

**A STUDY OF THE LEGAL FRAMEWORK FOR THE CONTROL  
AND REGULATION OF INTER COUNTRY WATER SHARING  
SINCE 1973 WITH SPECIAL REFERENCE TO INDO-  
BANGLADESH WATER SHARING**

THESIS SUBMITTED FOR THE AWARD OF THE DEGREE OF DOCTOR OF  
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SUBMITTED BY

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**FEBRUARY, 2019**

## DECLARATION

I do hereby declare that the Ph.D. thesis entitled A STUDY OF THE LEGAL FRAMEWORK FOR THE CONTROL AND REGULATION OF INTER COUNTRY WATER SHARING SINCE 1973 WITH SPECIAL REFERENCE TO INDO- BANGLADESH WATER SHARING has been prepared by me under the supervision of Prof. (Dr.) Gangotri Chakraborty, Professor of Department of Law, University of North Bengal and is the result of my original investigation and has neither been published in any form nor been submitted either in part, or in whole, for any degree at any University. I have incorporated the suggestions made by the panel members during the pre-submission seminar of my Ph.D. thesis.

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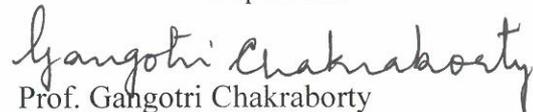
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## **ABSTRACT**

The research aims at establishing the basis for transboundary water sharing and the inherent legal framework with respect to such water sharing in India with specific reference to India and Bangladesh. Transboundary Water Sharing is a concept which revolves around the sharing of waters of a transboundary river located on a common river basin. Transboundary Water Sharing encompasses those principles that aim at ensuring effective water allocation and distribution of water between states, thereby maintaining its quality, and hence acting as deterrence to water conflicts among nations and states. The said work establishes the connection between transboundary water sharing and international principles, and how they can be incorporated in water sharing treaties between states. The work seeks to examine and provide for an explanation of the regime governing transboundary water management in the global context in regards to the common law principles and international instruments. Further, there seems to be a defect in the Indian regime governing water sharing between nations as there is a conflict between the powers of the state and the centre, regulating the said issue. More specifically, the work seeks to highlight the contours of issues pertaining to the issue of transboundary water sharing between India and Bangladesh with regards to the 1996 Treaty, the Teesta deal and other issues such as the Tipaimukh Dam, and thus provide for a model treaty for promotion of cooperation over water sharing between the two riparian regions.

**Keywords:** Bangladesh, Conflicts, Ganges, India, Transboundary, Water sharing

# PREFACE

Water politics is a term that has been used to refer inter and intra-state relations, affected by the availability of water and water resources. The availability of drinking water is shrinking day by day which is not only damaging the economy and eco system of the developing world but states are also affecting with it. Increasing scarcity of water has created a desire among the states to control the water resources which has become a breeding conflict.

The relationship between India and Bangladesh carries a strong bond historically and culturally, but both the sides also realize importance of co-operation for sustainable development of both the sides. However, there have been a number of setbacks too. The two countries have a long history of water disputes notably over the sharing of Ganga river waters. India's diversion of the Ganges from Farakka Barrage to the Bhagirathi Hooghly river system remained for a decade major sources of discord between the two. To solve the problem, several attempts have been made. In 1977, a five year agreement was signed and two more short term agreements were also concluded in May 1982 and in 1985. Finally, in December 1996, a 30 years treaty on sharing of Ganges waters was concluded which was intended to bring to an end long running differences between the two. It has signaled a shift in bilateral relations between the two countries.

Another dispute on water sharing is linked with Teesta River started in 1979 with the beginning of construction of a barrage on the river by Government of West Bengal in India, though efforts were made to settle the dispute in 1983 by an ad-hoc agreement. A Joint River Water Commission in 1984 and a joint committee of experts in 1997 were formed to examine and solve the issue of sharing of river water. A series of meetings were held between 1997 till 2004 but a little progress was made. Subsequently, a Joint Technical Group (JTG) was formed in 2004 but unfortunately failed to finalize any positive result.

