. "Indus Basin Treaty: Its Relevance to Indo-Pak Relations." *Pakistan Horizon*. Vol. 55, No. 4 (October, 2002): 53-62.

Dellapena, Joseph W. "The Customary International Law of Transboundary Waters." *Int. J. Global Environmental Issues*, Vol 1, No 3/4 (2001): 246-305.

Datta,V.N. "The Punjab Boundary Commission Award (12 August 1947)", *Proceedings of the Indian History Congress*, Vol No 59 (1998), 850-862.

Dar, Zubair Ahmed. "Power Projects in Jammu and Kashmir: Controversy, Law and Justice." *Harvard Law and International Development Society*, (2011-2012), 2-34.

Dr. Noor-ul-Haq. "Pakistan's Water Concerns." *IPRI Fact file*, (Oct 31, 2010): 1-96.

Eckstein, Gabriel. "Water Scarcity, Conflict and Security in a Climate Change World: Challenges and Opportunities for International Law and Policy." *Wisconsin International Law Journal*, Vol 27, No 03 (2009): 409-460.

Fowler, F. J. "Some problems of Water distribution between East and West Punjab." *Geographical Review*, Vol 40, No 4 (Oct 1950): 583-589.

Guo, Mingxin. "Effective watershed Management: Planning, implementation and Evaluation." *Hydrology Current Research*, Vol 5, No 4 (2014):1-3.

Geriber ,Thomas. "Payment for Ecosystem Services legal and institutional frameworks", *IUCN Environmental Policy and Law*, No 78, (2009): 1-295.

Hayat, Waseem. "An Insight of Indus Water Treaty and Kishanganga Dam", *Department of Environmental Sciences, University of Hazara (Haripur)*, (Jan 16,2012): 1-5.

Imtiaz Ali, Asjad, Javeed Iqbal Bokhari and Dr. Qazi Tallat M. Siddiqui."Analysis of the Indo Pak Treaty 1960." 743, 72nd Annual Session of Pakistan Engineering Congress, 227-234.

Iqbal, Abdul Rauf. "Environmental Issues of Indus River Basin: An Analysis." ISRA, (2013), 91-112.

Irfan, Muhammad. Abdul Qadir. Habib Ali. Nadia Jamil and Sajid Rashid Ahmed. "Vulnerability of Environmental Resources in Indus Basin after the Development of Irrigation system." DOI: 10.5772/intechopen.86722 (June 25th 2019), https://www.intechopen.com/online-first/vulnerability-of-environmental-resources-in-indus-basin-after-t development-of-irrigation-system.

Iyer, Ramaswammy R. "South Asian Water Concerns." *South Asian Studies*, Vol.VIII (2006): 257-281.

Javed, Muhammad Tufail. "The World Bank and the Indus Basin Dispute: Background-1." *Pakistan Horizon*, Vol 18: No 3, (Third Quarter, 1965): 226-237.

_____. "Rights of the riparian States." *Pakistan Horizon*, Vol No17:2 (1964):140-160.

Jayaram, Dhanasree. "Why India and Pakistan need to review Indus Waters Treaty", *Climate Diplomacy*, (August 2, 2016) https://www.climate-diplomacy.org/news/why-india-and-pakistan-need-review-indus-waters-treaty

Kanwal, Lubna. "Sind-Punjab Water Sharing Conflict." *Pakistan Journal of Social Sciences*, Vol 34, No 2 (2104): 501-510.

Khan, Muhammad Israr. Dr. S Muhammad Jamil. Dr. Liaqat Ali. Dr. Kamran Akhter and Dr. Muhammad SalikJaved. "Feasibility study of Kalabagh Dam." *Life Science Journal*, Vol 11, No 9 (January 2014): 458-470.

Khan, Muhammad Rashid."Crucial Water Issues between Pakistan and India, CBMs, and the Role of Media."*A Research Journal of South Asian Studies*, Vol. 28, No. 1 (January – June 2013): 213-231.

Khan, Hafeez-ur-Rehman. "Indo-Pakistan Water Disputes." *Pakistan Horizon*, Vol 12, No. 4 (December, 1959), 329-330.

Khattak, Amer Rizwan. "World Bank Neutral Expert's Determination on Baglihar Dam: Implications for India-Pakistan Relations." *Pakistan Horizon*, Vol. 61, No. 3 (July 2008): 89-108.

Khalid, Iram and Ishrat Begum, "Hydro-politics in Pakistan: Perceptions and Misperceptions", *A Research Journal of South Asian Studies*, Vol 28, No 1 (January –June 2003): 7-23.

Kulz, Helmut R. "Further Water Disputes between India and Pakistan." *The International and Comparative Law Quarterly*, Vol. 18, No. 3 (Jul., 1969): 718-738.

Kunbhar, Zulfiqar. "Pakistan's Sindh struggles to respond to Climate change challenges."(March 20, 2018) www.thethirdpole.net.

Kalair, Ali Raza., Naeem Abbas, Qadeer ul Hassan, Esmat Kalair, Anum Kalair and Nasrullah Khan, " Water, Energy and Food nexus of Indus Waters Treaty and Water Governance," *Water-Energy Nexus*, Vol 2, Issue 1 (June 2019): 10-24.

Lal, Prem. "Review of the Indus Waters Treaty—An Exercise in International Mediation." *Indian Economic Review*, Vol. 8, No. 2 (October, 1973): 198-201.

Layin, John G. "Principles of Law governing the uses of International Rivers." Contributions from the Indus Basin, Proceedings of the American Society of International Law at Its Annual Meeting, 1921-1969, Vol. 51 (APRIL 25-27, 1957): 20-36.

_____. "Indus River System-Comments." *American Society of International law*, Vol 54 (April 28-30, 1960): 144-152.

Lazerwitz, David J. "The flow of International Water law: The International Law Commission's Law of the Non-Navigational Uses of International Watercourses." *Indiana Journal of Global Legal Studies*, Vol 1 Issue 1, (1993):247-271.

Loures, Flavia. Dr Alistair Rieu-Clarke and, Marie-Laure Vercambre. "Everything you need to know about the UN Watercourses Convention." *WWF* (January, 2009): 1-32.

Lt. Col. Qadir, Hammad. "Water- A Source of Conflict in South Asia." *NDU-Journal*, Vol.11, (2008): 141-192.

Magsi, Habib-ullah and Salman Atif. "Water Management, Impacts and Conflicts: Case of Indus Distribution Water in Sindh, Pakistan." *International Journal of Rural Studies*, Vol 19 (2012): 3-7.

Mastoor, Maryam. "Environmental Degradation: Focus on Water Scarcity in South Asia." *Regional Studies*, Vol 27, Issue 1(Winter 2008-2009):1-31.

Mcintyre, Owen. "The Role of Customary Rules and Principles of Environmental Law in the Protection of Shared International Freshwater Resources." *Natural Resources Journal*, Vol 46 (winter, 2006):160-161.

Memon, Altaf A. "An Overview of History and the Impacts of Water Issues in Pakistan." (Nov 9, 2002): 4-6.

Mechlem, Kerstin. "Water as a vehicle of Inter-State Cooperation: A legal Perspective." *FAO Development law Service*, FAO legal Papers online no 32 (August 2003): 2-19.

Miner, Mary. Gori Patankar. Shama Ghamar and David J. Eaten,"Water Sharing between India and Pakistan: A Critical evaluation of Indus Waters Treaty", *Water International*, Vol 34, No 2 (June, 2009):204-216.

Muhammad, Ammad Hafiz. "Water sharing in the Indus basin river: Application of integrated water resources management". *Swedish University of Agricultural Sciences*, (2011): 1-55.

Mustafa, Daanish. "Hydropolitics in Pakistan's Indus Basin", United States Institute of Peace, November 2010, 5, www.usip.org.

Mustafa, Danish. Giovana Gioli. Milan Karner and Imran Khan. "Contested Waters, Subnational Scale Conflict Water in Pakistan." *United States Institute of Peace*, No 125 (April 2017): 1-59.

Nosheen and Toheeda Begum. "Indus Water Treaty & Emerging water issues". *Abasyn Journal of Social Sciences*, Vol.4, No.2, 265-288.

Okonkwo, Theodor. "A glimpse into International Regimes Governing the Use of the transboundary Freshwater Resources." *Journal of Law, Policy and Globalization*, Vol 52 (2016): 10-24.

Petersen-Perlman, Jacob D. Veilleux, Jennifer C. & Aaron T. Wolf. "International Water Conflict and Cooperation: Challenges and Opportunities." *Water International* (2016): 2-16 http://dx.doi.org/10.1080/02508060.2017.1276041

Pratap, Ravindra. "Building Peace over Water in South Asia: The Water Courses Conventions and SAARC." *Athens Journal of Law*, Vol. 4, Issue 1, (January, 2018): 7-26.

Pitman, G.T. Keith. "The Role of World Bank in Enhancing Cooperation and Resolving Conflict on International Water Courses: The Case of the Indus Basin", *World Bank Technical*, No. 414 (1998):

Qureshi, Waseem Ahmed. "The Indus Basin: Water Cooperation, International law and the Indus waters Treaty." *Michigen State International Law Review*, Vol 26, No 21, (2017): 44-81.

_____. "Indus Basin Water Management under International Law." *University of Miami International and Comparative Law Review*, Vol 25, No 4 (2017):63-126.

_____. "The IWT and UNWC: Commonalities and Differences." *Ocean and Coastal Law Journal*, Vol 23, No 1 (January 2018): 87-145.

Riffat, Fatima and Anam Iftikhar. "Water Issues and its implications over India- Pakistan Relations." *JPUHS*, Vol 28, No 2 (July- December 2015): 11-20.

Rehman, Muhammad Mizanur. "Water Wars in 21st Century: Speculation or Reality." *International Journal Sustainable Society*, Vol 14, No 12 (2012): 3-10.

Rajput, Muhammad Idrees. "Inter-provincial Water Issues in Pakistan." *PILDAT*, ISBN-978-969-558-=197-1 (January 2011): 1-29.

Ranjan, Amit. "Water Disputes between Punjab and Sindh: A Challenge to Pakistan." *New Water Policy and Practice Journal*, Vol 1, No 2 (Spring 2015):46-58.

Ranjan, Amit. "Inter-Provincial Water Sharing Conflicts in Pakistan." *Pakistanniat: A journal of Pakistan Studies*, Vol 4, No2 (2012):102-122.

Rauf, Rafia. "Legal Framework for Resolution of Water Conflicts in Pakistan-A Historical Perspective." LEAD, (January 3, 2009):1-3.

Salman, Salman M. A. "The Baglihar difference and its resolution process –a triumph for the Indus Waters Treaty?" *Water Policy*, 10 (2008): 105–117.

Salik, Mian Ahmed Naeem. "Implications of Kishanganga Hydro-Power Project for Pakistan's environment." *Institute of Strategic Studies*, (April 26,2016): 1-6.

_____. "Water Security: Challenges of Transboundary Water Issues." *Institute of Strategic Studies*, (2015): 80-97.

Saleem, Faiza. "Water Management Practices in Pakistan." *Institute of South Asian Studies*, No. 274 (October 16, 2017): 1-23.

Sarfraz, Hamid. "Revisiting the 1960 Indus Water Treaty."*Water International*, Vol 38, No 2 (2013): 204-216.

Sattar, Erum. Jason Robison, and Daniel McCool. "Evolution of Water Institutions in the Indus River Basin: Reflections from the Law of Colorado River." *University of Michigan Journal of Law Reform*, Vol 51, No4 (2018): 715-775.

Shah, Engineer Syed Jamait Ali. "Indus Waters Treaty under stress: Imperatives of Climatic Change or Political Manipulation." *Margalla Papers*, (2011): 1-14.

Shapirao-Libai, Nitza. "Development of International Rivers Basins: Regulation of Riparian Competition." *Indiana Law Journal*," Issue 1, Vol 45 (Fall 1969): 20-55.

State Bank of Pakistan."Water Sustainability in Pakistan: Key Issues and Challenges" (2016-2107): 93-104.

Soofi, Ahmer Bilal. "Filling the Missing Gaps in the Indus Waters Treaty." *Islamabad Papers, Islamabad Institute of Strategic Studies*, No.31(2016): 1-33.

Tariq, Sardar Muhammad. "Pakistan-India Relations: Implementation of Indus water treaty: A Pakistani narrative." *Pakistan Institute of legislative development and transparency*, (December 6, 2010):1-18.

The World Bank, "Indus Water Treaty." *World affairs*, Vol 133, No: 4(Winter-1960): 99-101.

Wasi, Nausheen. "Harnessing the Indus Waters Perspectives from Pakistan." *IPCS Issue Brief*, No. 128 (September 2009):1-4.

Water-Planning Commission, "Water." 11th Five Year Plan, (223-233), www.pc.gov.pk/upload/plans/Ch20-Water1.pdf

Wood, John R. "Dividing the Jewel: Mountbatten and the Transfer of Power to India and Pakistan." *Pacific Affairs*, Vol 8, No. 4 (1985): 653-662.

Wolf, Aaron T. "Criteria for Equitable Allocations: The Heart of International Water Conflict. *Natural Resources Forum*, Vol 23, Issue 1 (1999): 3-20.

Books

Ahmar, Moonis (Ed). *The Challenge of Confidence Building in South Asia*. Taj press, New Delhi: India, 2001.

Brans, Edward H.P., Esther J. de Haan, Andre Nollkaemper, and Jan Rinzema (ed). *The Scarcity of Water: Emerging Legal and Policy Responses*. Kluwer Law International: Hague, 1997.

Chazoums, Laurene Boisonde. *Fresh Water in International Law*. Oxford University Press, 2013.

Gulhati, Niranjan Das. *Indus Water Treaty: An exercise in International Mediation*. Bombay Allied Publishers, 1973.

Hussain, Ijaz. *Political and Legal Dimensions Indus Waters Treaty*, Oxford University Press: Karachi, 2017.

Kornfled, Itczchak E. *Transboundary Water Disputes STATE CONFLICT AND THE ASSESSMENT OF THEIR ADJUDICATION.* Cambridge: United Kingdom, 2017.

Kuntala-Lahiri-Dutt and Robert. J. Wason (Ed). *Water First, Issues and Challenges for Nations and Communities in South Asia.* New Delhi: India, 2008.

Malanczuk, Peter. *Akehurst's, Modern Introduction to International Law*. Routledge: New York, 2002.

M, Taylor. "The Political Ecology of Climate Change Adaptation: Livelihoods, agrarian change and the conflicts of development" s.l. : Routledge. 2014.

Moore, Gary S. *Living with the Earth: Concepts in Environmental Health Science.* London: Lewis Publishers, 2002.

Salman, Salman M. A. *The World Bank Policy for Projects on International Water ways, An historical and legal analysis*, WB: Washington DC, 2009.

Sands, Phillippe, Jacqueline Peel and Ruth Mackenzie. *Principles of Environmental Law.* Cambridge University Press: New York, 2012.

S C, McCaffrey. *The Law, of International Watercourses: Non-Navigational Uses.* NewYork: Oxford University Press, 2001.

Sharma, SC.*Punjab The Crucial Decade.* New Delhi: Nirmal Publishers and Distributors, 1987.

Setegn, Shimelis Gebriye and Maria Concepcion Donoso. *Sustainability of Integrated Water Resources Management Water Governance, Climate and Ecohydrology*. New York: Springer International Publishing, 2015.

Documents

Annexure F, Technical Committee on National Water Resources Development Program, WAPDA, December , 1994.

Aquastat. "Irrigation in Southern and Eastern Asia in figures", 2011, www.fao.org/nr/water/aquastat/basin/indus/indus-cp.

ICID, "Irrigation and Drainage in the World-A Global Review", www.icrd.org 1-16.

Kamal, Simi.Dr Pervez Amir, and Khalid Mohtadullah. "Development of Integrated River Basin management for Indus Basin Challenges and Opportunities", WWF, (2012).

Qadir, Abdul.Safdar Ali Anwar. Nadia Jameel and Arshad Makhdoom Sabir. "Potential effects of human and climate change on freshwater resources in Pakistan", *Understanding Freshwater Quality Problems in a Changing World* Proceedings of H04, IAHS-IAPSO-IASPEI Assembly, Gothenburg, Sweden, (July 2013), 329-335.

Resolution of International Water Disputes: Papers emanating from the sixth PCA International Law Seminar. Kluwer Law International: Hague, 2002.

Sarfraz, Hamid. Draft Pakistan Apportionment Water Accord for Resolving inter-Provincial Conflicts-Policy Issue and Options, International Union for Conservation of Nature, 2010.

The World Bank Group Archives, "Indus Basin Dispute-Indus Basin Irrigation Water Problem", 1954.

Newspaper Articles

Anwar,Arif. "Pakistan's Provincial Water Dispute: a way forward", *Dawn*, July 26, 2016.

Ashraf, Malik Muhammad. "Violations of Indus waters Treaty", *Pakistan Today*, May 15, 2015.

Aftab, Noor. "Pakistan Authorities in a Fix as India secures Carbon Credits", *The News,* January 14, 2007.

"Beckoning War on Water", *The Nation*, 23 Feb, 2013.

Bhutta, Zafar."Water Wars: India Planning 155 hydel projects on Pakistan's Rivers", *The Express Tribune*, November 15, 2011.

Bokhari, Ashfaq. "Water Scarcity and Riparian Rights", *Dawn (Islamabad)*, February 14, 2010.

Briscoe, John. War or Peace on the Indus?, *The News International*, April 3, 2010.

Hussain, Ijaz. "Not Treated according to the Treaty", *The Daily Times*, February 28, 2007.

Jahangir. "International Water Law and Foreign Policy of Pakistan," *Jahangir's World Time*, January 21, 2015.

Khalid,Daniya. "Pakistan's National water Policy", The Express Tribune, July 29, 2017.

Kakakhel, Shafqat. "The Indus River Basin and Climate Change." *Criterion Quarterly* ,Vol 10, No 3 (August 1, 2015)

Mandana, Niharika. "Water Wars: Why Pakistan and India are squaring off over their rivers", Time World, 16 April, 2012.

Menon, Meena. "Headway on Chenab Dams", *The Hindu*, June 2, 2016.

Mustafa, Khalid. "India Rejects Pakistan's Objections over Another Power Project", The News, (October 9,2011).

Noorani, AG. "A treaty to Keep." *Frontline (India's National Magzine),* Vol 19, Issue:8 (April 13-26, 2002).

"Pak delegation visiting India to inspect PakalDul, Lower Kalnaihydel power projects", *The Times of India*, January 27, 2019.

Riaz, Raja. "Talks on PakalDul, Lower Kalnai dams inconclusive", *Arab News*, August 30, 2018.

Sufi, Ahmer Bilal. "Legal case for dams", *Pakistan Herald*, January 13, 2014.

_____. "Water War with India". *Dawn (Islamabad)*, February 20, 2010, 15-16.

Sheikh, Ali Tauqeer. "Indus Waters Treaty and Pakistan's Water diplomacy." *Dawn*, March 27, 2017.

Waqar, Ali. "Pakistan's concerns over India's hydropower projects remain after opening round of talks", *Dawn*, August 29, 2018.

Yasir, Sameer. "Indus Waters Treaty, the Tulbul Project and its implications on India-Pakistan Rrelations." *Firstpost*, September 27, 2016.

Zaman, Fahim. "International Law on Water Rights", *Dawn*, October 31, 2016.

Pakistani Law

Constitution of Pakistan, 1973.

Indus River System Authority Act XXII, 1992.

Pakistan Environmental Protection Act 1997.

Water Apportionment Accord, 1991.

International Instruments

Berlin Rules on Water Resources, 2004 (International Law Association).

Convention on the protection and use of Trans-boundary Watercourses and International Lakes (1992, Water convention).

Charter of Economic Rights and Duties of States, 1972.

Helsinki Rules, 1966.

Indus Water Treaty, 1960.

Madrid Declaration, 1911.

Rio Declaration on Environment and Development, 1992.

Stockholm Declaration (Declaration of the United Nations Conference on the Human Environment, 16 June 1972.

UN Charter, 1945.

UN Convention on Environmental Impact Assessment in a Trans-boundary Context, 1991.

UN Framework Convention on Climate Change, 1992.

United Nations Convention on non-navigational uses or UN watercourses Convention 1997.

UNGA resolution 1401(XIV) 1959.

Vienna Convention for the Protection of the Ozone Layer, art. III, UNEP Doe. IG. 53/5/Rev 1 (1985)

Vienna Convention on Law of Treaties 1969.

Reports

Ahmed, Shahid. "Integrated Water Resources Management Policy Baluchistan, Pakistan", Baluchistan Resource Management Program Government of Baluchistan Asian Bank Development.

Baglihar Hydroelectric plant, Expert Determination, (final draft), October 30, 2006.

FAO Water, "International Watercourses/River Basins including Law, Negotiation, Conflict Resolution and Simulation Training Exercises," 2008.

Global Water Partnership.(2019). *What is the Network?* https://www.gwp.org/en/About/who/What-is-the-network/.

Ghandi,Vasant. P and VaibhavBhamoria. "Groundwater Irrigation in India Growth, challenges and Risks", India Infrastructure Report. (2011), 90-117.

IPCC Synthesis Report 2007, Summary for Policy Makers.

Kahlown, Muhammad Akram. Muhammad Ashraf. Abdul Rauf and Zia-ul-Haq." Determination of Crop water Requirement of Major Crops under Shallow Water-Table Conditions", Pakistan Council of Research in Water Resources, (2003).

National Groundwater Association (NGWA), "Facts about Global Groundwater Usage", www.ngwa.org

Nayak, Gayathrid and Rohini Bhavan. "Dispute settlement mechanism in transboundary freshwater allocation: an interference of international trade law and environmental law- A way forward to sustainable development," www.unctitral.org, 1-18.

Planning Commission, 2019. Pc.Gov.Pk. https://www.pc.gov.pk/uploads/plans/Ch20-Water1.pdf.

Report of the International Law Commission, Draft Articles on the Law of Non-Navigational Uses of International Watercourses, U.N. GAOR, 46th Sess., Supp. No. 10 at 161, U.N. Doc. A/46/10, (1991).

Sufi, Allah Baksh. Zahid Hussain. Syed Javed Sultan and Imran Tariq, "Integrated Resource Water Management in Pakistan" Symposium on "Changing Environmental Pattern and its impact with Special Focus on Pakistan."

State Bank of Pakistan. "Water Sustainability in Pakistan: Key Issues and Challenges" (2016-2107), 93-104.

Shareef, Humiara. "Inter-province Water Distribution Conflict in Pakistan", Joint Training of Pakistan-Afghanistan Journalists on Conflict, 1-14.

S,Kamal and Panda S M. "Water Allocation within India and Pakistan", Report. WWF UK, 2010.

"The Dublin Principles on Water and the Environment". 2019. Future learn. Accessed June 5. https://www.futurelearn.com/courses/sustainability-society-and-you/0/steps/4626

United Nations Development Program, "Development Advocate Pakistan", Feb, 1, 2017.

UNFCC, "Transboundary Carbon Capture and Storage Project Activities", (November 1, 2012).

UN Water, "Transboundary Waters: Sharing benefits, Responsibilities", 2008, www.unwater.org.

Vinogradov, Sergei. Patricia wouters, and Patricia Jones. "Transforming Potential Conflict into Cooperation Potential: The Role of International Water Law." *UNESCO*, SC-2003/WS/67.

Water scarcity | International Decade for Action 'Water for Life' 2005-2015http://www.un.org/waterforlifedecade/scarcity.shtml.

Wouters, Patricia. "The legal response to International Water Scarcity and Water Conflicts: The UN Watercourse Convention and beyond", (May/June 2003), www.africanwater.org/pat_wouters1.htm.

Yamada, Chusei. "Shared Natural Resources", First report on shared natural resources: Outlines A/CN.4/533 and Add.1, (30 April and 30 June 2003), 117-13.

Dissertations

Gul, Rabail. "In the surge of healing the case of Indus Basin," LLM diss., Malmo University faculty of Culture and Society, Spring 2017.

Kaushik, Aditya. K. "Regulating Water Security in Border regions: The Case of India and Pakistan."Master diss., August 1, 2017.

Mirza, Muhammad Nasrullah. "Indus Water Disputes and India-Pakistan Relations." PhD diss., Department of Political Science, South Asia Institute, University of Heidelberg, Federal Republic of Germany, 2016.

Muhammad, Usman. "Hydro-politics and Interprovincial relations in Pakistan- A Case study of Kalabagh dam controversy", Master diss., (thesis), Swedish University of Agriculture Science, (2012).

Nax,Natalie A. "Looking to the Future: The Indus Waters Treaty and the Climate Change", Masters diss., University of Oregon, June 2016.

Raman, Durgsheree Devi. "Governance of International Rivers threats Gaps and Challenges." PhD diss., the University of Waikatu, 2015.

Radin, Adam. "The Security implications of water: Prospects for Instability or Corporation in South and Central Asia", Naval Postgraduate School California Masters diss., March 2010.

Websites

*Assets.Publishing.Service.Gov.Uk.*https://assets.publishing.service.gov.uk/media/57aaec47ed915d097100005b/OV1-IWRM_Best_Practice_rev8FINAL.pdf.

"UN Women Stresses Women'S Role In Water Management At The Water For Life Conference". 2015. *UN Women*. http://www.unwomen.org/en/news/stories/2015/6/un-women-stresses-role-of-women-in-water-management-at-the-water-for-life-conference.

"4.8 International Conference On Water And The Environment". 2019. *Rdmc.Nottingham.Ac.Uk*. https://rdmc.nottingham.ac.uk/bitstream/handle/internal/112/Engineering%20Sustailability/48_international_conference_on_water_and_the_environment.html.

"Legal Framework (A2)". 2017. *Global Water Partnership*. https://www.gwp.org/en/learn/iwrm-toolbox/The-Enabling-Environment/Legal-Framework/.

See for details about the accord, 2019. *Waterinfo.Net.Pk*. Accessed June 14. https://waterinfo.net.pk/sites/default/files/knowledge/The%20Water%20Accord%20-%201991.pdf.

Mowr.Gov.Pk. https://www.mowr.gov.pk/wp-content/uploads/2018/06/Annual-Flood-Report-2013.pdf.

http://www.wmo.int/pages/prog/hwrp/documents/Resolution_25.pdf.

UN Water, "TransboundaryWaters:Sharing benefits, Responsibilities", 2008, www.unwater.org.

www.legal.un.org.

http://treaties.un.org.

www.unece.org/env/water/pdf/watercon.pdf

ANNEXURE 1

THE INDUS WATERS TREATY I960

BETWEEN THE GOVERNMENT OF INDIA, THE GOVERNMENT OF PAKISTAN AND THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT. SIGNED AT KARACHI, ON 19 SEPTEMBER 1960

PREAMBLE

The Government of India and the Government of Pakistan, being equally desirous of attaining the most complete and satisfactory utilization of the waters of the Indus system of rivers and recognizing the need, therefore, of fixing and delimiting, in a spirit of goodwill and friendship, the rights and obligations of each in relation to the other concerning the use of these waters and of making provision for the settlement, in a cooperative spirit, of all such questions as may hereafter arise in regard to the interpretation or application of the provisions agreed upon herein, have resolved to conclude a Treaty in furtherance of these objectives, and for this purpose have named as their plenipotentiaries :

The Government of India : Shri Jawaharlal Nehru, Prime Minister of India, and

The Government of Pakistan : Field Marshal Mohammad Ayub Khan, H.P., H.J., President of Pakistan ;

who, having communicated to each other their respective Full Powers and having found them in good and due form, have agreed upon the following Articles and Annexures :

Article I

DEFINITIONS

As used in this Treaty :

(1) The terms "Article" and "Annexure" mean respectively an Article of, and an Annexure to, this Treaty. Except as otherwise indicated, references to Paragraphs are to the paragraphs in the Article or in the Annexure in which the reference is made.

(2) The term "Tributary" of a river means any surface channel, whether in continuous or intermittent flow and by whatever name called, whose waters in the natural course would fall into that river, e.g. a tributary, a torrent, a natural drainage, an artificial drainage, a nadi, a nallah, a nai, a khad, a cho. The term also includes any sub tributary or branch or subsidiary channel, by whatever name called, whose waters, in the natural course, would directly or otherwise flow into that surface channel.

(3) The term "The Indus," "The Jhelum," "The Chenab," "The Ravi," "The Beas" or "The Sutlej" means the named river (including Connecting Lakes, if any) and all its Tributaries : Provided however that (i) none of the rivers named above shall be deemed to be a Tributary ; (ii) The Chenab shall be deemed to include the river Panjnad ; and (iii) the river Chandra and the river Bhaga shall be deemed to be Tributaries of The Chenab.

(4) The term "Main" added after Indus, Jhelum, Chenab, Sutlej, Beas or Ravi means the main stem of the named river excluding its Tributaries, but including all channels and creeks of the main stem of that river and such Connecting Lakes as form part of the main stem itself. The Jhelum Main shall be deemed to extend up to Verinag, and the Chenab Main up to the confluence of the river Chandra and the river Bhaga.

(5) The term "Eastern Rivers" means The Sutlej, The Beas and The Ravi taken together.

(6) The term "Western Rivers" means The Indus, The Jhelum and The Chenab taken together.

(7) The term "the Rivers" means all the rivers, The Sutlej, The Beas, The Ravi, The Indus, The Jhelum and The Chenab.

(8) The term "Connecting Lake" means any lake which receives water from, or yields water to, any of the Rivers ; but any lake which occasionally and irregularly receives only the spill of any of the Rivers and returns only the whole or part of that spill is not a Connecting Lake.

(9) The term "Agricultural Use" means the use of water for irrigation, except for irrigation of household gardens and public recreational gardens. (10) The term "Domestic Use" means the use of water for :

(a) drinking, washing, bathing, recreation, sanitation (including the conveyance and dilution of sewage and of industrial and other wastes), stock and poultry, and other like purposes ;

(b) Household and municipal purposes (including use for household gardens and public recreational gardens) ; and (c) industrial purposes (including mining, milling and other like purposes) ; but the term does not include Agricultural Use or use for the generation of hydro electric power.

(11) The term "Non-Consumptive Use" means any control or use of water for navigation, floating of timber or other property, flood protection or flood control, fishing or fish culture, wild life or other like beneficial purposes, provided that, exclusive of seepage and evaporation of water incidental to the control or use, the water (undiminished in volume within the practical range of measurement) remains in, or is returned to, the same river or its Tributaries ; but the term does not include Agricultural Use or use for the generation of hydro-electric power.

(12) The term "Transition Period" means the period beginning and ending as provided in Article II (6).

(13) The term "Bank" means the International Bank for Reconstruction and Development.

(14) The term "Commissioner" means either of the Commissioners appointed under the provisions of Article VIII (1) and the term "Commission" means the Permanent Indus Commission constituted in accordance with Article VIII (3).

(15) The term "interference with the waters" means : («) Any act of withdrawal therefrom ; or (b) Any man-made obstruction to their flow which causes a change in the volume (within the practical range of measurement) of the daily flow of the waters : Provided however that an obstruction which involves only an insignificant and incidental change in the volume of the daily flow, for example, fluctuations due to afflux caused by bridge piers or a temporary by-pass, etc., shall not be deemed to be an interference with the waters.

(16) The term "Effective Date" means the date on which this Treaty takes effect in accordance with the provisions of Article XII, that is, the first of April 1960.

Article II

PROVISIONS REGARDING EASTERN RIVERS

(1) All the waters of the Eastern Rivers shall be available for the unrestricted use of India, except as otherwise expressly provided in this Article.

(2) Except for Domestic Use and Non-Consumptive Use, Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters of the Sutlej Main and the Ravi Main in the reaches where these rivers flow in Pakistan and have not yet finally

crossed into Pakistan. The points of final crossing are the following : (a) near the new Hasta Bund upstream of Suleimanke in the case of the Sutlej Main, and (6) about one and a half miles upstream of the syphon for the B-R- B-D Link in the case of the Ravi Main.

(3) Except for Domestic Use, Non-Consumptive Use and Agricultural (as specified in Annexure B), 1 Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters (while flowing in Pakistan) of any Tributary which in its natural course joins the Sutlej Main or the Ravi Main before these rivers have finally crossed into Pakistan.

(4) All the waters, while flowing in Pakistan, of any Tributary which, in its natural course, joins the Sutlej Main or the Ravi Main after these rivers have finally crossed into Pakistan shall be available for the unrestricted use of Pakistan : Provided however that this provision shall not be construed as giving Pakistan any claim or right to any releases by India in any such Tributary. If Pakistan should deliver any of the waters of any such Tributary, which on the Effective Date joins the Ravi Main after this river has finally crossed into Pakistan, into a reach of the Ravi Main upstream of this crossing, India shall not make use of these waters ; each Party agrees to establish such discharge observation stations and make such observations as may be necessary for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan, and Pakistan agrees ta meet the cost of establishing the aforesaid discharge observation stations and making the aforesaid observations.

(5) There shall be a Transition Period during which, to the extent specified in Annexure H, 2 India shall (i) limit its withdrawals for Agricultural Use, (ii) limit abstractions for storages, and (iii) make deliveries to Pakistan from the Eastern Rivers. (6) The Transition Period shall begin on 1st April 1960 and it shall end on 31st March 1970, or, if extended under the provisions of Part 8 of Annexure H, on the date up to which it has been extended. In any event, whether or not the replacement referred to in Article IV (1) has been accomplished, the Transition Period shall end not later than 31st March 1973.

(7) If the Transition Period is extended beyond 31st March 1970, the provisions of Article V (5) shall apply.

(8) If the Transition Period is extended beyond 31st March 1970, the provisions of Paragraph (5) shall apply during the period of extension beyond 31st March 1970.

(9) During the Transition Period, Pakistan shall receive for unrestricted use the waters of the Eastern Rivers which are to be released by India in accordance with the provisions of Annexure H. After the end of the Transition Period, Pakistan shal have no claim or right to releases by India of any of the waters of the Eastern Rivers. In case there are any releases, Pakistan shall enjoy the unrestricted use of the waters so released after they have finally crossed into Pakistan : Provided that in the event that Pakistan makes any use of these waters, Pakistan shall not acquire any right whatsoever, by prescription or otherwise, to a continuance of such releases or such use.

Article III
PROVISIONS REGARDING WESTERN RIVERS

(1) Pakistan shall receive for unrestricted use all those waters of the Western Rivers which India is under obligation to let flow under the provisions of Paragraph (2).

(2) India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (c) (ii) of Paragraph 5 of Annexure C) 1 in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof : (a) Domestic Use ;

(b) Non-Consumptive Use ; (c) Agricultural Use, as set out in Annexure C ; and (d) Generation of hydro-electric power, as set out in Annexure D. 2

(3) Pakistan shall have the unrestricted use of all waters originating from sources other than the Eastern Rivers which are delivered by Pakistan into The Ravi or The Sutlej, and India shall not make use of these waters. Each Party agrees to establish such discharge observation stations and make such observations as may be considered necessary by the Commission for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan.

(4) Except as provided in Annexures D and E, 1 India shall not store any water of, or construct any storage works on, the Western Rivers.

Article IV

PROVISIONS REGARDING EASTERN RIVERS AND WESTERN RIVERS

(1) Pakistan shall use its best endeavours to construct and bring into operation, with due regard to expedition and economy, that part of a system of works which will accomplish the replacement, from the Western Rivers and other sources, of water supplies for irrigation canals in Pakistan which, on 15th August 1947, were dependent on water supplies from the Eastern Rivers.

(2) Each Party agrees that any Non-Consumptive Use made by it shall be so made as not to materially change, on account of such use, the flow in any channel to the prejudice of the uses on that channel by the other Party under the provisions of this Treaty. In executing any scheme of flood protection or flood control each Party will avoid, as far as practicable, any material damage to the other Party, and any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III.

(3) Nothing in this Treaty shall be construed as having the effect of preventing either Party from undertaking schemes of drainage, river training, conservation of soil against erosion and dredging, or from removal of stones, gravel or sand from the beds of the Rivers : Provided that (a) in executing any of the schemes mentioned above, each Party will avoid, as far as practicable, any material damage to the other Party ; (b) any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III ;

(c) except as provided in Paragraph (5) and Article VII (1) (b), India shall not take any action to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain which crosses into Pakistan, and shall not undertake such construction or remodeling of any drainage or drain which so crosses or falls into a drainage or drain which so crosses as might cause material damage in Pakistan or entail the construction of a new drain or enlargement of an existing drainage or drain in Pakistan ; and

(d) should Pakistan desire to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain, which receives drainage waters from India, or, except in an emergency, to pour any waters into it in excess of the quantities received by it as on the Effective Date, Pakistan shall, before undertaking any work for these purposes, increase the capacity of that drainage or drain to the extent necessary so as not to impair its efficacy for dealing with drainage waters received from India as on the Effective Date.

(4) Pakistan shall maintain in good order its portions of the drainages mentioned below with capacities not less than the capacities as on the Effective Date :

(i) Hudiara Drain (ii) Kasur Nala (iii) Salimshah Drain (iv) Fazilka Drain.

(5) If India finds it necessary that any of the drainages mentioned in Paragraph (4) should be deepened or widened in Pakistan, Pakistan agrees to undertake to do so as a work of public interest, provided India agrees to pay the cost of the deepening or widening.

(6) Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party.

(7) Neither Party will take any action which would have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks.

(8) The use of the natural channels of the Rivers for the discharge of flood or other excess waters shall be free and not subject to limitation by either Party, and neither Party shall have any claim against the other in respect of any damage caused by such use. Each Party agrees to communicate to the other Party, as far in advance as practicable, any information it may have in regard to such extraordinary discharges of water from reservoirs and flood flows as may affect the other Party.

(9) Each Party declares its intention to operate its storage dams, barrages and irrigation canals in such manner, consistent with the normal operations of its hydraulic systems, as to avoid, as far as feasible, material damage to the other Party.

(10) Each Party declares its intention to prevent, as far as practicable, undue pollution of the waters of the Rivers which might affect adversely uses similar in nature to those to which the waters were put on the Effective Date, and agrees to take all reasonable measures to ensure that, before any sewage or industrial waste is allowed to flow into the Rivers, it will be treated, where necessary, in such manner as not materially to affect those uses : Provided that the criterion of reasonableness shall be the customary practice in similar situations on the Rivers.

(11) The Parties agree to adopt, as far as feasible, appropriate measures for the recovery, and restoration to owners, of timber and other property floated or floating down the Rivers, subject to appropriate charges being paid by the owners.

(12) The use of water for industrial purposes under Articles II (2), II (3) and III (2) shall not exceed : (a) in the case of an industrial process known on the Effective Date, such quantum of use as was customary in that process on the Effective Date ; (b) in the case of an industrial process not known on the Effective Date :

(i) such quantum of use as was customary on the Effective Date in similar or in any way comparable industrial processes ; or (ii) if there was no industrial process on the Effective Date similar or in any way comparable to the new process, such quantum of use as would not have a substantially adverse effect on the other Party.

(13) Such part of any water withdrawn for Domestic Use under the provisions of Articles II (3) and III (2) as is subsequently applied to Agricultural Use shall be accounted for as part of the Agricultural Use specified in Annexure B and Annexure C respectively ; each Party will use its best endeavours to return to the same river (directly or through one of its Tributaries) all water withdrawn there from for indus trial purposes and not consumed either in the industrial processes for which it was withdrawn or in some other Domestic Use.

(14) In the event that either Party should develop a use of the waters of the Rivers which is not in accordance with the provisions of this Treaty, that Party shall not acquire by reason of such use any right, by prescription or otherwise, to a continuance of such use.

(15) Except as otherwise required by the express provisions of this Treaty, nothing in this Treaty shall be construed as affecting existing territorial rights over the waters of any of the

Rivers or the beds or banks thereof, or as affecting existing property rights under municipal law over such waters or beds or banks.

Article V
FINANCIAL PROVISIONS

(1) In consideration of the fact that the purpose of part of the system of works referred to in Article IV (1) is the replacement, from the Western Rivers and other sources, of water supplies for irrigation canals in Pakistan which, on 15th August 1947, were dependent on water supplies from the Eastern Rivers, India agrees to make a fixed contribution of Pounds Sterling 62,060,000 towards the costs of these works. The amount in Pounds Sterling of this contribution shall remain unchanged irrespective of any alteration in the par value of any currency.

(2) The sum of Pounds Sterling 62,060,000 specified in Paragraph (1) shall be paid in ten equal annual installments on the 1st of November of each year. The first of such annual installments shall be paid on 1st November 1960, or if the Treaty has not entered into force by that date, then within one month after the Treaty enters into force.

(3) Each of the installments specified in Paragraph (2) shall be paid to the Bank for the credit of the Indus Basin Development Fund to be established and administered by the Bank, and payment shall be made in Pounds Sterling, or in such other currency or currencies as may from time to time be agreed between India and the Bank.

(4) The payments provided for under the provisions of Paragraph (3) shall be made without deduction or set-off on account of any financial claims of India on Pakis tan arising otherwise than under the provisions of this Treaty : Provided that this provision shall in no way absolve Pakistan from the necessity of paying in other ways debts to India which may be outstanding against Pakistan.

(5) If, at the request of Pakistan, the Transition Period is extended in accordance with the provisions of Article II (6) and of Part 8 of Annexure H, the Bank shall there upon pay to India out of the Indus Basin Development Fund the appropriate amount specified in the Table below:

Table

Period of Aggregate Extension of Transition period	Payment to India £Sts.
One year	3,125,000
Two years	6,406,250
Three years	9,850,000

(6) The provisions of Article IV (1) and Article V (1) shall not be construed as conferring upon India any right to participate in the decisions as to the system of works which Pakistan constructs pursuant to Article IV (1) or as constituting an assumption of any responsibility by India or as an agreement by India in regard to such works.

(7) Except for such payments as are specifically provided for in this Treaty, neither Party shall be entitled to claim any payment for observance of the provisions of this Treaty or to make any charge for water received from it by the other Party.

Article VI
EXCHANGE OF DATA

(1) The following data with respect to the flow in, and utilization of the waters of, the Rivers shall be exchanged regularly between the Parties : (a) Daily (or as observed or estimated less frequently) gauge and discharge data relating to flow of the Rivers at all observation sites. (b) Daily extractions for or releases from reservoirs.

(c) Daily withdrawals at the heads of all canals operated by government or by a government agency (hereinafter in this Article called canals), including link canals.

(d) Daily escapages from all canals, including link canals.

(e) Daily deliveries from link canals. These data shall be transmitted monthly by each Party to the other as soon as the data for a calendar month have been collected and tabulated, but not later than three months after the end of the months to which they relate: Provided that such of the data specified above as are considered by either Party to be necessary for operational purposes shall be supplied daily or at less frequent intervals, as may be requested. Should one Party request the supply of any of these data by telegram, telephone, or wireless, it shall reimburse the other Party for the cost of transmission.

(2) If, in addition to the data specified in Paragraph (1) of this Article, either Party requests the supply of any data relating to the hydrology of the Rivers, or to canal or reservoir operation connected with the Rivers, or to any provision of this Treaty, such data shall be supplied by the other Party to the extent that these are available.