This research paper examines this water problem between India and Bangladesh as food security and apprehensions of future water scarcity are common to all the countries in the world. This research paper focuses on the water issue between India and Bangladesh. Crisscrossed by the rivers and streams, Bangladesh is a water abundant country with low per capita water availability. Almost 94% of the water resources of the country originate beyond its borders, and that 54 rivers and streams flow into Bangladesh from India. Four concerns like: flood-management; water-sharing with the upper riparian; internal water-resources management and the protection of natural environment are more crucial for the policy makers of Bangladesh.

Bangladesh made certain agreements with India to settle the issue. But it is politics not water that will determine the future of the treaty as well as the issue. The basic objective of this research paper is to focus on the relations between India and Bangladesh amidst the growing need for settlement of water problems between the two countries. The focused area of research paper is to highlight those factors which have so serious concerns that after long term comprehensive bilateral negotiations are still unresolved. What problems are placed in the language of the agreements signed between both states and further to understand those prospects for understanding future in context of the prevailing circumstances.

In this thesis I have chosen this topic due to the need for resolution of this growing problem of water sharing between India and Bangladesh. Although many attempts have been made by both the countries, yet there is more of a political will that is required for coming to a common platform when it comes to the development of both the countries.

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# TABLE OF CONTENTS

<u>Abstract.....</u>	<u>i</u>
<u>Preface.....</u>	<u>ii</u>
<u>Table of Contents.....</u>	<u>iv</u>
<u>Acknowledgement.....</u>	<u>x</u>
<u>List of Abbreviations.....</u>	<u>xiii</u>
<u>Table of Cases.....</u>	<u>xv</u>

## **INTRODUCTION.....1 - 53**

Evolution of Problem.....	1
Statement of Problem.....	4
Hypothesis.....	5
Research Questions.....	5
Research Methodology.....	6
Objective of the Study.....	6
Significance of the Research.....	6
Scheme of the Study.....	7
Literature Review.....	12
Books.....	13
Articles.....	22
Reports.....	38
International Instruments.....	42
Helsinki Rules of 1996.....	42
UN Watercourses Convention.....	44
The Berlin Rules.....	46
Ganges Water Treaty.....	48
The Indo-Bangladesh Water Treaty.....	50

The Teesta Agreement.....	51
Policies and Legislations.....	52
National Water Policy.....	52
River Boards Act, 1956.....	52
Indus Water Treaty, 1960.....	52
Mahakali Water Treaty, 1996.....	52
Inter State River Disputes Act, 1956.....	52

**CHAPTER I: Theoretical and Conceptual Framework.....54 - 95**

I.1. Introduction.....	57
I.2. Evolution of Water Sharing Disputes.....	60
I.3. Dimensions of Water Sharing.....	61
I.4. International Water Law: Rules and Practice.....	66
I.4.i. Rule of Law and its Role.....	68
I.5. Theories and Doctrines of International Law of Water.....	69
I.6. International Instruments for Trans-Boundary Water Sharing.....	72
I.6.i. The Harmon Doctrine.....	72
I.6.ii. The 1996 Helsinki Rules on the uses of the Waters of International Rivers.....	73
I.6.iii. The 1997 UN Convention on Non-Navigational Uses of International Watercourses, .....	77
I.6.iv. The 2004 Berlin Rules on Water Resources.....	82
I.7. Water Conflicts between India and Bangladesh.....	84
I.7.i. Duration: 1951 Till Date.....	88
I.7.ii. Historical Evolution of Water Conflicts & Negotiations between India & Bangladesh.....	91