Article VII
FUTURE CO-OPERATION

(1) The two Parties recognize that they have a common interest in the optimum development of the Rivers, and, to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent. In particular:

(a) Each Party, to the extent it considers practicable and on agreement by the other Party to pay the costs to be incurred, will, at the request of the other Party, set up or install such hydrologic observation stations within the drainage basins of the Rivers, and set up or install such meteorological observation stations relating thereto and carry out such observations thereat, as may be requested, and will supply the data so obtained.

(b) Each Party, to the extent it considers practicable and on agreement by the other Party to pay the costs to be incurred, will, at the request of the other Party, carry out such new drainage works as may be required in connection with new drainage works of the other Party.

(c) At the request of either Party, the two Parties may, by mutual agreement, co operate in undertaking engineering works on the Rivers. The formal arrangements, in each case, shall be as agreed upon between the Parties.

(2) If either Party plans to construct any engineering work which would cause interference with the waters of any of the Rivers and which, in its opinion, would affect the other Party materially, it shall notify the other Party of its plans and shall supply such data relating to the work as may be available and as would enable the other Party to inform itself of the nature, magnitude and effect of the work. If a work would cause interference with the waters of any of the Rivers but would not, in the opinion of the Party planning it, affect the other Party materially, nevertheless the Party planning the work shall, on request, supply the other Party with such data regarding the nature, magnitude and effect, if any, of the work as may be available.

Article VIII
PERMANENT INDUS COMMISSION

(1) India and Pakistan shall each create a permanent post of Commissioner for Indus Waters, and shall appoint to this post, as often as a vacancy occurs, a person who should

ordinarily be a high-ranking engineer competent in the field of hydrology and water-use. Unless either Government should decide to take up any particular question directly with the other Government, each Commissioner will be the representative of his Government for all matters arising out of this Treaty, and will serve as the regular channel of communication on all matters relating to the implementation of the Treaty, and, in particular, with respect to

(a) the furnishing or exchange of information or data provided for in the Treaty; and

(b) the giving of any notice or response to any notice provided for in the Treaty.

(2) The status of each Commissioner and his duties and responsibilities towards his Government will be determined by that Government.

(3) The two Commissioners shall together form the Permanent Indus Commission.

(4) The purpose and functions of the Commission shall be to establish and maintain co-operative arrangements for the implementation of this Treaty, to promote co-operation between the Parties in the development of the waters of the Rivers and, in particular,

(a) to study and report to the two Governments on any problem relating to the development of the waters of the Rivers which may be jointly referred to the Commission by the two Governments: in the event that a reference is made by one Government alone, the Commissioner of the other Government shall obtain the authorization of his Government before he proceeds to act on the reference;

(b) to make every effort to settle promptly, in accordance with the provisions of Article IX (1), any question arising there under ;

(c) to undertake, once in every five years, a general tour of inspection of the Rivers for ascertaining the facts connected with various developments and works on the Rivers ;

(d) to undertake promptly, at the request of either Commissioner, a tour of inspection of such works or sites on the Rivers as may be considered necessary by him for ascertaining the facts connected with those works or sites ; and

(e) to take, during the Transition Period, such steps as may be necessary for the implementation of the provisions of Annexure H.

(5) The Commission shall meet regularly at least once a year, alternately in India and Pakistan. This regular annual meeting shall be held in November or in such other month as may be agreed upon between the Commissioners. The Commission shall also meet when requested by either Commissioner.

(6) To enable the Commissioners to perform their functions in the Commission, each Government agrees to accord to the Commissioner of the other Government the same privileges and immunities as are accorded to representatives of member States to the principal and subsidiary organs of the United Nations under Sections 11, 12 and 13 of Article IV of the Convention on the Privileges and Immunities of the United Nations 1 (dated 13th February, 1946) during the periods specified in those Sections. It is understood and agreed that these privileges and immunities are accorded to the Commissioners not for the personal benefit of the individuals themselves but in order to safeguard the independent exercise of their functions in connection with the Commission ; consequently, the Government appointing the Commissioner not only has the right but is under a duty to waive the immunity of its Commissioner in any case where, in the opinion of the appointing Government, the immunity would impede the course of justice and can be waived without prejudice to the purpose for which the immunity is accorded.

(7) For the purposes of the inspections specified in Paragraph (4) (c) and (d), each Commissioner may be accompanied by two advisers or assistants to whom appropriate facilities will be accorded.

(8) The Commission shall submit to the Government of India and to the Government of Pakistan, before the first of June of every year, a report on its work for the year ended on the preceding 31st of March, and may submit to the two Governments other reports at such times as it may think desirable. (9) Each Government shall bear the expenses of its Commissioner and his ordinary staff. The cost of any special staff required in connection with the work mentioned in Article VII (1) shall be borne as provided therein.

(10) The Commission shall determine its own procedures.

Article IX

SETTLEMENT OF DIFFERENCES AND DISPUTES

(1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.

(2) If the Commission does not reach agreement on any of the questions mentioned in Paragraph (1), then a difference will be deemed to have arisen, which shall be dealt with as follows :

(a) Any difference which, in the opinion of either Commissioner, falls within the provisions of Part 1 of Annexure F 1 shall, at the request of either Commissioner, be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F ;

(b) If the difference does not come within the provisions of Paragraph (2) (a), or if a Neutral Expert, in accordance with the provisions of Paragraph 7 of Annexure F, has informed the Commission that, in his opinion, the difference, or a part thereof, should be treated as a dispute, then a dispute will be deemed to have arisen which shall be settled in accordance with the provisions of Paragraphs (3), (4) and (5) :

Provided that, at the discretion of the Commission, any difference may either bt-, dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F or be deemed to be a dispute to be settled in accordance with the provisions of Paragraphs (3), (4) and (5), or may be settled in any other way agreed upon by the Commission.

(3) As soon as a dispute to be settled in accordance with this and the succeeding paragraphs of this Article has arisen, the Commission shall, at the request of either Commissioner, report the fact to the two Governments, as early as practicable, stating in its report the points on which the Commission is in agreement and the issues in dispute, the views of each Commissioner on these issues and his reasons therefor

(4) Either Government may, following receipt of the report referred to in Para graph (3), or if it comes to the conclusion that this report is being unduly delayed in the Commission, invite the other Government to resolve the dispute by agreement. In doing so it shall state the names of its negotiators and their readiness to meet with the negotiators to be appointed by the other Government at a time and place to be indicated by the other Government. To assist in these negotiations, the two Governments may agree to enlist the services of one or more mediators acceptable to them.

(5) A court of Arbitration shall be established to resolve the dispute in the manner provided by Annexure G 1

(a) upon agreement between the Parties to do so ; or

(b) at the request of either Party, if, after negotiations have begun pursuant to Para graph (4), in its opinion the dispute is not likely to be resolved by negotiation or mediation ; or

(c) at the request of either Party, if, after the expiry of one month following receipt by the other Government of the invitation referred to in Paragraph (4), that Party comes to the conclusion that the other Government is unduly delaying the negotiations.

(6) The provisions of Paragraphs (3), (4) and (5) shall not apply to any difference while it is being dealt with by a Neutral Expert.

Article X
EMERGENCY PROVISION

If, at any time prior to 31st March 1965, Pakistan should represent to the Bank that, because of the outbreak of large-scale international hostilities arising out of causes beyond the control of Pakistan, it is unable to obtain from abroad the materials and equipment necessary for the completion, by 31st March 1973, of that part of the system of works referred to in Article IV (1) which related to the replacement referred to therein, (hereinafter referred to as the "replacement element") and if, after consideration of this representation in consultation with India, the Bank is of the opinion that

(a) these hostilities are on a scale of which the consequence is that Pakistan is unable to obtain in time such materials and equipment as must be procured from abroad for the completion, by 31st March 1973, of the replacement element, and

(b) since the Effective Date, Pakistan has taken all reasonable steps to obtain the said materials and equipment and, with such resources of materials and equipment as have been available to Pakistan both from within Pakistan and from abroad, has carried forward the construction of the replacement element with due diligence and all reasonable expedition, the Bank shall immediately notify each of the Parties accordingly. The Parties undertake, without prejudice to the provisions of Article XII (3) and (4), that on being so notified, they will forthwith consult together and enlist the good offices of the Bank in their consultation, with a view to reaching mutual agreement as to whether or not, in the light of all the circumstances then prevailing, any modifications of the provisions of this Treaty are appropriate and advisable and, if so, the nature and the extent of the modifications.

Article XI
GENERAL PROVISIONS

(1) It is expressly understood that (a) this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto ; and (b) nothing contained in this Treaty, and nothing arising out of the execution thereof, shall be construed as constituting a recognition or waiver (whether tacit, by implication or otherwise) of any rights or claims whatsoever of either of the Parties other than those rights or claims which are expressly recognized or waived in this Treaty. Each of the Parties agrees that it will not invoke this Treaty, anything contained therein, or anything arising out of the execution thereof, in support of any of its own rights or claims whatsoever or in disputing any of the rights or claims whatsoever of the other Party, other than those rights or claims which are expressly recognized or waived in this Treaty.

(2) Nothing in this Treaty shall be construed by the Parties as in any way establishing any general principle of law or any precedent.

(3) The rights and obligations of each Party under this Treaty shall remain unaffected by any provisions contained in, or by anything arising out of the execution of, any agreement establishing the Indus Basin Development Fund.

Article XII
FINAL PROVISIONS

(1) This Treaty consists of the Preamble, the Articles hereof and Annexures A to H hereto, and may be cited as "The Indus Waters Treaty 1960". (2) This Treaty shall be ratified and the ratifications thereof shall be exchanged in New Delhi. It shall enter into force upon the exchange of ratifications, and will then take effect retrospectively from the first of April 1960.

(3) The provisions of this Treaty may from time to time be modified by a duly ratified treaty concluded for that purpose between the two Governments.

(4) The provisions of this Treaty, or the provisions of this Treaty as modified under the provisions of Paragraph (3), shall continue in force until terminated by a duly ratified treaty concluded for that purpose between the two Governments.

IN WITNESS WHEREOF the respective Plenipotentiaries have signed this Treaty and have hereunto affixed their seals.

DONE in triplicate in English at Karachi on this Nineteenth day of September 1960.

For the Government of India :

(Signed) Jawaharlal NEHRU

For the Government of Pakistan :

(Signed) Mohammad Ayub KHAN Field Marshal, H.P., H.J.

For the International Bank for Reconstruction and Development, for the purposes specified in Articles V and X and Annexures F, G and H

(Signed) W. A. B. ILIFF

ANNEXURE A—EXCHANGE OF NOTES BETWEEN GOVERNMENT OF INDIA AND GOVERNMENT OF PAKISTAN

I. NOTE DATED 19th SEPTEMBER 1960, FROM THE HIGH COMMISSIONER FOR INDIA IN PAKISTAN, KARACHI, TO THE MINISTER FOR FOREIGN AFFAIRS AND COMMONWEALTH RELATIONS, GOVERNMENT OF PAKISTAN

19th September, 1960

Excellency :

I have been instructed by my Government to communicate to you the following : "The Government of India agrees that, on the ratification of the Indus Waters Treaty 1960, l the Inter-Dominion Agreement on the Canal Water Dispute signed at New Delhi on 4th May 1948 z (of which a copy is annexed hereto) and the rights and obligations of either party thereto claimed under, or arising out of, that Agreement shall be without effect as from 1st April 1960.

"The position of the Government of India stated above and Your Excellency's Note of to-day's date stating the position of the Government of Pakistan on this question will form part of Annexure A to the Indus Waters Treaty 1960."

Accept, Excellency, the renewed assurance of my highest consideration.

ANNEX

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 Depalpur 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 favour 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 seignior age charges for water and the other is the question of the capital cost of the *Madhavpur 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 recognize the natural anxiety of the East Punjab Government to discharge the obligation to develop areas where water is scarce and which were under-developed 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 Government 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.

Jawaharlal NEHRU Ghulam MOHD
N. V. GADGIL Shaukat Hyat KHAN
Swaran SINGH Mumtaz DAULTANA New Delhi, May 1948

II. NOTE DATED 19th SEPTEMBER 1960, FROM THE MINISTER FOR FOREIGN AFFAIRS AND COMMONWEALTH RELATIONS, GOVERNMENT OF PAKISTAN, TO THE HIGH COMMIS SIONER FOR INDIA IN PAKISTAN, KARACHI

19th September, 1960

Excellency :

I have been instructed by my Government to communicate to you the following : "The Government of Pakistan agrees that, on the ratification of the Indus Waters Treaty 1960, the document on the Canal Water Dispute signed at New Delhi on 4th May 1948 (of which a copy is annexed hereto) and the rights and obligations of either party thereto claimed under, or arising out of, that document shall be without effect as from 1st April 1960. "The position of the Government of Pakistan stated above and Your Excellency's Note of to-day's date stating the position of the Government of India on this question will form part of Annexure A to the Indus Waters Treaty 1960."

Accept, Excellency, the renewed assurance of my highest consideration.

ANNEX

[For the text of this annex, see p. 158 of this volume]

ANNEXURE B AGRICULTURAL USE BY PAKISTAN FROM CERTAIN TRIBUTARIES OF THE RAVI (Article II (3))

1. The provisions of this Annexure shall apply with respect to the Agricultural Use by Pakistan from certain Tributaries of The Ravi under the provisions of Article, II (3) and, subject to the provisions of this Annexure, such use shall be unrestricted.

2. Pakistan may withdraw from the Basantar Tributary of the Ravi such waters as may be available and necessary for the irrigation of not more than 100 acres annually.

3. In addition to the area specified in Paragraph 2, Pakistan may also withdraw such waters from each of the following Tributaries of The Ravi as may be available and as may be necessary for the irrigation of that part of the following areas cultivated on sailab as on the Effective Date which cannot be so cultivated after that date : Provided that the total area whether irrigated or cultivated on sailab shall not exceed the limits specified below, except during a year of exceptionally heavy floods when sailab may extend to areas which were not cultivated on sailab as on the Effective Date and when such areas may be cultivated in addition to the limits specified :

Name of Tributary	Maximum Annual Cultivation (acres)
Basantar	14,000
Bein	26,600
Tarnah	1,800
Ujh	3,000

4. The provisions of Paragraphs 2 and 3 shall not be construed as giving Pakistan any claim or right to any releases by India in the Tributaries mentioned in these paragraphs.

5. Not later than 31st March 1961, Pakistan shall furnish to India a statement by Districts and Tehsils showing (i) the area irrigated and (ii) the area cultivated on sailab, as on the Effective Date, from the waters of each of the Tributaries specified in Para graphs 2 and 3.

6. As soon as the statistics for each crop year (commencing with the beginning of kharif and ending with the end of the following rabi) have been compiled at the District Headquarters, but not later than the 30th November following the end of that crop year, Pakistan shall furnish to India a statement arranged by Tributaries and showing for each of the Districts and Tehsils irrigated or cultivated on sailab from the Tributaries mentioned in Paragraphs 2 and 3 : (i) the area irrigated, and (ii) the area cultivated on sailab.

ANNEXURE C AGRICULTURAL USE BY INDIA FROM THE WESTERN RIVERS

(Article III(2)(c))

1. The provisions of this Annexure shall apply with respect to the Agricultural Use by India from the Western Rivers under the provisions of Article III (2) (c) and, subject to the provisions of this Annexure, such use shall be unrestricted.

2. As used in this Annexure, the term "Irrigated Cropped Area" means the total area under irrigated crops in a year, the same area being counted twice if it bears different crops in kharif and rabi. The term shall be deemed to exclude small blocks of ghair mumkin lands in an irrigated field, lands on which cultivation is dependent on rain or snow and to which no irrigation water is applied, areas naturally inundated by river flow and cultivated on sailab thereafter, any area under floating gardens or demb lands in and along any lakes, and any area under water plants growing within the water-spread of any lake or in standing water in a natural depression.

3. India may withdraw from the Chenab Main such waters as India may need for Agricultural Use on the following canals limited to the maximum withdrawals noted against each:

Name of canals	Maximum Withdrawals for Agricultural Use
(a) Ranbir Canal	1,000 cusecs from 15th April to 14th October, and 350 cusecs from 15th October to 14th April.
(b) Pratap Canal	400 cusecs from 15th April to 14th October, and 100 cusecs from 15th October to 14th April.

Provided that:

(i) The maximum withdrawals shown above shall be exclusive of any withdrawals which may be made through these canals for purposes of silt extraction on condition that the waters withdrawn for silt extraction are returned to The Chenab.

(ii) India may make additional withdrawals through the Ranbir Canal up to 250 cusecs for hydro-electric generation on condition that the waters so withdrawn are returned to The Chenab.

(iii) If India should construct a barrage across the Chenab Main below the head regulators of these two canals, the withdrawals to be then made, limited to the amounts specified in (a) and (b) above, during each 10-day period or sub period thereof, shall be as determined by the Commission in accordance with sound irrigation practice and, in the absence of agreement between the Commissioners, by a Neutral Expert in accordance with the provisions of Annexure F.

4. Apart from the irrigation from the Ranbir and Pratap Canals under the provisions of Paragraph 3, India may continue to irrigate from the Western Rivers those areas which were so irrigated as on the Effective Date.

5. In addition to such withdrawals as may be made in accordance with the provisions of Paragraphs 3 and 4, India may, subject to the provisions of Paragraphs 6, 7, 8 and 9, make further withdrawals from the Western Rivers to the extent India may consider necessary to meet the irrigation needs of the areas specified below :

Particulars	Maximum Irrigated Cropped Ana (over and above the cropped area irrigated under the provisions of Paragraphs 3 and 4) (acres)
(a) From The Indus, in its drainage basin	70,000
(b) From The Jhelum, in its drainage basin	400,000
(c) From The Chenab,	
(i) in its drainage basin	225,000 of which not more than 100,000 acres will be in the Jammu District.
(ii) outside its drainage basin in the area west of the Deg Nadi (also called Devak River), the aggregate capacity of irrigating channels leading out of the drainage basin of the Chenab to this area not to exceed 120 cusecs	6000

Provided that (i) in addition to the maximum Irrigated Cropped Area specified above, India may irrigate road-side trees from any source whatever;

(ii) the maximum Irrigated Cropped Area shown against items (a), (b) and (c) (i) above shall be deemed to include cropped areas, if any, irrigated from an open well, a tube- well, a spring, a lake (other than a Connecting lake) or a tank, in excess of the areas so irrigated as on the Effective Date ; and (iii) the aggregate of the areas specified against items (a), (b) and (c) (i) above may be re distributed among the three drainage basins in such manner as may be agreed upon between the Commissioners.

6. (a) Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) (i) in Paragraph 5, there shall be no restriction on the development of such of these areas as may be irrigated from an open well, a tube-well, a spring, a lake (other than a Connecting Lake) or a tank.

(b) Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) in Paragraph 5, there shall be no restriction on the development of such of these areas as may be irrigated from General Storage (as defined in Annexure E) ; * the areas irrigated from General Storage may, however, receive irrigation from river flow also, but, unless the Commissioners otherwise agree, only in the following periods :

(i) from The Jhelum : 21st June to 20th August

(ii) from The Chenab : 21st June to 31st August :

Provided that withdrawals for such irrigation, whether from General Storage or from river flow, are controlled by Government.

7. Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) in Paragraph 5, the development of these areas by withdrawals from river flow (as distinct from withdrawals from General Storage cum river flow in accordance with Paragraph 6 (b)) shall be regulated as follows :

(a) Until India can release water from Conservation Storage (as defined in Annexure E) in accordance with sub-paragraphs (b) and (c) below, the new area developed shall not exceed the following :

(i) from The Jhelum : 150,000 acres

(ii) from The Chenab : 25,000 acres during the Transition Period and 50,000 acres after the end of the Transition Period.

(b) In addition to the areas specified in (a) above, there may be developed from The Jhelum or The Chenab an aggregate area of 150,000 acres if there is released annually from Conservation Storage, in accordance with Paragraph 8, a volume of 0.2 MAF into The Jhelum and a volume of 0.1 MAF into The Chenab ; provided that India shall have the option to store on and release into The Chenab the whole or a part of the volume of 0.2 MAF specified above for release into The Jhelum.

(c) Any additional areas over and above those specified in (a) and (b) above may be developed if there is released annually from Conservation Storage a volume of 0.2 MAF into The Jhelum or The Chenab, in accordance with Paragraph 8, in addition to the releases specified in (b) above. 8. The releases from Conservation Storage, as specified in Paragraphs 7 (b) and 7 (c), shall be made in accordance with a schedule to be determined by the Commission which shall keep in view, first, the effect, if any, on Agricultural Use by Pakistan consequent on the reduction in supplies available to Pakistan as a result of the withdrawals made by India under the provisions of Paragraph 7 and, then, the requirements, if any, of hydro electric power to be developed by India from these releases. In the absence of agreement between the

Commissioners, the matter may be referred under the provisions of Article IX (2) (a) for decision to a Neutral Expert.

9. On those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan, any new Agricultural Use by India shall be so made as not to affect adversely the then existing Agricultural Use or hydro-electric use by Pakistan on those Tributaries.

10. Not later than 31st March 1961, India shall furnish to Pakistan a statement showing, for each of the Districts and Tehsils irrigated from the Western Rivers, the Irri gated Cropped Area as on the Effective Date (excluding only the area irrigated under the provisions of Paragraph 3), arranged in accordance with items (a), (b) and (c)(i) of Para graph 5 : Provided that in the case of areas in the Punjab, the date may be extended to 30th September 1961. 11. (a) As soon as the statistics for each crop year (commencing with the beginning of kharif and ending with the end of the following rabi) have been compiled at the District Headquarters, but not later than the 30th November following the end of that crop year, India shall furnish to Pakistan a statement showing for each of the Districts and Tehsils irrigated from the Western Rivers, the total Irrigated Cropped Areas (excluding the area irrigated under the provisions of Paragraph 3) arranged in accordance with items (a), (b), (c) (i) and (c) (ii) of Paragraph 5 : Provided that, in the case of areas in the Punjab, the 30th November date specified above may be extended to the following 30th June in the event of failure of communications. (b) If the limits specified in Paragraph 7 (a) or 7 (b) are exceeded for any crop year, the statement shall also show the figures for Irrigated Cropped Areas falling under Para graph 6 (a) and 6 (b) respectively, unless appropriate releases from Conservation Storage under the provisions of Paragraph 8 have already begun to be made.

ANNEXURE D GENERATION OF HYDRO-ELECTRIC POWER BY INDIA ON THE WESTERN RIVERS

(Article III (2)(d))

1. The provisions of this Annexure shall apply with respect to the use by India of the waters of the Western Rivers for the generation of hydro-electric power under the provisions of Article III (2)(rf) and, subject to the provisions of this Annexure, such use shall be unrestricted : Provided that the design, construction and operation of new hydro electric plants which are incorporated in a Storage Work (as defined in Annexure E) shall be governed by the relevant provisions of Annexure E. 1

PART 1 DEFINITIONS

2. As used in this Annexure :

(a) "Dead Storage" means that portion of the storage which is not used for operational purposes and "Dead Storage Level" means the level corresponding to Dead Storage.

(b) "Live Storage" means all storage above Dead Storage.

(c) "Pondage" means Live Storage of only sufficient magnitude to meet fluctuations in the discharge of the turbines arising from variations in the daily and the weekly loads of the plant. (d) "Full Pondage Level" means the level corresponding to the maximum Pondage pro vided in the design in accordance with Paragraph 8 (c).

(e) "Surcharge Storage" means uncontrollable storage occupying space above the Full Pondage Level.

(f) "Operating Pool" means the storage capacity between Dead Storage level and Full Pondage Level.

(g) "Run-of-River Plant" means a hydro-electric plant that develops power without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage. (A) "Regulating Basin" means the basin whose only purpose is to even out fluctuations in the discharge from the turbines arising from variations in the daily and the weekly loads of the plant. (t) "Firm Power" means the hydro-electric power corresponding to the minimum mean discharge at the site of a plant, the minimum mean discharge being calculated as follows : The average discharge for each 10-day period (1st to 10th, llth to 20th and 21st to the end of the month) will be worked out for each year for which discharge data, whether observed or estimated, are proposed to be studied for purposes of design. The mean of the yearly values for each 10-day period will then be worked out. The lowest of the mean values thus obtained will be taken as the minimum mean dis charge. The studies will be based on data for as long a period as available but may be limited to the latest 5 years in the case of Small Plants (as denned in Paragraph 18) and to the latest 25 years in the case of other Plants (as denned in Paragraph 8). (j) "Secondary Power" means the power, other than Firm Power, available only during certain periods of the year.

PART 2 HYDRO-ELECTRIC PLANTS IN OPERATION, OR UNDER CONSTRUCTION, AS ON THE EFFECTIVE DATE

3. There shall be no restriction on the operation of the following hydro-electric plants which were in operation as on the Effective Date:

Name of the plant		Capacity (exclusive of standby units) (kilowatts)
i.	Pahalgam	186
ii.	Bandipura	30
iii.	Dachhigam	40
iv.	Ranbir Canal	1,200
v.	Udhampur	640
vi.	Poonoh	160

4. There shall be no restriction on the completion by India, in accordance with the design adopted prior to the Effective Date, or on the operation by India, of the following hydro-electric plants which were actually under construction on the Effective Date, whether or not the plant was on that date in partial operation :

Name of Plant		Designed capacity (exclusive of standby units) (kilowatts)
i.	Mahora	12,000
ii.	Ganderbal	15,000
iii.	Kupwara	150
iv.	Bhadarwah	600
v.	Kishtwar	350
vi.	Rajori	650
vii.	Chinani	14,000
viii.	Nichalani Banibal	600

5. As soon as India finds it possible to do so, but not later than 31st March 1961, India shall communicate to Pakistan the Information specified in Appendix I 1 to this Annexure for each of the plants specified in Paragraphs 3 and 4. If any such information is not available or is not pertinent to the design of the plant or to the conditions at the site, it will be so stated.

6. (a) If any alteration proposed in the design of any of the plants specified in Paragraphs 3 and 4 would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 5, India shall, at least 4 months in advance of making the alteration,

communicate particulars of the change to Pakistan in writing and the provisions of Paragraph 7 shall then apply.

(b) In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of any of the plants specified in Paragraphs 3 and 4, India may under take immediately the necessary repairs or alterations and, if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Para graph 5, India shall as soon as possible communicate particulars of the change to Pakistan in writing. The provisions of Paragraph 7 shall then apply.

7. Within three months of the receipt of the particulars specified in Paragraph 6, Pakistan shall communicate to India in writing any objection it may have with regard to the proposed change on the ground that the change involves a material departure from the criteria set out in Paragraph 8 or 18 of this Annexure or Paragraph 11 of Annexure E as the case may be. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection. If a question arises as to whether or not the change involves a material departure from such of the criteria mentioned above as may be applicable, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX(1) and (2).

PART 3 NEW RUN-OF-RIVER PLANTS

8. Except as provided in Paragraph 18, the design of any new Run-of-River Plant (hereinafter in this Part referred to as a Plant) shall conform to the following criteria:

(a) The works themselves shall not be capable of raising artificially the water level in the Operating Pool above the Full Pondage Level specified in the design. (b) The design of the works shall take due account of the requirements of Surcharge Storage and of Secondary Power. (c) The maximum Pondage in the Operating Pool shall not exceed twice the Pondage required for Firm Power.

(d) There shall be no outlets below the Dead Storage Level, unless necessary for sediment control or any other technical purpose ; any such outlet shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the works.

(e) If the conditions at the site of a Plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design and satisfactory construction and operation of the works.

(f) The intakes for the turbines shall be located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design for the designated range of the Plant's operation.

(g) If any Plant is constructed on the Chenab Main at a site below Kotru (Longitude 74 - 59' East and Latitude 33 - 09' North), a Regulating Basin shall be incorporated.

9. To enable Pakistan to satisfy itself that the design of a Plant conforms to the criteria mentioned in Paragraph 8, India shall, at least six months in advance of the beginning of construction of river works connected with the Plant, communicate to Pakistan, in writing, the information specified in Appendix II 1 to this Annexure. If any such information is not available or is not pertinent to the design of the Plant or to the conditions at the site, it will be so stated.

10. Within three months of the receipt by Pakistan of the information specified in Paragraph 9, Pakistan shall communicate to India, in writing, any objection that it may have with regard to the proposed design on the ground that it does not conform to the criteria mentioned in

Paragraph 8. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection.

11. If a question arises as to whether or not the design of a Plant conforms to the criteria set out in Paragraph 8, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX(1) and (2).

12. (a) If any alteration proposed in the design of a Plant before it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 9, India shall immediately communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 10 and 11 shall then apply, but the period of three months specified in Paragraph 10 shall be reduced to two months.

(b) If any alteration proposed in the design of a Plant after it comes into operation would result in a material change in the information furnished to Pakistan under the pro visions of Paragraph 9, India shall, at least four months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 10 and 11 shall then apply, but the period of three months specified in Para graph 10 shall be reduced to two months.

13. In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of a Plant, India may undertake immediately the necessary repairs or alterations; if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 9, India shall, as soon as possible, communicate particulars of the change to Pakistan in writing to enable Pakistan to satisfy itself that after such change the design of the Plant conforms to the criteria specified in Para graph 8. The provisions of Paragraphs 10 and 11 shall then apply.

14. The filling of Dead Storage shall be carried out in accordance with the provisions of Paragraph 18 or 19 of Annexure E.

15. Subject to the provisions of Paragraph 17, the works connected with a Plant shall be so operated that (a) the volume of water received in the river upstream of the Plant, during any period of seven consecutive days, shall be delivered into the river below the Plant during the same seven-day period, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period : Provided however that :

(i) where a Plant is located at a site on the Chenab Main below Ramban, the volume of water received in the river upstream of the Plant in any one period of 24 hours shall be delivered into the river below the Plant within the same period of 24 hours ;

(ii) where a Plant is located at a site on the Chenab Main above Ramban, the volume of water delivered into the river below the Plant in any one period of 24 hours shall not be less than 50% and not more than 130%, of the volume received above the Plant during the same 24-hour period ; and

iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

16. For the purpose of Paragraph 15, the period of 24 hours shall commence at 8 a.m. daily and the period of 7 consecutive days shall commence at 8 a.m. on every Saturday. The time shall be Indian Standard Time.

17. The provisions of Paragraph 15 shall not apply during the period when the Dead Storage at a Plant is being filled in accordance with the provisions of Paragraph 14. In applying the provisions of Paragraph 15: (a) a tolerance of 10% in volume shall be permissible ; and (b) Surcharge Storage shall be ignored.

18. The provisions of Paragraphs 8, 9, 10, 11, 12 and 13 shall not apply to a new Run-of-River Plant which is located on a Tributary and which conforms to the following criteria (hereinafter referred to as a Small Plant) :

(a) the aggregate designed maximum discharge through the turbines does not exceed 300 cusecs;

(b) no storage is involved in connection with the Small Plant, except the Pondage and the storage incidental to the diversion structure ; and

(c) the crest of the diversion structure across the Tributary, or the top level of the gates, if any, shall not be higher than 20 feet above the mean bed of the Tributary at the site of the structure.

19. The information specified in Appendix III 1 to this Annexure shall be communicated to Pakistan by India at least two months in advance of the beginning of construction of the river works connected with a Small Plant. If any such information is not available or is not pertinent to the design of the Small Plant or to the conditions at the site, it will be so stated.

20. Within two months of the receipt by Pakistan of the information specified in Appendix III, Pakistan shall communicate to India, in writing, any objection that it may have with regard to the proposed design on the ground that it does not conform to the criteria mentioned in Paragraph 18. If no objection is received by India from Pakistan within the specified period of two months, then Pakistan shall be deemed to have no objection.

21. If a question arises as to whether or not the design of a Small Plant conforms to the criteria set out in Paragraph 18, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).

22. If any alteration in the design of a Small Plant, whether during the construction period or subsequently, results hi a change in the information furnished to Pakistan under the provisions of Paragraph 19, then India shall immediately communicate the change in writing to Pakistan.

23. If, with any alteration proposed in the design of a Small Plant, the design would cease to comply with the criteria set out in Paragraph 18, then the provisions of Paragraphs 18 to 22 inclusive shall no longer apply and, in lieu thereof, the provisions of Paragraphs 8 to 13 inclusive shall apply.

PART 4 NEW PLANTS ON IRRIGATION CHANNELS

24. Notwithstanding the foregoing provisions of this Annexure, there shall be no restriction on the construction and operation by India of new hydro-electric plants on any irrigation channel taking off the Western Rivers, provided that

(a) the works incorporate no storage other than Pondage and the Dead Storage incidental to the diversion structure, and

(b) no additional supplies are run in the irrigation channel for the purpose of generating hydro-electric power.

PART 5 GENERAL

25. If the change referred to in Paragraphs 6 (a) and 12 is not material, India shall communicate particulars of the change to Pakistan, in writing, as soon as the alteration has been made or the repairs have been undertaken. The provisions of Paragraph 7 or Paragraph 23, as the case may be, shall then apply.

APPENDIX I TO ANNEXURE D
(Paragraph 5)

1. Location of Plant

General map showing the location of the site ; if on a Tributary, its situation with respect to the main river,

2. Hydraulic Data

(a) Stage-area and stage-capacity curves of the reservoir, forebay and Regulating Basin.

(b) Full Pondage Level, Dead Storage Level and Operating Pool.

(c) Dead Storage capacity.

3. Particulars of Design

(a) Type of spillway, length and crest level ; size, number and top level of spillway gates.

(b) Outlet works: function, type, size, number, maximum designed capacity and sill levels.

(c) Aggregate designed maximum discharge through the turbines. (d) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power. (e) Regulating Basin and its outlet works: dimensions and maximum discharge capacity.

4. General

Probable date of completion of river works, and dates on which various stages of the plant would come into operation.

APPENDIX II TO ANNEXURE D
(Paragraph 9)

1. Location of Plant

General map showing the location of the site; if on a Tributary, its situation with respect to the main river.

2. Hydrologic Data

(a) General map (Scale : 14 inch or more = 1 mile) showing the discharge observation site or sites or rainfall gauge stations on whose data the design is based. In case of a Plant on a Tributary, this map should also show the catchment area of the Tributary above the site.

(b) Observed or estimated daily river discharge data on which the design is based (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases data may be limited to the latest 25 years).

(c) Flood data, observed or estimated (with details of estimation).

(d) Gauge-discharge curve or curves for site or sites mentioned in (a) above.

3. Hydraulic Data

(a) Stage-area and stage-capacity curves of the reservoir, forebay and Regulating Basin, with contoured survey maps on which based.

(b) Full Pondage Level, Dead Storage Level and Operating Pool together with the calculations for the Operating Pool.

(c) Dead Storage capacity.

(d) Estimated evaporation losses in the reservoir, Regulating Basin, head-race, forebay and tail-race.

(e) Maximum designed flood discharge, discharge-capacity curve for spillway and maximum designed flood level.

(f) Designated range of operation.

4. Particulars of Design

(a) Dimensioned plan showing dam, spillway, intake and outlet works, diversion works, head-race and forebay, powerhouse, tail-race and Regulating Basin.

(b) Type of dam, length and height above mean bed of river.

(c) Cross-section of the river at the site; mean bed level.

(d) Type of spillway, length and crest level; size, number and top level of spillway gates.

(e) Type of intake, maximum designed capacity, number and size, sill levels ; diversion works.

(f) Head-race and tail-race : length, size, maximum designed capacity.

(g) Outlet works : function, type, size, number, maximum designed capacity and sill levels.

(h) Discharge proposed to be passed through the Plant, initially and ultimately, and expected variations in the discharge on account of the daily and the weekly load fluctuations.

(i) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.

(j) Regulating Basin and its outlet works: type, number, size, sill levels and designed maximum discharge capacity.

5. General

(a) Estimated effect of proposed development on the flow pattern below the last plant downstream (with details of estimation),

(b) Probable date of completion of river works, and dates on which various stages of the Plant would come into operation.

APPENDIX III TO ANNEXURE D

(Paragraph 19)

1. Location of Small Plant General map showing the location of the site on the Tributary and its situation with respect to the main river.

2. Hydrologic Data

(a) Observed or estimated daily Tributary discharge (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases, data may be limited to the latest five years).

(b) Flood data, observed or estimated (with details of estimation).

(c) Gauge-discharge curve relating to discharge site.

3. Hydraulic Data

(a) Stage-area and stage-capacity curves of the forebay with survey map on which based.

(b) Full Pondage Level, Dead Storage Level and Operating Pool together with the calcu lations for the Operating Pool.

4. Particulars of Design

(a) Dimensioned plan showing diversion works, outlet works, head-race and forebay, power house and tail-race.

(b) Type of diversion works, length and height of crest or top level of gates above the mean bed of the Tributary at the site.

(c) Cross-section of the Tributary at the site; mean bed level.

(d) Head-race and tail-race: length, size and designed maximum capacity.

(e) Aggregate designed maximum discharge through the turbines.

(f) Spillway, if any: type, length and crest level ; size, number and top level of gates.

(g) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.

ANNEXURE E STORAGE OF WATERS BY INDIA ON THE WESTERN RIVERS

(Article III (4))

1. The provisions of this Annexure shall apply with respect to the storage of water on the Western Rivers, and to the construction and operation of Storage Works thereon, by India under the provisions of Article III (4).

2. As used in this Annexure :

(a) "Storage Work" means a work constructed for the purpose of impounding the waters of a stream ; but excludes

(i) a Small Tank,

(ii) the works specified in Paragraphs 3 and 4 of Annexure D, 1 and

(iii) a new work constructed in accordance with the provisions of Annexure D.

(b) "Reservoir Capacity" means the gross volume of water which can be stored in the reservoir.

(c) "Dead Storage Capacity" means that portion of the Reservoir Capacity which is not used for operational purposes, and "Dead Storage" means the corresponding volume of water

(d) "Live Storage Capacity" means the Reservoir Capacity excluding Dead Storage Capacity, and "Live Storage" means the corresponding volume of water.

(e) "Flood Storage Capacity" means that portion of the Reservoir Capacity which is reserved for the temporary storage of flood waters in order to regulate downstream flows, and "Flood Storage" means the corresponding volume of water.

(f) "Surcharge Storage Capacity" means the Reservoir Capacity between the crest of an uncontrolled spillway or the top of the crest gates in normal closed position and the maximum water elevation above this level for which the dam is designed, and "Sur charge Storage" means the corresponding volume of water.

(g) "Conservation Storage Capacity" means the Reservoir Capacity excluding Flood Storage Capacity, Dead Storage Capacity and Surcharge Storage Capacity, and "Conservation Storage" means the corresponding volume of water.

(h) "Power Storage Capacity" means that portion of the Conservation Storage Capacity which is designated to be used for generating electric energy, and "Power Storage" means the corresponding volume of water.

(i) "General Storage Capacity" means the Conservation Storage Capacity excluding Power Storage Capacity, and "General Storage" means the corresponding volume of water.

(j) "Dead Storage Level" means the level of water in a reservoir corresponding to Dead Storage Capacity, below which level the reservoir does not operate.

(k) "Full Reservoir Level" means the level of water in a reservoir corresponding to Conservation Storage Capacity.

(l) "Multi-purpose Reservoir" means a reservoir capable of and intended for use for more than one purpose.

(m) "Single-purpose Reservoir" means a reservoir capable of and intended for use for only one purpose.

(n) "Small Tank" means a tank having a Live Storage of less than 700 acre-feet and fed only from a non-perennial small stream : Provided that the Dead Storage does not exceed 50 acre-feet.

3. There shall be no restriction on the operation as heretofore by India of those Storage Works which were in operation as on the Effective Date or on the construction and operation of Small Tanks.

4. As soon as India finds it possible to do so, but not later than 31st March 1961, India shall communicate to Pakistan in writing the information specified in the Appendix 1 to this Annexure for such Storage Works as were in operation as on the Effective Date. If any such information is not available or is not pertinent to the design of the Storage Work or to the conditions at the site, it will be so stated.

5. (a) If any alteration proposed in the design of any of the Storage Works referred to in Paragraph 3 would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 4, India shall, at least 4 months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraph 6 shall then apply. (b) In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of any of the Storage Works referred to in Paragraph 3, India may undertake immediately the necessary repairs or alterations and, if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 4, India shall as soon as possible communicate particulars of the change to Pakistan in writing. The provisions of Paragraph 6 shall then apply.

6. Within three months of the receipt of the particulars specified in Paragraph 5, Pakistan shall communicate to India in writing any objection it may have with regard to the proposed change on the ground that the change involves a material departure from the criteria set out in Paragraph 11. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection. If a question arises as to whether or not the change involves a material departure from such of the criteria mentioned above as may be applicable, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).

7. The aggregate storage capacity of all Single-purpose and Multi-purpose Reservoirs which may be constructed by India after the Effective Date on each of the River Systems specified in Column (2) of the following table shall not exceed, for each of the categories shown in Columns (3), (4) and (5), the quantities specified therein :

River System	General Storage Capacity	Power Storage Capacity	Flood storage Capacity
	Million Acre Feet		
(a) The Indus	0.25	0.15	Nill
(b) The Jhelum (excluding the Jhelum Main)	0.50	0.25	0.75
(c) The Jhelum Main	Nil	Nil	As provided in Paragraph 9
(d) The Chenab (excluding the Chenab Main)	0.50	0.60	Nil
(e) The Chenab Main	Nil	0.60	Nil

Provided that

(i) the storage specified in Column (3) above may be used for any purpose whatever, including the generation of electric energy ;

(ii) (ii) the storage specified in Column (4) above may also be put to Non-Consumptive Use (other than flood protection or flood control) or to Domestic Use ;

(iii) (iii) India shall have the option to increase the Power Storage Capacity specified against item (d) above by making a reduction by an equal amount in the Power Storage Capacity specified against items (b) or (e) above ; and (iv) Storage Works to provide the Power Storage Capacity on the Chenab Main specified against item (e) above shall not be constructed at a point below Naunut (Latitude 33 19' N. and Longitude 75 59' E.).

8. The figures specified in Paragraph 7 shall be exclusive of the following :

(a) Storage in any Small Tank.

(b) Any natural storage in a Connecting Lake, that is to say, storage not resulting from any man-made works.

(c) Waters which, without any man-made channel or works, spill into natural depressions or borrow-pits during floods.

(d) Dead Storage.

(e) The volume of Pondage for hydro-electric plants under Annexure D and under Para graph 21 (a).

(f) Surcharge Storage.

(g) Storage in a Regulating Basin (as defined in Annexure D). (h) Storage incidental to a barrage on the Jhelum Main or on the Chenab Main not exceeding 10,000 acre-feet.

9. India may construct on the Jhelum Main such works as it may consider necessary for flood control of the Jhelum Main and may complete any such works as were under construction on the Effective Date : Provided that (i) any storage which may be effected by such works shall be confined to off-channel storage in side valleys, depressions or lakes and will not involve any storage in the Jhelum Main itself ; and (ii) except for the part held in lakes, borrow-pits or natural depressions, the stored waters shall be released as quickly as possible after the flood recedes and returned to the Jhelum Main lower down. These works shall be constructed in accordance with the provisions of Paragraph 11 (d).