**CHAPTER II: Principles of International Law and Settlements of Water Disputes.....96 - 117**

II.1. Introduction.....	96
II.2. Principles of International Watercourse Law.....	99
II.2.i. Absolute Territorial Integrity.....	99
II.2.ii. Absolute Territorial Integrity and Ganga Treaty.....	100
II.2.iii. Limited Territorial Sovereignty.....	100
II.2.iv. Limited Territorial Sovereignty and Ganga Treaty.....	101
II.3. Factors of International Water Conflict.....	101
II.3.i. Sovereignty.....	101
II.3.ii. Economics.....	102
II.3.iii. Water Scarcity.....	102
II.4. Water Conflicts Between India and Bangladesh.....	103
II.4.i. Background of Creation of Bangladesh to Signing of Ganga Treaty.....	103
II.4.ii. India-Bangladesh Agreement on Sharing of the Ganga River: An Overview.....	104
II.5. An Overview of 1996 Ganga Treaty.....	109
II.5.i. A Comparative Analysis of Ganga Treaty and International Watercourse Law.....	109
II.5.i.a. Barcelona Convention, 1921.....	110
II.5.i.b. Helsinki Rules, 1996.....	110
II.5.i.c. UN Convention, 1997.....	111
II.6. Current Development in Agreements between Bangladesh and India.....	112
II.7. The Benefits of Co-operation on International Rivers.....	113
II.7.i. The Centre of Water Conflict and Co-operation: Institutional Capacity.....	114
II.7.ii. The Elements of Conflict Resolution.....	116

**CHAPTER III: Legal Framework on Water Sharing in India: An Inter State and Trans Boundary Approach.....118 - 136**

III.1. Indian Framework on Inter State Water Sharing.....	121
III.1.i The River Boards Act, 1956.....	121
III.1.ii. The Inter State River Water Disputes Act, 1956.....	121
III.1.iii. Creation of the Sarkaria Commission.....	122
III.1.iv. National Commission to Review the Working of the Constitution, 2002.....	123
III.1.v. Punchhi Commission on Inter-State River Water Disputes.....	123
III.1.vi. The Narmada Water Sharing Dispute, 1961.....	125
III.1.vii. The Cauvery Water Conflict, 1974.....	125
III.1.viii. The Krishna Water Dispute, 1969.....	125
III.1.ix. The Ravi-Beas Water Dispute, 1966.....	126
III.2. Legal Framework on Trans Boundary Water Sharing.....	128
III.2.i. The Indus Water Treaty, 1960.....	129
III.2.ii. The Mahakali River Treaty, 1996.....	132
III.2.iii. Mahakali River: The Indo Bangladesh Water Treaty, 1996.....	133
III.3. A Comparison of the Legal Framework on Water Sharing in Australia and US with India.....	134
III.3.i. India.....	134
III.3.ii. Australia.....	134
III.3.iii. The United States of America.....	135

**CHAPTER IV:Indo-Bangladesh Water Sharing: An Overview of Terms and Conditions.....137 - 156**

IV.1.Origin of the dispute.....	139
IV.1.i. The Ganges Water Dispute.....	139
IV.1.ii. Stages of Negotiations.....	141
IV.1.i.a. 1950-1970 (Pre Independence Phase).....	141
IV.1.i.b. 1971-1975 (Post Independence Phase).....	142
IV.1.i.c. 1977-1990 (Bilateral Negotiations).....	143
IV.2. The 1996 Ganges Water Treaty.....	144
IV.3.The International Law Regime vis-à-vis The 1996 Treaty.....	146
IV.4.Analysis of the Ganges Water Treaty: The Hits and the Fall-outs and its Implementation.....	149
IV.4.i. The Teesta Sharing.....	153
IV.4.ii.The Tipaimukh Dam.....	155
IV.4.iii.The Indian River Linking Project.....	155

**CHAPTER V: Issues in the Implementation of Water Sharing Treaties Between India and Bangladesh.....157 - 181**

V.1. Introduction.....	157
V.2.The Dispute between India and Bangladesh.....	159
V.2.i. Ganges River.....	159
V.2.ii. Background.....	160
V.2.iii. Reason for Conflict.....	162
V.2.iv. Attempts to Settle the Dispute.....	162
V.3.Teesta River.....	167
V.3.i. Background.....	168
V.3.ii. Reason for Conflict.....	169
V.3.iii. Attempts to Settle the Dispute.....	170