10. Notwithstanding the provisions of Paragraph 7, any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use shall be so designed and operated as not to adversely affect the then existing Agricultural Use or hydro-electric use on that Tributary.

11. The design of any Storage Work (other than a Storage Work falling under Para graph 3) shall conform to the following criteria:

(a) The Storage Work shall not be capable of raising artificially the water level in the reservoir higher than the designed Full Reservoir Level except to the extent necessary for Flood Storage, if any, specified in the design.

(b) The design of the works shall take due account of the requirements of Surcharge Storage.

(c) The volume between the Full Reservoir Level and the Dead Storage Level of any reservoir shall not exceed the Conservation Storage Capacity specified in the design.

(d) With respect to the Flood Storage mentioned in Paragraph 9, the design of the works on the Jhelum Main shall be such that no water can spill from the Jhelum Main into the off-channel storage except when the water level in the Jhelum Main rises above the low flood stage.

(e) Outlets or other works of sufficient capacity shall be provided to deliver into the river downstream the flow of the river received upstream of the Storage Work, except during freshets or floods. These outlets or works shall be located at the highest level consistent with sound and economical design and with satisfactory operation of the Storage Work.

(f) Any outlets below the Dead Storage Level necessary for sediment control or any other technical purpose shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the Storage Work.

(g) If a power plant is incorporated in the Storage Work, the intakes for the turbines shall be located at the highest level consistent with satisfactory and economical construction and operation of the plant and with customary and accepted practice of design for the designated range of the plant's operation.

12. To enable Pakistan to satisfy itself that the design of a Storage Work (other than a Storage Work falling under Paragraph 3) conforms to the criteria mentioned in Paragraph 11, India shall, at least six months in advance of the beginning of construction of the Storage Work, communicate to Pakistan in writing the information specified in the Appendix to this Annexure ; if any such information is not available or is not pertinent to the design of the Storage Work or to the conditions at the site, it will be so stated :

Provided that, in the case of a Storage Work falling under Paragraph 9, (i) if the work is a new work, the period of six months shall be reduced to four months, and (ii) if the work is a work under construction on the Effective Date, the information shall be furnished not later than 31st December 1960.

13. Within three months (or two months, in the case of a Storage Work specified in Paragraph 9) of the receipt by Pakistan of the information specified in Paragraph 12, Pakistan shall communicate to India in writing any objection that it may have with regard to the proposed design on the ground that the design does not conform to the criteria mentioned in Paragraph 11. If no objection is received by India from Pakistan within the specified period of three months (or two months, in the case of a Storage Work specified in Paragraph 9), then Pakistan shall be deemed to have no objection.

14. If a question arises as to whether or not the design of a Storage Work (other than a Storage Work falling under Paragraph 3) conforms to the criteria set out in Paragraph 11, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).

15. (a) If any alteration proposed in the design of a Storage Work (other than a Storage Work falling under Paragraph 3) before it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Para graph 12, India shall immediately communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 13 and 14 shall then apply, but where a period of three months is specified in Paragraph 13, that period shall be reduced to two months.

(b) If any alteration proposed in the design of a Storage Work (other than a Storage Work falling under Paragraph 3), after it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 12, India shall, at least four months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 13 and 14 shall then apply, but where a period of three months is specified in Paragraph 13, that period shall be reduced to two months.

16. In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of a Storage Work (other than a Storage Work falling under Para graph 3),

India may undertake immediately the necessary repairs or alterations ; if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 12, India shall, as soon as possible, communicate particulars of the change to Pakistan in writing to enable Pakistan to satisfy itself that after such change the design of the work conforms to the criteria specified in Paragraph 11. The provisions of Paragraphs 13 and 14 shall then apply.

17. The Flood Storage specified against item (b) in Paragraph 7 may be affected only during floods when the discharge of the river exceeds the amount specified for this purpose in the design of the work; the storage above Full Reservoir Level shall be released as quickly as possible after the flood recedes.

18. The annual filling of Conservation Storage and the initial filling below the Dead Storage Level, at any site, shall be carried out at such times and in accordance with such rules as may be agreed upon between the Commissioners. In case the Commissioners are unable to reach agreement, India may carry out the filling as follows:

(a) if the site is on The Indus, between 1st July and 20th August ;

(b) if the site is on The Jhelum, between 21st June and 20th August ; and

(c) if the site is on The Chenab, between 21st June and 31st August at such rate as not to reduce, on account of this filling, the flow in the Chenab Main above Merala to less than 55,000 cusecs.

19. The Dead Storage shall not be depleted except in an unforeseen emergency. If so depleted, it will be refilled in accordance with the conditions of its initial filling.

20. Subject to the provisions of Paragraph 8 of Annexure C, 1 India may make re leases from Conservation Storage in any manner it may determine.

21. If a hydro-electric power plant is incorporated in a Storage Work (other than a Storage Work falling under Paragraph 3), the plant shall be so operated that:

(a) the maximum Pondage (as defined in Annexure D) shall not exceed the Pondage required for the firm power of the plant, and the water-level in the reservoir corresponding to maximum Pondage shall not, on account of this Pondage, exceed the Full Reservoir Level at any time ; and

(b) except during the period in which a filling is being carried out in accordance with the provisions of Paragraph 18 or 19, the volume of water delivered into the river below the work during any period of seven consecutive days shall not be less than the volume of water received in the river upstream of the work in that seven-day period.

22. In applying the provisions of Paragraph 21 (b) :

(a) the period of seven consecutive days shall commence at 8 a.m. on every Saturday and the time shall be Indian Standard Time ;

(b) a tolerance of 10% in volume shall be permissible and adjusted as soon as possible ; and

(c) any temporary uncontrollable retention of water due to variation in river supply will be accounted for.

23. When the Live Storage Capacity of a Storage Work is reduced by sedimentation, India may, in accordance with the relevant provisions of this Annexure, construct new Storage Works or modify existing Storage Works so as to make up the storage capacity lost by sedimentation.

24. If a power plant incorporated in a Storage Work (other than a Storage Work falling under Paragraph 3) is used to operate a peak power plant and lies on any Tributary of The

Jhelum on which there is any Agricultural Use by Pakistan, a Regulating Basin (as defined in Annexure D) shall be incorporated.

25. If the change referred to in Paragraph 5(a) or 15 is not material, India shall communicate particulars of the change to Pakistan, in writing, as soon as the alteration has been made or the repairs have been undertaken. The provisions of Paragraph 6 or Paragraphs 13 and 14, as the case may be, shall then apply.

APPENDIX TO ANNEXURE E

(Paragraphs 4 and 12)

1. Location of Storage Work General map showing the location of the site ; if on a Tributary, its situation with respect to the main river.

2. Hydrologic Data

(a) General map (Scale : 14 inch or more = 1 mile) showing the discharge observation site or sites or rainfall gauge stations, on whose data the design is based. In case of a work on a Tributary, this map should also show the catchment area of the Tributary above the site.

(b) Observed or estimated daily river discharge data on which the design is based (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases data may be limited to the latest 25 years).

(c) Flood data, observed or estimated (with details of estimation).

(d) Gauge-discharge curve or curves for site or sites mentioned in (a) above.

(e) Sediment data.

3. Hydraulic Data

(a) Stage-area and stage-capacity curves of the reservoir with contoured survey maps on which based.

(b) Reservoir Capacity, Dead Storage Capacity, Flood Storage Capacity, Conservation Storage Capacity, Power Storage Capacity, General Storage Capacity and Surcharge Storage Capacity.

(c) Full Reservoir Level, Dead Storage Level and levels corresponding to Flood Storage and Surcharge Storage.

(d) Estimated evaporation losses in the reservoir.

(e) Maximum designed flood discharge and discharge-capacity curve for spillway.

(f) If a power plant is incorporated in a Storage Work : (i) Stage-area and stage-capacity curves of forebay and Regulating Basin, with con toured survey maps on which based, (ii) Estimated evaporation losses in the Regulating Basin, head-race, forebay and tail-race, (iii) Designated range of operation.

4. Particulars of Design

(a) Dimensioned plan showing dam, spillway, diversion works and outlet works.

(b) Type of dam, length and height above mean bed of the river.

(c) Cross-section of the river at the site and mean bed level.

(d) Type of spillway, length and crest level ; size, number and top level of spillway gates.

(e) Type of diversion works, maximum designed capacity, number and size ; sill levels.

(f) Outlet works : function, type, size, number, maximum designed capacity and sill levels.

(g) If a power plant is incorporated in a Storage Work,

(i) Dimensioned plan showing head-race and forebay, powerhouse, tail-race and Regulating Basin.

(ii) Type of intake, maximum designed capacity, size and sill level,

iii. Head-race and tail-race, length, size and maximum designed capacity.

(iv) Discharge proposed to be passed through the plant, initially and ultimately, and expected variations in the discharge on account of the daily and the weekly load fluctuations. Maximum aggregate capacity of power units (exclusive of standby units) for firm power and secondary power.

(v) Regulating Basin and its outlet works: type, number, size, sill levels and designed maximum discharge capacity.

5. General

(a) Probable date of completion of river works and probable dates on which various stages of the work would come into operation.

(b) Estimated effect of proposed Storage Work on the flow pattern of river supplies below the Storage Work or, if India has any other Storage Work or Run-of-River Plant (as denned in Annexure D) * below the proposed Storage Work, then on the flow pattern below the last Storage Work or Plant.

ANNEXURE F—NEUTRAL EXPERT (Article IX (2))

PART 1 QUESTIONS TO BE REFERRED TO A NEUTRAL EXPERT

1. Subject to the provisions of Paragraph 2, either Commissioner may, under the provisions of Article IX (2)(a), refer to a Neutral Expert any of the following questions :

(1) Determination of the component of water available for the use of Pakistan (a) in the Ravi Main, on account of the deliveries by Pakistan under the provisions of Article II (4), and (b) at various points on The Ravi or The Sutlej, on account of the deliveries by Pakistan under the provisions of Article III (3).

(2) Determination of the boundary of the drainage basin of The Indus or The Jhelum or The Chenab for the purposes of Article III (2).

(3) Whether or not any use of water or storage in addition to that provided under Article III is involved in any of the schemes referred to in Article IV (2) or in Article IV (3)(b) and carried out by India on the Western Rivers.

(4) Questions relating to (a) obligations with respect to construction or remodeling of, or pouring of waters into, any drainage or drain as provided in Article IV (3)(c) and Article IV (3)(d) ; and (b) maintenance of drainages specified in Article IV (4).

(5) Questions arising under Article IV (7) as to whether any action taken by either Party is likely to have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks.

(6) Determination of facts relating to questions arising under Article IV (11) or Article IV (12).

(7) Whether any of the data requested by either Party falls outside the scope of Article VI (2).

(8) Determination of withdrawals to be made by India under proviso (iii) to Para graph 3 of Annexure C. a

(9) Determination of schedule of releases from Conservation Storage under the provisions of Paragraph 8 of Annexure C.

(10) Whether or not any new Agricultural Use by India, on those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan, conforms to the provisions of Paragraph 9 of Annexure C.

(11) Questions arising under the provisions of Paragraph 7, Paragraph 11 or Paragraph 21 of Annexure D.

(12) Whether or not the operation by India of any plant constructed in accordance with the provisions of Part 3 of Annexure D conforms to the criteria set out in Paragraphs 15, 16 and 17 of that Annexure.

(13) Whether or not any new hydro-electric plant on an irrigation channel taking off the Western Rivers conforms to the provisos to Paragraph 24 of Annexure D.

(14) Whether or not the operation of a Storage Work which was in operation as on the Effective Date substantially conforms to the provisions of Paragraph 3 of Annexure E. 3

(15) Whether or not any part of the storage in a Connecting Lake is the result of man-made works constructed after the Effective Date (Paragraph 8 (b) of Annexure E).

(16) Whether or not any flood control work constructed on the Jhelum Main conforms to the provisions of Paragraph 9 of Annexure E.

(17) Whether or not any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use conforms to the pro visions of Paragraph 10 of Annexure E.

(18) Questions arising under the provisions of Paragraph 6 or 14 of Annexure E.

(19) Whether or not the operation of any Storage Work constructed by India, after the Effective Date, conforms to the provisions of Paragraphs 17, 18, 19, 21 and 22 of Annexure E and, to the extent necessary, to the provisions of Paragraph 8 of Annexure C.

(20) Whether or not the storage capacity proposed to be made up by India under Para graph 23 of Annexure E exceeds the storage capacity lost by sedimentation.

(21) Determination of modifications to be made in the provisions of Parts 2, 4 or 5 of Annexure H 8 in accordance with Paragraphs 11, 31 or 38 thereof when the additional supplies referred to in Paragraph 66 of that Annexure become available.

(22) Modification of Forms under the provisions of Paragraph 41 of Annexure H.

(23) Revision of the figure for the conveyance loss from the head of the Madhopur Beas Link to the junction of the Chakki Torrent with the Beas Main under the provisions of Paragraph 45 (c) (ii) of Annexure H.

2. If a claim for financial compensation has been raised with respect to any question specified in Paragraph 1, that question shall not be referred to a Neutral Expert unless the two Commissioners are agreed that it should be so referred.

3. Either Commissioner may refer to a Neutral Expert under the provisions of Article IX (2) (a) any question arising with regard to the determination of costs under Article IV (5), Article IV (11), Article VII (1)(a) or Article VII (l)(b).

PART 2 APPOINTMENT AND PROCEDURE

4. A Neutral Expert shall be a highly qualified engineer, and, on the receipt of a request made in accordance with Paragraph 5, he shall be appointed, and the terms of his retainer shall be fixed, as follows :

(a) During the Transition Period, by the Bank.

(b) After the expiration of the Transition Period,

(i) jointly by the Government of India and the Government of Pakistan, or

(ii) if no appointment is made in accordance with (i) above within one month after the date of the request, then by such person or body as may have been agreed upon between the two Governments in advance, on an annual basis, or, in the absence of such agreement, by the Bank. Provided that every appointment made in accordance with (a) or (6)(ii) above shall be made after

consultation with each of the Parties. The Bank shall be notified of every appointment, except when the Bank is itself the appointing authority.

5. If a difference arises and has to be dealt with in accordance with the provisions of Article IX (2)(a), the following procedure will be followed :

(a) The Commissioner who is of the opinion that the difference falls within the provisions of Part 1 of this Annexure (hereinafter in this paragraph referred to as "the first Com missioner") shall notify the other Commissioner of his intention to ask for the appointment of a Neutral Expert. Such notification shall clearly state the paragraph or paragraphs of Part 1 of this Annexure under which the difference falls and shall also contain a statement of the point or points of difference.

(b) Within two weeks of the receipt by the other Commissioner of the notification specified in (a) above, the two Commissioners will endeavour to prepare a joint statement of the point or points of difference.

(c) After expiry of the period of two weeks specified in (b) above, the first Commissioner may request the appropriate authority specified in Paragraph 4 to appoint a Neutral Expert ; a copy of the request shall be sent at the same time to the other Commissioner.

(d) The request under (c) above shall be accompanied by the joint statement specified in (b) above ; failing this, either Commissioner may send a separate statement to the appointing authority and, if he does so, he shall at the same time send a copy of the separate statement to the other Commissioner.

6. The procedure with respect to each reference to a Neutral Expert shall be determined by him, provided that :

(a) he shall afford to each Party an adequate hearing;

(b) in making his decision, he shall be governed by the provisions of this Treaty and by the compromis, if any, presented to him by the Commission ; and (c) without prejudice to the provisions of Paragraph 3, unless both Parties so request, he shall not deal with any issue of financial compensation.

7. Should the Commission be unable to agree that any particular difference falls within Part 1 of this Annexure, the Neutral Expert shall, after hearing both Parties, decide whether or not it so falls. Should he decide that the difference so falls, he shall proceed to render a decision on the merits; should he decide otherwise, he shall inform the Commission that, in his opinion, the difference should be treated as a dispute. Should the Neutral Expert decide that only a part of the difference so falls, he shall, at his discretion, either:

(a) proceed to render a decision on the part which so falls, and inform the Commission that, in his opinion, the part which does not so fall should be treated as a dispute, or

(b) inform the Commission that, in his opinion, the entire difference should be treated as a dispute.

8. Each Government agrees to extend to the Neutral Expert such facilities as he may require for the discharge of his functions.

9. The Neutral Expert shall, as soon as possible, render a decision on the question or questions referred to him, giving his reasons. A copy of such decision, duly signed by the Neutral Expert, shall be forwarded by him to each of the Commissioners and to the Bank.

10. Each Party shall bear its own costs. The remuneration and the expenses of the Neutral Expert and of any assistance that he may need shall be borne initially as provided in Part 3 of this Annexure and eventually by the Party against which his decision is rendered, except as, in special circumstances, and for reasons to be stated by him, he may otherwise direct. He shall

include in his decision a direction concerning the extent to which the costs of such remuneration and expenses are to be borne by either Party.

11. The decision of the Neutral Expert on all matters within his competence shall be final and binding, in respect of the particular matter on which the decision is made, upon the Parties and upon any Court of Arbitration established under the provisions of Article IX (5).

12. The Neutral Expert may, at the request of the Commission, suggest for the consideration of the Parties such measures as are, in his opinion, appropriate to compose a difference or to implement his decision.

13. Without prejudice to the finality of the Neutral Expert's decision, if any question (including a claim, to financial compensation) which is not within the competence of a Neutral Expert should arise out of his decision, that question shall, if it cannot be resolved by agreement, be settled in accordance with the provisions of Article IX (3), (4) and (5).

PART 3 EXPENSES

14. India and Pakistan shall, within 30 days after the Treaty enters into force, each pay to the Bank the sum of U.S. $5,000 to be held in trust by the Bank, together with any income therefrom and any other amounts payable to the Bank hereunder, on the terms and conditions hereinafter set forth in this Annexure.

15. The remuneration and expenses of the Neutral Expert, and of any assistance that he may need, shall be paid or reimbursed by the Bank from the amounts held by it hereunder. The Bank shall be entitled to rely upon the statement of the Neutral Expert as to the amount of the remuneration and expenses of himself (determined in accordance with the terms of his retainer) and of any such assistance utilized by him.

16. Within 30 days of the rendering of a decision by the Neutral Expert, the Party or Parties concerned shall, in accordance with that decision, refund to the Bank the amounts paid by the Bank pursuant to Paragraph 15.

17. The Bank will keep amounts held by it hereunder separate from its other assets, in such form, in such banks or other depositories and in such accounts as it shall deter mine. The Bank may, but it shall not be required to, invest these amounts. The Bank will not be liable to the Parties for failure of any depository or other person to perform its obligations. The Bank shall be under no obligation to make payments hereunder of amounts in excess of those held by it hereunder.

18. If at any time or times the amounts held by the Bank hereunder shall in its judgment be insufficient to meet the payments provided for in Paragraph 15, it will so notify the Parties, which shall, within 30 days thereafter, pay to the Bank, in equal shares, the amount specified in such notice as being the amount required to cover the deficiency. Any amounts so paid to the Bank may, by agreement between the Bank and the Parties, be refunded to the Parties.

ANNEXURE G COURT OF ARBITRATION

(Article IX(5))

1. If the necessity arises to establish a Court of Arbitration under the provisions of Article IX, the provisions of this Annexure shall apply.

2. The arbitration proceeding may be instituted

(a) by the two Parties entering into a special agreement (compromis) specifying the issues in dispute, the composition of the Court and instructions to the Court concerning its procedures and any other matters agreed upon between the Parties ; or

(b) at the request of either Party to the other in accordance with the provisions of Article IX (5) (b) or (c). Such request shall contain a statement setting forth the nature of the dispute or

claim to be submitted to arbitration, the nature of the relief sought and the names of the arbitrators appointed under Paragraph 6 by the Party instituting the proceeding.

3. The date of the special agreement referred to in Paragraph 2 (a), or the date on which the request referred to in Paragraph 2 (b) is received by the other Party, shall be deemed to be the date on which the proceeding is instituted.

4. Unless otherwise agreed between the Parties, a Court of Arbitration shall consist of seven arbitrators appointed as follows :

(a) Two arbitrators to be appointed by each Party in accordance with Paragraph 6 ; and

(b) Three arbitrators (hereinafter sometimes called the umpires) to be appointed in accordance with Paragraph 7, one from each of the following categories :

(i) Persons qualified by status and reputation to be Chairman of the Court of Ar bitration who may, but need not, be engineers or lawyers.

(ii) Highly qualified engineers,

(iii) Persons well versed hi international law. The Chairman of the Court shall be a person from category (b) (i) above.

5. The Parties shall endeavour to nominate and maintain a Standing Panel of um pires (hereinafter called the Panel) in the following manner:

(a) The Panel shall consist of four persons in each of the three categories specified in Paragraph 4 (b).

(b) The Panel will be selected, as soon as possible after the Effective Date, by agreement between the Parties and with the consent of the persons whose names are included in the Panel.

(c) A person may at any time be retired from the Panel at the request of either Party : Provided however that he may not be so retired (i) during the period after arbitration proceedings have been instituted under Para graph 2 (b) and before the process described in Paragraph 7 (a) has been completed ; or (ii) during the period after he has been appointed to a Court and before the proceedings are completed.

(d) If a member of the Panel should die, resign or be retired, his successor shall be selected by agreement between the Parties.

6. The arbitrators referred to in Paragraph 4 (a) shall be appointed as follows: The Party instituting the proceeding shall appoint two arbitrators at the time it makes a request to the other Party under Paragraph 2 (b). Within 30 days of the receipt of this request, the other Party shall notify the names of the arbitrators ap pointed by it.

7. The umpires shall be appointed as follows :

(a) If a Panel has been nominated in accordance with the provisions of Paragraph 5, each umpire shall be selected as follows from the Panel, from his appropriate category, provided that the category has, at that time, at least three names on the panel.

The Parties shall endeavour to agree to place the names of the persons in each category in the order in which they shall be invited to serve on the Court. If such agreement cannot be reached within 30 days of the date on which the proceeding is instituted, the Parties shall promptly establish such an order by drawing lots. If, in any category, the person whose name is placed first in the order so established, on receipt of an invitation to serve on the Court, declines to do so, the person whose name is next on the list shall be invited. The process shall be repeated until the invitation is accepted or all names in the category are exhausted.

(b) If a Panel has not been nominated in accordance with Paragraph 5, or if there should be less than three names on the Panel in any category or if no person in a category accepts the

invitation referred to in Paragraph 7 (a), the umpires, or the remaining umpires or umpire, as the case may be, shall be appointed as follows :

(i) By agreement between the Parties.

(ii) Should the Parties be unable to agree on the selection of any or all of the three umpires, they shall agree on one or more persons to help them in making the necessary selection by agreement ; but if one or more umpires remain to be appointed 60 days after the date on which the proceeding is instituted, or 30 days after the completion of the process described in sub-paragraph (a) above, as the case may be, then the Parties shall determine by lot for each umpire remaining to be appointed, a person from the appropriate list set out in the Appendix 1 to this Annexure, who shall then be requested to make the necessary selection.

(iii) A national of India or Pakistan, or a person who is, or has been, employed or retained by either of the Parties shall be disqualified from selection under sub- paragraph (ii) above :

Provided that (1) the person making the selection shall be entitled to rely on a declaration from the appointee, before his selection, that he is not disqualified on any of the above grounds ; and (2) the Parties may by agreement waive any or all of the above disqualifications in the case of any individual appointee.

(iv) The lists in the Appendix to this Annexure may, from time to time, be modified or enlarged by agreement between the Parties.

8. In selecting umpires pursuant to Paragraph 7, the Chairman shall be selected first, unless the Parties otherwise agree.

9. Should either Party fail to participate in the drawing of lots as provided in Paragraphs 7 and 10, the other Party may request the President of the Bank to nominate a person to draw the lots, and the person so nominated shall do so after giving due notice to the Parties and inviting them to be represented at the drawing of the lots.

10. In the case of death, retirement or disability from any cause of one of the arbitrators or umpires his place shall be filled as follows :

(a) In the case of one of the arbitrators appointed under Paragraph 6, his place shall be filled by the Party which appointed him. The Court shall, on request, suspend the proceedings but for not longer than 15 days pending such replacement.

(b) In the case of an umpire, a new appointment shall be made by agreement between the Parties or, failing such agreement, by a person determined by lot from the appropriate list set out in the Appendix to this Annexure, who shall then be requested to make the necessary selection subject to the provisions of Paragraph 7 (b) (iii). Unless the Parties otherwise agree, the Court shall suspend the proceedings pending such replace ment.

11. As soon as the three umpires have accepted appointment, they together with such arbitrators as have been appointed by the two Parties under Paragraph 6 shall form the Court of Arbitration. Unless the Parties otherwise agree, the Court shall be com petent to transact business only when all the three umpires and at least two arbitrators are present.

12. Each Party shall be represented before the Court by an Agent and may have the assistance of Counsel.

13. Within 15 days of the date of institution of a proceeding, each Party shall place sufficient funds at the disposal of its Commissioner to meet in equal shares the initial ex penses of the umpires to enable them to attend the first meeting of the Court. If either Party should fail to do so, the other Party may initially meet the whole of such expenses.

14. The Court of Arbitration shall convene, for its first meeting, on such date and at such place as shall be fixed by the Chairman.

15. At its first meeting the Court shall (a) establish its secretariat and appoint a Treasurer ; (b) make an estimate of the likely expenses of the Court and call upon each Party to pay to the Treasurer half of the expenses so estimated : Provided that, if either Party should fail to make such payment, the other Party may initially pay the whole of the estimated expenses ; (c) specify the issues in dispute ; (d) lay down a programme for submission by each side of legal pleadings and rejoinders ; and (e) determine the time and place of reconvening the Court. Unless special circumstances arise, the Court shall not reconvene until the pleadings and rejoinders have been closed. During the intervening period, at the request of either Party, the Chairman of the Court may, for sufficient reason, make changes in the arrangements made under (d) and (e) above.

16. Subject to the provisions of this Treaty and except as the Parties may otherwise agree, the Court shall decide all questions relating to its competence and shall determine its procedure, including the time within which each Party must present and conclude its arguments. All such decisions of the Court shall be by a majority of those present and voting. Each arbitrator, including the Chairman, shall have one vote. In the event of an equality of votes, the Chairman shall have a casting vote.

17. The proceedings of the Court shall be in English.

18. Two or more certified copies of every document produced before the Court by one Party shall be communicated by the Court to the other Party ; the Court shall not take cognizance of any document or paper or fact presented by a Party unless so communicated.

19. The Chairman of the Court shall control the discussions. The discussions shall not be open to the public unless it is so decided by the Court with the consent of the Par ties. The discussions shall be recorded in minutes drawn up by the Secretaries appointed by the Chairman. These minutes shall be signed by the Chairman and shall alone have an authentic character.

20. The Court shall have the right to require from the Agents of the Parties the production of all papers and other evidence it considers necessary and to demand all necessary explanations. In case of refusal, the Court shall take formal note of it.

21. The members of the Court shall be entitled to put questions to the Agents and Counsel of the Parties and to demand explanations from them on doubtful points. Neither the questions put nor the remarks made by the members of the Court during the dis cussions shall be regarded as an expression of an opinion of the Court or any of its members,

22. When the Agents and Counsel of the Parties have, within the time allotted by the Court, submitted all explanations and evidence in support of their case, the Court shall pronounce the discussions closed. The Court may, however, at its discretion re open the discussions at any time before making its Award. The deliberations of the Court shall be in private and shall remain secret.

23. The Court shall render its Award, in writing, on the issues in dispute and on such relief, including financial compensation, as may have been claimed. The Award shall be accompanied by a statement of reasons. An Award signed by four or more members of the Court shall constitute the Award of the Court. A signed counterpart of the Award shall be delivered by the Court to each Party. Any such Award rendered in accordance with the provisions of this Annexure in regard to a particular dispute shall be final and binding upon the Parties with respect to that dispute.

24. The salaries and allowances of the arbitrators appointed pursuant to Paragraph 6 shall be determined and, in the first instance, borne by their Governments ; those of the umpires shall be agreed upon with them by the Parties or by the persons appointing them, and (subject to Paragraph 13) shall be paid, in the first instance, by the Treasurer. The salaries and allowances of

the secretariat of the Court shall be determined by the Court and paid, in the first instance, by the Treasurer.

25. Each Government agrees to accord to the members and officials of the Court of Arbitration and to the Agents and Counsel appearing before the Court the same privileges and immunities as are accorded to representatives of members states to the principal and Subsidiary organs of the United Nations under Sections 11, 12 and 13 of Article IV of the Convention on the Privileges and Immunities of the United Nations (dated 13th February 1946) during the periods specified in these Sections. The Chairman of the Court, with the approval of the Court, has the right and the duty to waive the immunity of any official of the Court in any case where the immunity would impede the course of justice and can be waived without prejudice to the interests of the Court. The Government appointing any of the aforementioned Agents and Counsel has the right and the duty to waive the immunity of any of its said appointees in any case where in its opinion the immunity would impede the course of justice and can be waived without prejudice to the effective performance of the functions of the said appointees. The immunities and privileges provided for in this paragraph shall not be applicable as between an Agent or Counsel appearing before the Court and the Government which has appointed him.

26. In its Award, the Court shall also award the costs of the proceedings, including those initially borne by the Parties and those paid by the Treasurer.

27. At the request of either Party, made within three months of the date of the Award, the Court shall reassemble to clarify or interpret its Award. Pending such clarification or interpretation the Court may, at the request of either Party and if in the opinion of the Court circumstances so require, grant a stay of execution of its Award. After furnishing this clarification or interpretation, or if no request for such clarification or interpretation is made within three months of the date of the Award, the Court shall be deemed to have been dissolved.

28. Either Party may request the Court at its first meeting to lay down, pending its Award, such interim measures as, in the opinion of that Party, are necessary to safeguard its interests under the Treaty with respect to the matter in dispute, or to avoid prejudice to the final solution or aggravation or extension of the dispute. The Court shall, there upon, after having afforded an adequate hearing to each Party, decide, by a majority consisting of at least four members of the Court, whether any interim measures are necessary for the reasons hereinbefore stated and, if so, shall specify such measures : Provided that

(a) the Court shall lay down such interim measures only for such specified period as, in its opinion, will be necessary to render the Award : this period may, if necessary, be ex tended unless the delay in rendering the Award is due to any delay on the part of the Party which requested the interim measures in supplying such information as may be required by the other Party or by the Court in connection with the dispute ; and

(b) the specification of such interim measures shall not be construed as an indication of any view of the Court on the merits of the dispute.

29. Except as the Parties may otherwise agree, the law to be applied by the Court shall be this Treaty and, whenever necessary for its interpretation or application, but only to the extent necessary for that purpose, the following in the order in which they are listed :

(a) International conventions establishing rules which are expressly recognized by the Parties.

(b) Customary international law. No. 6032

APPENDIX TO ANNEXURE G

(Paragraph 7 (b))

List I for selection of Chairman

(i) The Secretary-General of the United Nations

(ii) The President of the International Bank for Reconstruction and Development

List II for sélection of Engineer

Member

(i) The President of Massa chusetts Institute of Technology, Cambridge, Mass., U.S.A.

(ii) The Rector of the Imperial College of Science and Technology, London, England

List in for selection of Legal Member

(i) The Chief Justice of the United States

(ii) The Lord Chief Justice of England

ANNEXURE H TRANSITIONAL ARRANGEMENTS

(Article II (5))

PART 1 PRELIMINARY

1. The provisions of Article II (5) with respect to the distribution of the waters of the Eastern Rivers during the Transition Period shall be governed by the provisions of this Annexure. With the exception of the provisions of Paragraph 50, all the provisions of this Annexure shall lapse on the date on which the Transition Period ends. The provisions of Paragraphs 50 and 51 shall lapse as soon as the final refund or the additional payment referred to therein has been made for the last year of the Transition Period.

2. For the purposes of this Annexure, the Transition Period shall be divided into two parts : Phase I and Phase II.

3. Phase I shall begin on 1st April 1960 and it shall end on 31st March 1965, or, if the proposed Trimmu-Islam Link is not ready to operate by 31st March 1965 but is ready to operate prior to 31st March 1966 then, on the date on which the link is ready to operate. In any event, whether or not the Trimmu-Islam Link is ready to operate, Phase I shall end not later than 31st March 1966.

4. Phase II shall begin on 1st April 1965, or, if Phase I has been extended under the provisions of Paragraph 3, then on the day following the end of Phase I but in any case not later than 1st April 1966. Phase II shall end on the same date as the Transition Period.

5. As used in this Annexure :

(a) The term 'Central Ban Doab Channels' or 'C.B.D.C.' means the system of irrigation channels located in Pakistan which, prior to 15th August 1947, formed a part of the Upper Bari Doab Canal System.

(b) The terms 'kharif and 'rabi' respectively mean the crop seasons extending from 1st April to 30th September (both days inclusive) and 1st October to 31st March (both days inclusive).

(c) The term 'Water-accounting Period' means the period which is treated as a unit for the purpose of preparing an account of the distribution of waters between India and Pakistan.

(d) The term 'Beas Component at Ferozepore' means the amount of flow water derived from The Beas which would have reached Ferozepore if there had been

(i) no transfers from The Ravi or contribution from The Sutlej,

(ii) no withdrawals by the canals at Harike,

(iii) no abstraction of flow waters by, or release of stored waters from, any storage reservoir on The Beas or the pond at Harike,

(iv) no withdrawals by the Shahnehr Canal in excess of those specified in Para graph 55, and

(v) no withdrawal by any new canal from The Beas or from the Sutlej Main between Harike Below and Ferozepore constructed after the Effective Date with a capacity of more than 10 cusecs.

(vi) The term 'Sutlej Component at Ferozepore' means the amount of flow water derived from The Sutlej which would have reached Ferozepore if there had been

(i) no transfers from The Ravi or contribution from The Beas,

(ii) no withdrawals, as at Rupar, in excess of those specified in Paragraph 21 (a), and

(iii) no abstraction of flow waters by, or release of stored waters from, any storage reservoir on The Sutlej or the ponds at Nangal or Harike.

PART 2 DISTRIBUTION OF THE WATERS OF THE RAVI

6. Subject to the provisions of Paragraph 20 and to the payment by Pakistan, by due date, of the amounts to be specified under the provisions of Paragraph 48, India agrees to continue the supply of water to the C.B.D.C., during the transition Period, in accordance with the provisions of Paragraphs 7 to 19. The balance of the waters of The Ravi, after India has made the deliveries specified in these Paragraphs or the releases specified in Paragraph 20, shall be available for unrestricted use by India.

7. India will deliver supplies to the C.B.D.C. throughout rabi and during April 1-10 and September 21-30 in kharif (dates as at the points of delivery, no time-lag being allowed from Madhopur to these points), at the points noted in Column (3) of Table A below, according to indents to be placed by Pakistan, up to the maximum quantity noted against each point in Column (4) of Table A :

Name of Channel	Point of Delivery (Approximate)	Maximum Quality (Cusecs)
Lahore Branch.	R.D. 196,455	615
Main Branch Lower	R.D. 250,620	1,382
Pull Distributary	R.D. 74,595	10
Kohali Distributory	R.D. 67,245	26
Khalra Distributory	R.D. 26,900	11
Bhuchar Kahna Distributary	R.D. 15,705	317
		Total: 2631

8. (a) The supply available in the Ravi Main, at Madhopur Above, after deducting the actual withdrawal (the deduction being limited to a maximum of 120 cusecs during April 1-10 and September 21-30 and to nil cusecs during rabi) for the Kashmir (Basantpur) Canal, will be taken as the 'gross supply available' : Provided that any withdrawal from The Ravi upstream of Madhopur by a new canal constructed after the Effective Date with a capacity of more than 10

cusecs will be accounted for in working out the supply available in the Ravi Main at Madhopur Above.

(b) From the 'gross supply available' as determined in (a) above, the escapages, if any, from the Upper Bari Doab Canal into The Ravi will be deducted to get the 'net supply available'. India will use its best endeavours to limit these escapages to the minimum necessary for operational requirements.

(c) The 'net supply available' as determined in (b) above, limited to a daily ceiling of 6,800 cusecs during April 1-10 and 21st September to 15th October and of 5,770 cusecs during 16th October to 31st March, will be taken as the 'distributable supply'.

9. If the 'distributable supply' falls below 6,800 cusecs during April 1-10 or 21st September to 15th October, the aggregate deliveries to the C.B.D.C. may be reduced to 34.7 per cent of the 'distributable supply'. If the 'distributable supply' falls below 5,770 cusecs during 16th October to 31st March, the aggregate deliveries to the C.B.D.C. may be reduced to 41 per cent of the 'distributable supply'.

10. If in any year after the Rasul-Qadirabad and the Qadirabad-Balloki Links are ready to operate, the average discharge for a period of five consecutive days during 21st February to 6th April in the Jhelum Main at Rasul Above (including the supply in the tail-race of the Rasul hydro-electric plant) exceeds 20,000 cusecs and the daily discharge is not less than 17,000 cusecs on any of these five days, India may, from a date four days after the expiry of the said period of five days, discontinue deliveries to the C.B.D.C. from that date until 10th April in that year : Provided that, if India should decide to exercise this option, India shall notify Pakistan telegraphically three days in advance of the date proposed for the discontinuance of deliveries.

11. As soon as the supplies specified in Paragraph 66 are available for reduction of deliveries by India during September 21-30 and rabi, the Commissioners will meet and agree upon suitable modifications in the provisions of this Part of this Annexure. In case the Commissioners are unable to agree, the difference shall be dealt with by a Neutral Expert in accordance with the provisions of Annexure F.

12. A rotational programme will be followed for the distribution of supplies during 16th October lo 31st March ; it will be extended, if necessary, for the distribution of supplies during 21st September to 15th October and April 1-10. This programme will be framed and, if necessary, modified by the Chief Engineer, Punjab, India, in such manner as will enable the C.B.D.C.to get the due percentage of the 'distributable supply1 during each of the following Water-accounting Periods :

(i) 21st September to 15th October,

(ii) 16th October to 2nd December (rabi sowing period).

(iii) 3rd December to 12th February (rabi growing period).

(iv) 13th February to 31st March (rabi maturing period),

(v) April 1-10. In framing, operating and, if necessary, modifying the rotational programme, the Chief Engineer, Punjab, will make every effort to see that, within each of the Water-accounting Periods specified above, the supplies delivered to the C.B.D.C. are spread out over the period as fairly as the prevailing circumstances permit.

13. The Chief Engineer, West Pakistan, will communicate to the Chief Engineer, Punjab (India) by 31st August each year, his suggestions, if any, for framing the next rotational programme and the Chief Engineer, Punjab, in framing that programme, will give due consideration to these suggestions. Copies of the programme shall be supplied by the Chief Engineer, Punjab, to the Chief Engineer, West Pakistan, and to the Com missioners, as early as

possible but not later than 30th September each year. Copies of the modified programme shall similarly be supplied as soon as possible after the modifica tions have been made and the Chief Engineer, West Pakistan, and the Commissioners will be kept informed of the circumstances under which the modifications are made.

14. Neither Party shall have any claim for restitution of water not used by it when available to it.

15. India will give Pakistan adequate prior notice of any closures at the head of the Upper Bari Doab Canal during the period 21st September to 10th April. If, however, on account of any operational emergency, India finds it necessary to suddenly close the Upper Bari Doab Canal at head, or any channel specified in Table A, 2 India will notify Pakistan telegraphically.

16. No claim whatsoever shall lie against India for any interruption of supply to the C.B.D.C. due to a closure of the Upper Bari Doab Canal at head, or of any channel specified in Table A, if such closure is considered necessary by India in the interest of the safety or the maintenance of the Upper Bari Doab Canal system.

17. India will use its best endeavours not to pass into any of the channels listed as Items 1, 2 and 6 of Table A, any supplies in excess of 110 per cent of the corresponding figure given in Column (4) of that Table. Any supplies passed into any of the aforesaid channels in excess of 105 per cent of the corresponding figure given in Column (4) of Table A will not be taken into account in drawing up the water-account. If however the indent of any channel is less than the corresponding figure given in Column (4) of Table A, the supplies passed into that channel up to 110 per cent of the indent will be taken into account in drawing up the water-account.

18. If, because of unavoidable circumstances arising out of the inherent difficulties in the operation of the Upper Bari Doab Canal (U.B.D.C.) system, deliveries to C.B.D.C. are temporarily reduced below the amounts indented or due (whichever amounts are less), no claim for financial compensation shall lie against India on this account. India will make every effort to bring about at the earliest possible opportunity a resumption of de liveries to C.B.D.C. up to the amounts indented or due (whichever amounts are less).

19. The delivery into each of the channels specified in Table A will be regulated by India in accordance with the discharge table current for that channel on the Effective Date until that table is revised, if necessary, on the basis of

(i) any discharge observation made by India whenever it may consider necessary to do so, but not more often than once in two months ; or

(ii) any joint discharge observation by India and Pakistan which may be undertaken at the request of either Commissioner, but not more often than once in three months ; the observation shall be made within a fortnight of the receipt of the request. India will supply to Pakistan, for each channel specified in Table A, a copy of the discharge table current on the Effective Date and of any revised discharge table prepared thereafter in accordance with (i) or (ii) above.

20. Pakistan shall have the option to request India to discontinue the deliveries to C.B.D.C. at the points specified in Table A and to release instead equal supplies (that is, those due under the provisions of Paragraphs 7 to 11) into the Ravi Main below Madhopur. This option may be exercised, effective 1st April in any year, by written notification delivered to India before 30th September preceding. On receipt of such notification, India shall comply with Pakistan's request and thereupon India shall have no obligation to make deliveries to C.B.D.C. at the points specified in Table A during the remaining part of the Transition Period, but will use its best endeavours to ensure that no abstraction is made by India below Madhopur from the supplies so released.

PART 3 DISTRIBUTION OF THE WATERS OF THE SUTLEJ AND THE BEAS IN KHARIF DURING PHASE I

21. Except as provided in Paragraphs 22, 23, 24 and 27, India agrees to limit its withdrawals during Phase I at Bhakra, Nangal, Rupar, Harike and Ferozepore (including abstractions for storage by the Bhakra Dam and for the ponds at Nangal and Harike) and by the Bachherewah Grey Canal from the flow waters (as distinct from stored waters) present in the Sutlej Main and from the 'Beas Component at Ferozepore', in each Water- accounting Period, to the equivalent of the following:

(a) 10,250 cusecs from April 1-10 to July 1-10 ; 12,000 cusecs from July 11-20 to August 21-31 and 10,500 cusecs during September 1-10 to 21-30 from the Sutlej Main, as at Rupar ; plus

(b) 3,500 cusecs during April 1-10 to 21-30 ; 4,500 cusecs during May 1-10 to 21-31 and 5,500 cusecs from June 1-10 to September 21-30, as at Ferozepore, from the 'Sutlej Component at Ferozepore' and the 'Beas Component at Ferozepore', taken together : Provided that this withdrawal shall not exceed the sum of the 'Sutlej Component at Ferozepore' and 16 per cent of the 'Beas Component at Ferozepore'.

22. In addition to the withdrawals under Paragraph 21, India may make further withdrawals in each Water-accounting Period, equivalent to the amount related to Paki stan's ability to replace. This amount shall be determined as follows : a) For each Water-accounting Period, the 'average discharge at Merala Above' shall first be worked out as follows : i) The daily figures for the discharges at Merala Above shall be limited to a minimum equal to the figure for the appropriate Floor Discharge at Merala Above, as given in Column (2) of Table Bx below, and to a maximum of M cusecs where M has the following values :

Period	Value of M (cusecs)
April 1-10	28,000
11-20	33,000
21-30	35,000
May 1-10	41,000
11-20	43,000
May 21-31 to Sept. 21-30	45000

ii) The average of the daily figures, limited in accordance with (i) above, will be taken as the 'average discharge at Merala Above', for the Water-accounting Period.

b) For each Water-accounting Period, the 'gross amount' as at Ferozepore, corresponding to the 'average discharge at Merala Above', as determined in (a) above, shall next be worked out from Table B, in the following manner : When the 'average discharge at Merala Above" is equal to the Floor Discharge shown in Column (2) of Table B, the 'gross amount', as at Ferozepore, shall be zero. When the 'average discharge at Merala Above' equals or exceeds the Ceiling Discharge shown in Column (3) of Table B, the 'gross amount', as at Ferozepore, shall be the amount shown in Column (4) of Table B. For an 'average discharge at Merala Above' between those shown in Columns (2) and (3) of Table B, the 'gross amount', as at Ferozepore, shall be the proportional intermediate amount : Provided that

(i) if during April 1-10 in any year, the 'average discharge at Merala Above' is equal to 11,100 cusecs and the 'gross amount' for the whole of the preceding March, under the provisions

of Paragraph 35, has been equal to zero, then for the succeeding April 11-20 the figures for Columns (2), (3) and (4) of Table B will be taken as 12,000 ; 23,400 and 8,600 respectively ; no change will be made for calculating the 'gross amount' in any subsequent Water-accounting Period in that year, but if, in addition to the conditions already stated for April 1-10, the 'average dis charge at Merala Above', during April 11-20, equals 12,000 cusecs, then for the succeeding April 21-30 the figures for Columns (2), (3) and (4) of Table B will be taken as 12,100 ; 23,500 and 8,600 respectively ; no change will be made for cal culating the 'gross amount' in any ssubsequent Water-accounting Period in that year;

(ii) if during March 21-31 in any year, the average discharge at Merala Above (ob tained by limiting the daily values to a maximum of 27,000 cusecs) exceeds 22,000 cusecs, then for the succeeding April 1-10 the figures for Columns (2), (3) and (4) of Table B will be taken as 11,100 ; 26,700 and 12,900 respectively ; no change will be made for any subsequent Water-accounting Period in that year ; and

(iii) if, during any Water-accounting period from April 1-10 to September 21-30, the Upper Chenab Canal (U.C.C.) and M.R. Link are both closed at head (any day, on which some supplies are passed into U.C.C. in order that the head across the U.C.C. Head Regulator should not exceed 17 feet, being treated as a day of closure), on account of the discharge on any day in the Jammu Tawi having exceeded 30,000 cusecs, or on account of the discharge at Merala Above on any day having exceeded 200,000 cusecs, the 'gross amount', as at Ferozepore, will be worked out as follows : For each of the days for which both U.C.C. and M.R. Link remain closed at head, the 'gross amount', as at Ferozepore, shall be taken as 108 per cent of Q during April 1-10 to August 21-31 and 100 per cent of Q during September 1-10 to 21-30, where Q equals 67 per cent of the corresponding actual river supply at Balloki Above (allowing three days time-lag from Merala to Balloki) minus 300 cusecs ; Q being limited to 8.000 cusecs during April 1-10, to 11,000 cusecs during April 11-20, to 13,000 cusecs during April 21-30, and to 15,000 cusecs from May 1-10 to September 21-30. For the remaining days in the Water-accounting Period, the 'gross amount' shall be worked out on the basis of the average of the daily discharges at Merala Above for those days, the daily discharges being limited, where necessary, in accordance with (a) (i) above. The 'gross amount', for the Water-accounting Period taken as a whole, will be taken as equal to the sum of the 'gross amount' for each of the days of closure plus the 'gross amount' for the remaining days of the Water-accounting Period multiplied by the corresponding number of days, the aggregate being divided by the total number of days in the Water-accounting Period.

Pakistan will notify India about any such closure by telegram stating therein the discharge of Jammu Tawi, the discharge at Merala Above and the discharge of U.C.C. at head, and will continue to supply similar information daily by telegram till the U.C.C. and M.R. Link are re-opened.

(c) The 'gross amount', as at Ferozepore, as determined under (b) above, will then be multiplied by the corresponding factor hi Column (5) of Table B to obtain the amount of further withdrawals by India, as at Ferozepore. 23. During September 11-20 and September 21-30, an adjustment shall be made in the withdrawals which India may make under the provisions of Paragraphs 21 and 22 by adding the actual gains in the Sutlej Main from Ferozepore to Islam to the value determined under the provisions of Paragraphs 21 and 22 and deducting from the resulting total 3,400 cusecs during September 11-20 and 2,900 cusecs during September 21-30.

24. If, in any Water-accounting Period, the sum of (i) and (ii) below exceeds 35,000 cusecs during April 1-10 to August 21-31, or 30,000 cusecs during September, then India may

make further withdrawals, as at Ferozepore, from the flow waters of The Sutlej and The Beas to the extent of the excess over 35,000 cusecs or 30,000 cusecs, as the case may be.

(i) The supply available from the 'Sutlej Component at Ferozepore' and from the 'Beas Component at Ferozepore' less the withdrawals due to be made by India under the provisions of Paragraphs 21 (b), 22 and 23.

(ii) The appropriate 'gross amount", as at Ferozepore, determined in accordance with Paragraph 22 (b).

25. After allowing for the withdrawals by India under the provisions of Paragraphs 21 (b), 22, 23 and 24, the balance of the 'Sutlej Component at Ferozepore' and of the 'Beas Component at Ferozepore' shall be delivered at Ferozepore for use by the Pakistan Sutlej Valley Canals.

26. Pakistan undertakes that, between 1st April and 30th June, and between llth and 30th September, when the flow at Merala Above on any day is less than the appropri ate Ceiling Discharge shown in Column (3) of Table B, it will not allow surplus water to escape below Khanki or below Balloki (except in circumstances arising out of an operational emergency or out of inherent difficulties in the operation of the system of works) and will cause such surplus waters to be transferred to Suleimanke. If, however, there should be spill at Khanki or at Balloki because of the afore said circumstances, Pakistan will immediately inform India of the reasons for such spill and take steps to discontinue the spill as soon as possible.

27. If the aggregate of (i) and (ii) below does not exceed 35,000 cusecs during any Water-accounting Period from April 1-10 to June 21-30, or 30,000 cusecs during Septem ber 11-20 or 21-30, and if Pakistan expects at any time during any of these Water-account ing Periods, that on one or more days it would be unable to use in its Sutlej Valley Canals the supplies likely to be available to it under the provisions of Paragraph 25 and the probable transfers under Paragraph 26, and that there is, therefore, a likelihood of escapage below Islam, Pakistan agrees that it will give such timely information to India as will enable India to make such additional withdrawals at or above Ferozepore on the day or days to be specified as will reduce the escapage below Islam to a minimum.

(i) The likely delivery to Pakistan at Ferozepore under the provisions of Paragraph 25.

(ii) The probable appropriate 'gross amount', as at Ferozepore, determined in accordance with Paragraph 22 (b). Provided that the above provisions shall not apply during any Water-accounting Period in which (i) above is zero.

28. Subject to the provisions of Paragraph 64 and to the payment by Pakistan, by due date, of the amounts to be specified under the provisions of Paragraph 49, India agrees to deliver into the Dipalpur Canal at Ferozepore, during each Water-accounting Period, such part of the supplies due to be released by India under the provisions of Paragraph 25, as Pakistan may request, limited to a maximum of 6,950 cusecs : Provided that no claim shall lie against India if, because of circumstances arising out of the inherent difficulties in feeding the Dipalpur Canal, the supply delivered into the Dipalpur Canal should at any time fall below the supply requested by Pakistan to be fed into this Canal out of the total supplies due to be released by India at Ferozepore.

PART 4—DISTRIBUTION OF THE WATERS OF THE SUTLEJ AND THE BEAS IN KHARIF DURING PHASE II

29. Subject to the provisions of Paragraphs 30 and 31 below, India agrees to deliver at Ferozepore for use by the Pakistan Sutlej Valley Canals the following minimum supplies during Phase II :

(a) In each Water-accounting Period during April 1-30 : 74 per cent of the amount cal culated for delivery at Ferozepore under the provisions of Paragraph 25 minus 21 per cent of the 'gross amount" determined in accordance with Paragraph 22

(b) : Provided that, during April 1-10 in any year, if the discharge at Trimmu Above is less than 8,500 cusecs, the delivery during April 1-10 in that year shall be the same as under the provisions of Paragraph 25. (b) In each Water-accounting Period during May 1-31 : 71 per cent of the amount cal culated for delivery at Ferozepore under the provisions of Paragraph 25 minus 24 per cent of the 'gross amount' determined in accordance with Paragraph 22 (b).

(c) In each Water-accounting Period during June 1-30 : 58 per cent of the amount cal culated for delivery at Ferozepore under the provisions of Paragraph 25 minus 36 per cent of the 'gross amount' determined in accordance with Paragraph 22 (b).

(d) July 1-10 : 3,000 cusecs.

(e) July 11-20 to August 21-31 : 4,000 cusecs.

(f) September 1-10 : 3,000 cusecs.

(g) September 11-20 and 21-30 : As under the provisions of Part 3 of this Annexure reduced by the following : 66 per cent of the amount by which the discharge at Trimmu Above (corrected for actual gains and losses between Trimmu and Panjnad, allowing a time-lag of three days from Trimmu to Panjnad) exceeds the smaller of the following two quantities :

(i) the sum of the actual withdrawals by the Panjnad and Haveli canals ; and

(ii) 19,600 cusecs : Provided that the gains from Trimmu to Panjnad shall be deemed to be limited to the actual withdrawals at Panjnad and provided further that the reduction, as thus cal culated, shall be limited to a daily maximum of 7,000 cusecs and shall not exceed one- third of the sum of the supply which would have been delivered at Ferozepore under the provisions of Paragraph 25 and the 'gross amount' determined in accordance with Paragraph 22 (b).

30. As soon as the Rasul-Qadirabad and the Qadirabad-Balloki Links are ready to operate, the deliveries at Ferozepore for use by the Pakistan Sutlej Valley Canals, as specified in Paragraph 29, may be reduced

(a) in each Water-accounting Period during April 1-10 to June 21-30, by (AX-AB) cusecs limited to (AY) cusecs where X=the actual discharge at Rasul Above (including the supply in the tail-race of the Rasul hydro-electric plant),

Y= difference between 18,400 cusecs (limited during April 1-10 to 21-30 to the 'gross amount' as at Ferozepore corresponding to the Ceiling Discharge in Table B, read with provisos (i) and (ii) of Paragraph 22 (b)) and the actual 'gross amount' worked out under Paragraph 22 (b),

A=a factor equal to 0.60 from April 1-10 to May 1-10, 0.65 for May 11-20, and 0.70 from May 21-31 to June 21-30, and

B=24,000 cusecs from April 1-10 to 21-30, 32,000 cusecs from May 1-10 to 21-31 and 40,500 cusecs from June 1-10 to 21-30 ; and (b) during July 1-10 and 11-20, by 1,000 cusecs. 31. As soon as the supplies specified in Paragraph 66 are available for reduction of deliveries by India during September, the Commissioners will meet and agree upon modifications in the provisions relating to the deliveries at Ferozepore during September 11-20 and 21-30. In case the Commissioners are unable to agree, the difference shall be dealt with by a Neutral Expert in accordance with the provisions of Annexure F.

32. Subject to the provisions of Paragraph 64 and to the payment by Pakistan, by due date, of the amounts to be specified under the provisions of Paragraph 49, India will arrange to deliver into the Dipalpur Canal at Ferozepore, during each Water-accounting Period, such part of the supplies due to be released for Pakistan under the provisions of Paragraphs 29, 30 and 31 as Pakistan may request, limited to a maximum of 6,950 cusecs : Provided that no claim shall lie against India if, because of circumstances arising out of the inherent difficulties in feeding the Dipalpur Canal, the supply delivered into the Dipalpur Canal should at any time fall below the supply requested by Pakistan to be fed into this canal out of the total supplies due to be released by India at Ferozepore. 33. Subject to the provisions of Paragraphs 29 to 32 and Paragraph 57, there shall be no restriction on the use by India of the waters of The Sutlej and The Beas in kharif during Phase II.

PART 5—DISTRIBUTION OF THE WATERS OF THE SUTLEJ AND THE BEAS IN RABI

34. Subject to the provisions of Paragraphs 35 to 38, during the Transition Period India agrees to deliver at Ferozepore for use by the Pakistan Sutlej Valley Canals, the following minimum supplies during rabi :—

(a) October 1-10 and October 11-15 :

(i) 84 per cent of the 'Beas Component at Ferozepore' plus

(ii) 1,670 cusecs minus

(iii) the actual gains from Ferozepore to Islam.

(b) October 16-20 :

(i) 79 per cent of the 'Beas Component at Ferozepore' plus

(ii) 960 cusecs minus

(iii) the actual gains from Ferozepore to Islam.

(c) October 21-31 : (i) 79 per cent of the 'Beas Component at Ferozepore' plus (ii) 640 cusecs minus (iii) the actual gains from Ferozepore to Islam.

(d) November 1-10 : (i) 79 per cent of the 'Beas Component at Ferozepore' plus (ii) 570 cusecs minus (iii) the actual gains from Ferozepore to Islam. (e) In each Water-accounting Period from November 11-20 to March 21-31 : 79 per cent of the 'Beas Component at Ferozepore'. 35. When the flow at Trimmu Above, during March 1-10, 11-20 and 21-31 in any year, exceeds the smaller of the following two quantities : (i) the supplies required at Trimmu Above to meet the withdrawals of the Haveli and Panjnad Canals (after allowing a time-lag of five days from Trimmu to Panjnad), and (ii) 7,500 cusecs during Phase I or 10,000 cusecs during Phase II, the deliveries specified in Paragraph 34 («) may be reduced, during March 1-10, 11-20 and 21-31 in that year, by amounts related to Pakistan's ability to replace. For March 1-10, 11-20 and 21-31, these amounts shall be taken as equal to 60 per cent of the 'gross amount' determined as follows:

When the sum of (a) the average discharge at Merala Above (obtained by limiting the daily values to a maximum of 25,000 cusecs during March 1-10, a maximum of 26,000 cusecs during March 11-20 and a maximum of 27,000 cusecs during March 21-31) and (b) the Ravi Component at Balloki Above (total supply at Balloki Above minus the delivery at U.C.C. tail minus the delivery at M.R. Link outfall minus the delivery into the Ravi Main through B.R.B.D. escapes, the result being limited to a minimum of zero) is less than or equal to the Floor Discharge shown in Column (2) of Table C below, the 'gross amount", as at Ferozepore, shall be zero. When this sum equals or exceeds the Ceiling Discharge shown in Column (3) of Table C, the 'gross amount', as at Ferozepore, shall be the amount shown in Column (4) of Table C. When

the sum is between the values shown in the said Columns (2) and (3), the 'gross amount', as at Ferozepore, shall be the proportional intermediate amount.

36. If, during any Water-accounting Period, the aggregate of (i), (ii) and (iii) below exceeds 25,000 cusecs during October 1-10 and 11-15 or 10,000 cusecs from October 16-20 to March 21-31, the deliveries due to be made under the provisions of Paragraphs 34 and 35 may be reduced by the amount of such excess over 25,000 cusecs or 10,000 cusecs, as the case may be.

(i) Deliveries due to Pakistan at Ferozepore under the provisions of Paragraphs 34 and 35.

(ii) During March only, 60 per cent of the appropriate 'gross amount', as worked out under Paragraph 35.

(iii) During October 1-10 to November 1-10 only, the actual gains from Ferozepore to Islam, or, under the circumstances specified in Paragraph 62, the estimated gains agreed upon between the Commissioners.

37. In Phase II, during March, the deliveries to Pakistan, under the provisions of Paragraphs 34 to 36, may on any day be reduced by 60 per cent of the amount by which the discharge at Trimmu Above two days earlier exceeds 10,000 cusecs, but the reduction on this account shall not exceed 12 per cent of the 'Beas Component at Ferozepore'.

38. As soon as the supplies specified in Paragraph 66 are available for reduction of deliveries by India during rabi, the Commissioners will meet and agree upon modifications in the deliveries to be made by India at Ferozepore during rabi. In case the Commissioners are unable to agree, the difference shall be dealt with by a Neutral Expert in accordance with the provisions of Annexure F. 39. Subject to the provision of Paragraph 64 and to the payment by Pakistan, by due date, of the amounts to be specified under the provisions of Paragraph 49, India agrees to deliver into the Dipalpur Canal at Ferozepore, during October 1-10 and 11-15 in each year, such part of the supplies due to be released for Pakistan under the provisions of Paragraphs 34 to 38 as Pakistan may request, limited to a maximum of 6,950 cusecs : Provided that no claim shall lie against India if, because of circumstances arising out of the inherent difficulties in feeding the Dipalpur Canal, the supply delivered into the Dipalpur Canal should at any time fall below the supply requested by Pakistan to be fed into this canal out of the total supplies due to be released by India at Ferozepore. 40. Subject to the provisions of Paragraphs 34 to 38 and Paragraph 57, there shall be no restriction on the use by India of the waters of The Sutlej and The Beas during rabi.

PART 6—WATER-ACCOUNTS AT FEROZEPORE

41. An account of the distribution of waters, as at Ferozepore, under the provisions of Parts 3, 4 and 5 of this Annexure will be maintained by each Commissioner in accord ance with the provisions of Paragraphs 42 to 46, and appropriate Forms will be used, both for Phase I and Phase II, in order to facilitate, and to provide a record of, the distribution of waters in accordance with the provisions of this Annexure. Such Forms for Phase I are set out in Appendix II 1 to this Annexure. Appropriate Forms for Phase II will be prepared by the Commission. The Forms (both for Phase I and Phase II) may, from time to time, be modified or added to by the Commission, but only to the extent that the Commission finds it necessary to do so in order to further facilitate, and to maintain an appro priate record of, the distribution of waters in accordance with the provisions of this Annexure. In the absence of agreement in the Commission, the question shall be referred to a Neutral Expert for decision in accordance with the provisions of Annexure F

42. Each calendar month will be divided into three Water-accounting Periods, viz., 1st to 10th, 11th to 20th and 21st to the last day of the month, except the month of October which will be divided into four Water-accounting Periods, viz., 1st to 10th, llth to 15th, 16th to 20th and 21st to 31st. 43. For each Water-accounting Period, the river supplies or withdrawals or deliveries at any point will, unless otherwise specified in this Annexure, be taken as the average values of the daily figures for the days included in or corresponding to that Water-accounting Period. 44. The water-accounts for the period April 1-10 to July 1-10 (Ferozepore dates) will be prepared with due allowance for time-lag as set out in Appendix 11 to this Annexure. 45.

(a) The 'Sutlej Component at Ferozepore' during each Water-accounting Period from April 1-10 to September 21-30 and the 'Beas Component at Ferozepore' during each Water-accounting Period from April 1-10 to March 21-31 shall be worked out in accordance with Appendix I to this Annexure.

(b) During the Water-accounting Periods from September 11-20 to November 1-10, the gains and losses in the reach from Ferozepore to Islam shall be taken as the actual gains or losses calculated without allowance for time-lag.

(c) A conveyance loss of 6 per cent from the head of the Madhopur Beas Link to the junction of the Chakki Torrent with the Beas Main shall be adopted until revised, at the request of either Commissioner, as follows :

(i) The figure may be revised by agreement between the Commissioners, either after a study of available data and general considerations or after an analysis of discharge observations to be carried out jointly by the Commissioners, at the request of either Commissioner, or

(ii) if the Commissioners are unable to agree on a suitable figure (or figures) for the con veyance losses, the matter may be referred to a Neutral Expert for decision in accord ance with the provisions of Annexure F. (d) The procedure for working out the equivalents, at Mandi Plain, of any with drawals from the Beas Main by any new canal constructed after the Effective Date, with a capacity of more than 10 cusecs, or of any abstractions from the flow waters by, or re leases of stored waters from, any reservoir on The Beas will be determined by the Commission at the appropriate time. (e) An allowance for run-out (Nikal) shall be made in the water-account in respect of the waters passed into The Beas by the M.B. Link (including escapages from the U.B.D.C. into The Beas). This allowance shall equal the volume of water passed by the Link (in cluding escapages from U.B.D.C.) into The Beas on the last two days of the operation of the Link during the period from 1st September to 15th October and it shall be accounted for at Mandi Plain during the ten days following the closure of the Link : Provided that this allowance shall be made only once and if the Link is re-opened thereafter, no further allowance on that account shall be made.

46, Every effort will be made by India to balance the water-account at Ferozepore for each of the Water-accounting Periods, but any excess or deficit in deliveries due to Pakistan, in any Water-accounting Period, under the provisions of this Annexure, that may arise out of the inherent difficulties in determining these deliveries shall be carried over to the next Water-accounting Period for adjustment : Provided that :

(a) If, in any Water-accounting Period during Phase I, the sum of (i), (ii) and (iii) below exceeds 35,000 cusecs during April 1-10 to August 21-31, 30,000 cusecs during September 1-10 to 21-30, 25,000 cusecs during October 1-10 or 11-15, or 10,000 cusecs during October 16-20 to March 21-31, then there will be no carry-over from any such period to the next period,

(i) The supply at Ferozepore Below (including withdrawals by the Dipalpur Canal, if any).

(ii) During March 1-10 to September 21-30, the appropriate 'gross amount', as at Ferozepore, determined in accordance with Paragraph 22 (b) or Paragraph 35.

(iii) During September 11-20 to November 1-10, the actual gains and losses from Ferozepore to Islam, losses being treated as negative gains; or, under the circum stances specified in Paragraph 62, the estimated gains agreed upon between the Commissioners.

(b) If, in any Water-accounting Period, the indents of the Indian Canals at Ferozepore and Harike have been fully met and there is an excess delivery to Pakistan at Feroze pore, then such excess shall not be carried forward to the next period.

(c) In each year, the water-account shall be finally closed at the end of the Water-accounting Period March 21-31 and any excess or deficit in the water-account, at the end of that Period, shall not be carried over to the succeeding Water-accounting Period, viz., April 1-10. (d) If, during Phase I, in any Water-accounting Period from April 1-10 to June 21-30, the withdrawals computed as due to India under the provisions of Paragraphs 21 (b), 22, 23 and 24 exceed the supply available to India from the 'Sutlej Component at Feroze pore' and from the 'Beas Component at Ferozepore' taken together, then, in the water- account only 50 per cent of such excess shall be carried over for use by India.

(e) If, during Phase II, in any Water-accounting Period from April 1-10 to June 21-30, the withdrawals computed as due to India from the 'Sutlej Component at Ferozepore' and from the 'Beas Component at Ferozepore' after allowing for the deliveries due to Pakistan at Ferozepore under the provisions of Paragraphs 29 and 30 exceed the supply available to India from the 'Sutlej Component at Ferozepore' and from the 'Beas Component at Ferozepore', then such excess shall be treated separately and accounted for as below :

(i) The excess may be carried over for adjustment to the succeeding Water-account ing Period and, where necessary, to the next succeeding Water-accounting Period, but shall be deemed to have lapsed if not adjusted by then.

(ii) The cumulative excess carried over shall not exceed 2,000 cusecs from April 1-10 to May 21-31 and 3,000 cusecs during June 1-10 to 21-30.

(iii) In no case shall the excess be carried over beyond June 21-30. 47. As soon as possible after the end of each Water-accounting Period, each Com missioner will intimate to the other, by telegram, the excess or deficit carried over to the next Water-accounting Period. On receipt of this information, either Commissioner may. if he considers it necessary, ask for an exchange of the relevant water-accounts.

PART 7—FINANCIAL PROVISIONS

48. For each year for which Pakistan has not exercised the option under the provisions of Paragraph 20 :

(a) India will, by 1st February preceding, communicate to Pakistan, in writing, the estimated proportionate working expenses payable by Pakistan for the Madhopur Headworks and the carrier channels calculated in accordance with Appendix III ' to this Annexure ; and

(b) Pakistan will pay to the Reserve Bank of India, New Delhi, for the credit of the Government of India, before 1st April of that year, the amount intimated by India.

49. For each year for which Pakistan has not exercised the option under the provisions of Paragraph 64 :

(a) India will, by 1st February preceding, communicate to Pakistan, in writing, the estimated proportionate working expenses payable by Pakistan for the Ferozepore Headworks (including the part of the Dipalpur Canal in India) calculated in accord ance with Appendix IV 2 to this Annexure ; and

(b) Pakistan will pay to the Reserve Bank of India, New Delhi, for the credit of the Government of India, before 1st April of that year, the amount intimated by India.

50. As soon as the figures of actual audited expenditures on the Madhopur Head- works and the carrier channels and on the Ferozepore Headworks for each year are supplied by the Accountant General, Punjab (India), but not later than one year after the end of the year to which the expenditure relates, India will communicate to Pakistan, in writing, the actual expenditure corresponding to the estimated proportionate working expenses paid by Pakistan under the provisions of Paragraphs 48 (b) and 49 (b). If the actual proportionate expenditure is less than the amount paid by Pakistan under the provisions of Paragraphs 48 (b) and 49 (b), India shall, within one month, refund the difference to Pakistan and if the actual proportionate expenditure is more than the amount paid, Pakistan shall, within one month, make an additional payment to India to cover the difference.

51. The payments by Pakistan to India under the provisions of Paragraphs 48, 49 and 50 and the refund by India under the provisions of Paragraph 50 shall be made without any set off against any other financial transaction between the Parties.

PART 8—EXTENSION OF TRANSITION PERIOD

52. In the event that Pakistan is of the opinion that the replacement referred to in Article IV (1) cannot be effected unless the Transition Period is extended beyond 31st March 1970, this period may be extended at the request of Pakistan

(a) by one, two or three years beyond 31st March 1970 ; or

(b) having been extended initially by one year beyond 31st March 1970, then by one or two years beyond 31st March 1971 ; or

(c) having been extended initially by two years beyond 31st March 1970, or having been extended by one year beyond 31st March 1971 under (b) above, then by one more year beyond 31st March 1972.

53. A request by Pakistan for any extension under the provisions of Paragraph 52 shall be made to India by formal notice in writing, and any such notice shall specify the date up to which Pakistan requests an extension under the aforesaid provisions. On the receipt of such notice by India within the time-limit specified in Paragraph 54, the Transi tion Period shall be extended up to the date requested by Pakistan.

54. A formal notice under Paragraph 53 shall be given as early as possible and, in any event, in such manner as to reach India at least twelve months before the due date for the expiration of the Transition Period. Unless such a notice is received by India within this time-limit, the Transition Period shall expire on the due date without any right of extension or further extension : Provided however that the Transition Period shall be ex tended, within the provisions of Paragraph 52, by an exceptional notice of request for an extension received by India not later than five months before the due date for expiration of the Transition Period, if, within the twelve months prior to such due date, heavy flood damage should have occurred which, in the opinion of Pakistan, cannot be repaired in time to operate the system of works as planned.

PART 9—GENERAL

55. India may continue to irrigate from the Eastern Rivers those areas which were so irrigated, as on the Effective Date, from The Sutlej, The Beas or The Ravi by means other than the canals taking off at Madhopur, Nangal, Rupar, Harike and Ferozepore : Provided that

(i) any withdrawals by the Shahnehr Canal in excess of 940 cusecs during any Water-accounting Period shall be accounted for in the estimation of the 'Beas Component at Ferozepore', and

(ii) the capacity of the Shahnehr Canal shall not be increased beyond its actual capacity as on the Effective Date (about 1,000 cusecs). If India should construct a barrage across the Beas Main below the head of the Shahnehr Canal or undertake such other works as would enable the Canal to increase its with drawals by more than 50 cusecs over and above those attained as on the Effective Date, the withdrawals during each Water-accounting Period in excess of the average withdrawals for each such period during the five years preceding the completion of the barrage or of such other works shall be accounted for in the estimation of the 'Beas Component at Ferozepore'.

56. India agrees that, from 21st September to 31st March, it will not make any withdrawals for Agricultural Use by Government canals or by power pumps from the Ravi Main below Madhopur, in excess of the withdrawals as on the Effective Date.

57. Subject to the provisions of Paragraph 55, India agrees that it will not make any withdrawals for Agricultural Use from the Sutlej Main below Ferozepore from the supplies delivered at Ferozepore for use by the Pakistan Sutlej Valley Canals.

58. India shall be entitled to utilise without restriction the waters stored by it (in accordance with the provisions of this Annexure) in any reservoir on the Eastern Rivers or hi the ponds at Nangal or Harike. 59. Pakistan agrees that

(i) it will have filled the ponds at Suleimanke and Islam by 10th September in each year to the maximum extent possible without causing the maximum working head across the weirs and the maximum pond levels to exceed the values given in Table D below :

Table D

Weir	Maximum working head in feet	Maximum pond level
Suleimanki	18.5	569.0
Islam	18.0	452.0

(ii) after the river has fallen to a stage at which the releases from the ponds will not result in a spill below Islam, it will lower the pond levels gradually to R.L. 565.5 at Suleimanke and R.L. 449.0, or lower if possible, at Islam, and complete the lowering, as far as possible, by 31st October, without spilling below Islam ; and

(iii) it will use its best endeavours to fill the pond at Islam to R.L. 455.0, provided that this does not endanger the safety of the weir : Provided that the above provisions in so far as they relate to the Islam Weir shall lapse on the date Pakistan discontinues the use of this weir. Instead, the pond at the new weir below Islam shall be filled by 10th September each year and lowered by 31st October in accordance with the above provisions, but the maximum working head in feet, the maxi mum pond level and the level to which the pond is to be lowered by 31st October shall be determined in accordance with the design of the new weir.

60. Pakistan agrees that it will not release any water below the barrage at Suleimanke between 13th October and 10th November, except when the supply reaching Suleimanke on any day (including the delivery, if any, from B.S. Link tail) is in excess of 6,000 cusecs, when the excess on that day over 4,000 cusecs may be released. If the supply reaching Islam falls below 350 cusecs, Pakistan may release supplies below Suleimanke provided that such releases shall be so regulated that the supply reaching Islam does not appreciably exceed 20 per cent of the sum of the withdrawals, at head, of the perennia Pakistan Sutlej Valley Canals.

61. Pakistan agrees that from 21st August to 15th September it will, except under unavoidable circumstances, run the B.S. Link with a discharge not less than 13,000 cusecs, at head.

62. If, for any reason, Pakistan is unable to adhere to the programme for filling and emptying the ponds at Suleimanke and Islam, as set out in Paragraph 59, the Commission ers will agree on an estimate of the gains which would have accrued in the reach from Ferozepore to Islam but for Pakistan's inability to adhere to the aforesaid programme and these estimated gains will be used in the water-account instead of the actual gains or losses.

63. In the event of an emergency, leading to circumstances under which Pakistan is unable to fulfil the provisions of Paragraph 61, the actual gains or losses will be used in the water-account, and the Pakistan Commissioner will immediately inform the Indian Commissioner of the emergency and take steps to restore normal conditions as soon as possible.

64. Pakistan shall have the option to request India to discontinue the deliveries into the Dipalpur Canal. This option may be exercised effective 1st April in any year by written notification delivered to India before 30th September preceding. On receipt of such notification, India will cease to have any obligation to make deliveries into the Di palpur Canal during the remaining part of the Transition Period.

65. If, owing to heavy floods,

(i) damage should occur to any of the Link Canals (including Headworks) specified in Column (1) below during the period specified for that particular Link Canal in Column (2) below, and,

(ii) as a result of such damage, the ability of that Link Canal to transfer supplies should have been diminished to an extent causing serious interruption of supplies in irrigation canals dependent on that Link Canal, then the two Commissioners will promptly enter into consultations, with the good offices of the Bank, to work out the steps to be taken to restore the situation to normal and to work out such temporary modifications of the relevant provisions of this Annexure as may be agreed upon as appropriate and desirable, taking equitably into consideration the consequences of such modifications on the cultivators concerned both in India and in Pakistan. Any modifications agreed upon shall lapse on the terminal date specified in Column (2) below.

Column (1)	Column (2) (a)
M. R. Link	Up to 31st March 1962 (6)
B. S. Link	Up to 31st March 1962 (c)
B. R. B. D. Link	Up to 31st March 1962
(d) Trimmu-Islam Link (including the Head-on which works for this Link on the Ravi Main and to the Sutlej Main).	Two years beginning from the date the Link is ready to operate, but not extend beyond 31st March 1968. (e)
Rasul-Qadirabad and Qadirabad-Balloki which Links (including the Head-works for these Links) to	Three years beginning from the date on the links are ready to operate, but not to extend beyond the end of the Transition

66. If, at any time before the end of the Transition Period, the Bank is of the opinion that the part of the system of works referred to in Article IV (1) is ready to provide additional supplies during September 11-30 and rabi, over and above the replacements in these periods specifically provided for in Parts 2 to 5 of this Annexure, it shall so notify the Par ties. On receipt of such notification, Pakistan shall provide, towards a reduction of the deliveries by India during

September 11-30 and rabi to the C.B.D.C. and at Ferozepore under the provisions of Parts 2 to 5 of this Annexure, the equivalent (at points of delivery) of 60 per cent of the total supplies made available by the whole of the above-mentioned system of works : Provided that, in computing the aforesaid total supplies, any contribution from the Indus and any supplies developed by tube-wells shall be excluded.

67. The provisions of this Annexure may be amended by agreement between the Commissioners. Any such amendment shall become effective when agreement thereto has been signified in an exchange of letters between the two Governments.

PART 10—SPECIAL PROVISIONS FOR 1960 AND 1961

68. The actual withdrawals made by India and the actual deliveries made by India into the C.B.D.C., into the Dipalpur Canal and into the Sutlej Main at Ferozepore, during the period between the Effective Date and the date on which this Treaty enters into force, shall be deemed to be withdrawals and deliveries made in accordance with the provisions of this Annexure.

69. For the year commencing on 1st April 1960,

(a) the communication by India of the amount of the estimated proportionate working expenses specified in Paragraphs 48 (a) and 49 (a) shall be made within one month of the date on which this Treaty enters into force and (b) the payment by Pakistan to India specified in Paragraphs 48 (b) and 49

(b) with respect to that year shall be made by Pakistan within three months of the date on which this Treaty enters into force and the provisions of Paragraph 50 shall then apply.

70. Subject to the provisions of Paragraph 28 and if the supplies due to be released for Pakistan at Ferozepore, during 1961 from April 1-10 to June 21-30, are less than the amounts set out in Column (2) below and Pakistan is unable to deliver into the Dipalpur Canal from the B.R.B.D. Link during April, May or June amounts equal to the aggregate amounts specified for that month in Column (2) below, India will make additional deliveries into the Dipalpur Canal at Ferozepore to make up these aggregate amounts in such manner as to ensure that the canal is not closed for more than 10 days either in May or in June 1961.

Column (1)	Column (2)
April 1-10	Nil cusecs
11-15	Nil "
16-20	1,000 "
21-30	800 "
Aggregate for April	13,000 cusec-days
Column (1)	Column (2)
May 1-10	Nil cusecs
11-20	1,000 "
21-31	800 "
Aggregate for May	18,800 cusec-days
June 1-10	1,000 cusecs
11-20	1,000 "
21-30	1,200 "
Aggregate for June	32,000 cusec-days

APPENDIX I TO ANNEXURE H

PROVISIONS FOR TIME-LAG AND FOR DETERMINATION OF THE 'SUTLEJ COMPONENT AT FEROZEPORE' AND THE 'BEAS COMPONENT AT FEROZEPORE'

A. Time-lag

	Time-lag in days (May 1 to April	July 10 (Faoupore Dates)
Bhakra/Nangal to Rupar	1	1
Rupar to Ferozepore	4	3
Ferozepore to Suleimanke	3	2
Shahnehr Canal head to Mandi Plain	3	2
Mandi Plain to Ferozepore	1	1
Western Bein to Ferozepore	1	1
Madhopur to Mandi Plain via Beas	3	2
Mirthal to Mandi Plain	3	2

For other periods and reaches, unless otherwise specified in this Annexure, the dates will be taken to be the same as the dates at Ferozepore, with no allowance for time-lag.

B. 'Sutlej Component at Ferozepore' corresponding to assumed releases of flow waters below Rupar

(i) The assumed releases of flow waters below Rupar shall be taken as equal to the Sutlej flow waters, as distinct from stored waters, which would have been released below Rupar if the aggregate of the net Indian withdrawals from these flow waters had been limited to the values specified in Paragraph 21 (a) of this Annexure.

(ii) For each of the Water-accounting Periods from April 1-10 to August 21-31 (Ferozepore dates) the values of the 'Sutlej Component at Ferozepore' corresponding to the assumed releases below Rupar shall be worked out from the following table :

Assumed release below Rupar(Cusecs)	Sutlej Component at Ferozepore1 (Cusecs)
below 500	Actual at Ferozepore
500	320
1,000	640
1,500	960
2,000	1,280
3,000	1,920
5,000	3,200
7,500	5,400
10,000	7,600
15,000	12,000
20,000	16,400
30,000	25,200
40,000	34,000
50,000	42,800
100,000	86,800
200,000	174,800

For intermediate values of the assumed releases below Rupar, in excess of 500 cusecs, the 'Sutlej Component at Ferozepore' will be worked out proportionately.

iii. During September 1-10 to 21-30, the 'Sutlej Component at Ferozepore' shall be taken as equal to 0.90 S plus 400 cusecs, where S equals the assumed releases of flow water below Rupar (allowing three days time-lag between Ferozepore and Rupar).

C. 'Beas Component at Ferozepore' (X) corresponding to the sum (Y) of the Beas Component at Mandi Plain and the discharge of the Western Bein

Water-accounting Period, the 'Beas Component at Ferozepore' (X) shall be worked out by multiplying the sum (Y) of the Beas Component at Mandi Plain and the discharge of the Western Bein by the appropriate factor given in the following table :

Water-accounting Periods (Ferozpore Dates)	Factor for converting Periods V to X
April 1-10 and 11-20	0.95
April 21-30 and May 1-10	0.89
May 11-20 to July 1-10	0.87
July 11-20 to August 11-20	0.89
August 21-31 and September 1-10	0.92
September 11-20 to October 21-31	0.98
November 1-10 to 21-30	0.95
December 1-10 to 21-31	0.97
January 1-10 to February 21-28/29	0.92
March 1-10 to 21-31	0.94

APPENDIX II TO ANNEXURE H
FORMS OF WATBR-ACCOUNT

Form No. Contents Page

ANNEXURE II

Water Apportionment Accord Apportionment of the Waters of Indus River System between the provinces

Karachi, dated 16.3.91

APPORTIONMENT OF THE WATERS OF THE INDUS RIVER SYSTEM BETWEEN THE PROVINCES

As a follow-up to the meeting of the Chief Ministers at Lahore on March 3, 1991, a meeting of the representatives of the four provinces was held at Lahore on March 04, 1991. Another meeting was held at Karachi on March 16, 1991. The list of participants is attached. The participants agreed on the following points

1. There was an agreement that the issue relating to apportionment of the Waters of the Indus River System should be settled as quickly as possible,

2. In the light of the accepted water distributional principals the following appointment was agreed to

(fig. in MAF)

PROVINCE	KHARIF	RABI	TOTAL
PUNJAB	37.07	18.87	55.94
SINDH*	33.94	14.82	48.76
NWFP (a)	3.48	2.30	5.78
(b) CIVIL CANALS**	1.80	1.20	3.00
BALUCHISTAN	2.85	1.02	3.87 *

Including already sanctioned Urban and Industrial uses for Metropolitan Karachi. ** Engaged Civil Canals above the rim stations.

3. N.W.F.P/Balochistan Projects which are under execution have been provided their authorised quota of water as existing uses.

4. Balance river supplies (including flood supplies and future storages) shall be distributed as below. Punjab Sindh Baluchistan NWFP Total 37 37 12 14 100%

5. Industrial and Urban Water supplies for Metropolitan City, for which there were sanctioned allocations will be accorded priority.

6. The need for storages, wherever feasible on the Indus and other rivers was admitted and recognised by the participants for planned future agricultural development.

7. The need for certain minimum escapage to sea, below Kotri, to check sea intrusion was recognised, Sindh held the view, that the optimum level was 10 MAF, which was discussed at length, while other studies indicated lower/higher figures. It was, therefore, decided that further studies would be undertaken to establish the minimal escapage needs down stream Kotri.

8. There would be no restrictions on the Provinces to undertake new projects within their agreed shares.

9. No restrictions are placed on small schemes not exceeding 5000 acres above elevation of 1200 ft. SPD.

10. No restrictions are placed on developing irrigation uses in the Kurram / Gomal / Kohat basins, so long as these do not adversely affect the existing uses on these rivers.

11. There are no restrictions on Balochistan to develop the water resources of the Indus right bank tributaries, flowing through its areas.

12. The requirements of LBOD will be met out of the flood supplies in accordance with the agreed sharing formula.

13. For the implementation of this accord, the need to establish an Indus River System Authority was recognized and accepted. It would have headquarters at Lahore and would have representation from all the four provinces.

14. a) The system-wise allocation will be worked out separately, on ten daily basis and will be attached with this agreement as part and parcel of it.

b) The record of actual average system uses for the period 1977-82, would form the guide line for developing a future regulation pattern. These ten daily uses would be adjusted pro rata to correspond to the indicated seasonal allocations of the different canal systems and would form the basis for sharing shortages and surpluses on all Pakistan basis.

c) The existing reservoirs would be operated with priority for the irrigation uses of the provinces.

d) The provinces will have the freedom within their allocations to modify systemwise and period-wise uses.

e) All efforts would be made to avoid wastages. Any surpluses may be used by another province, but this would not establish any rights to such uses.

Following is the list of participants:

C.M. Punjab Ghulam Hyder Wyne C.M. Sindh Jam Sadiq Ali C.M. NWFP Mir Afzal Khan C.M. Baluchistan Mir Taj Mohammad Jamali Shah Mehmood Qureshi Minister Finance Muzaffar Hussain Minister Law Mohsin Ali Khan Minister Finance Mir Zulfiqar Ali Magsi Minister Home Mazhar Ali Adviser Mohammad Alim Baloch A.C.S (I&P)/Advisor Khalid Aziz A.C.S (P&D) Mohammad Amin Secretary (I&P) vinces _____