V.4.The Existing Bilateral Treaties and Negotiations: A General Overview .....	171
V.5.The Treaties and Agreements and their Implementation.....	172
V.6. Information of Bilateral Treaties and Negotiations: Access and Transparency.....	174
V.7.Implementation of Water Sharing Treaties and their Operational Difficulties...	175
V.7.i. Political Issues.....	176
V.7.ii. Geographical Issues.....	177
V.7.iii. Environmental Issues.....	179
VV.7.iv. Issue of Forum.....	180

**CHAPTER VI: Conclusion and Suggestions ..... 182 - 207**

VI.1._Conclusion.....	182
VI.2.Summation of Chapters.....	185
VI.3.Suggestions.....	203
VI.3.i. The Need for a new Model: A Call for a new Treaty.....	203

**BIBLIOGRAPHY .....208 - 216**

**ARTICLE IN JOURNAL**

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*Place:*

*Date:*

*Poonam Agarwal*

# LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AIR	All India Reporter
ART.	Article
&	And
ECOSOC	Economic and Social Council
CG	Central Government
COI	Constitution of India
CSS	Centrally Sponsored Schemes
CWC	Central Water Commission
CWNIC	Central Waterways, Navigation and Irrigation Commission
ECAFE	Economic Commission for Asia and the Far East
GBM	Ganga Brahmaputra Meghana
GWT	Ganges Water Treaty
HR	Helsinki Rules
ICJ	International Court of Justice
ICOLD	International Commission on Large Dams
ILA	International Law Association
ISWD	Inter State Water Disputes
IWRA	International Water Resources Association
IWT	Indus Water Treaty
JRC	Joint Rivers Commission

KGC	Krishna Godavari Commission
LAM	Legal Assessment Model
MOU	Memorandum of Understanding
NCRWC	National Commission to Review the Working of the Constitution
RBD	The River Boards Act, 1956
SEC.	Section
SC	Supreme Court
TWC	Transboundary Watercourse State
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
WHO	World Health Organisation
WUA	Water Users Associations

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# **A STUDY OF THE LEGAL FRAMEWORK FOR THE CONTROL AND REGULATION OF INTER COUNTRY WATER SHARING SINCE 1973 WITH SPECIAL REFERENCE TO INDO - BANGLADESH WATER SHARING**

## **INTRODUCTION**

### **EVOLUTION OF THE PROBLEM**

Water conflicts arise at various levels, between countries, states, regions, and sub-regions within states, districts, political parties, castes and groups, and individual farmers. These pose a significant threat to the economic growth, social stability, security, and ecosystem health. Conflicts indicate the absence of proper democratic, legal, and administrative mechanisms to handle issues that give rise to such disputes. Water is a complex resource and is turned into a resource through ideological and material means, by isolating and imposing an economic and private property framework on a complex part of the ecosystem.

While blessed with an abundance of water resources, much of the management problems of the Indian subcontinent come about from the dramatic seasonal variations in rainfall. This management problem is compounded with the creation of new national borders throughout the region because of the unprecedented rain that tends to alter the boundaries with their flow. This problem arises when an upper riparian country like India refuses to release or releases very less quantity of water to a lower riparian country like Bangladesh. The India-Bangladesh Ganges Treaty In 1951, India announced its intention to build the Farakka Barrage at the head of the Ganges River Delta in West Bengal, 11 miles (17.6

km) upstream of the border with then East Pakistan (now Bangladesh). The construction began in 1961 and the Barrage became operational in 1975. The Barrage, which diverts water into a canal for irrigation and then into a channel of the Hugli River (which flows into Kolkata), became a source of tension between India and Pakistan, and later Bangladesh, who claimed that it prevented water from flowing into its territory, causing serious damage to the water table, and reducing irrigation and domestic supplies. Concomitant to this controversy, India and Bangladesh signed in 1972 the “Statute of the Indo- Bangladesh Joint Rivers Commission” with the view to working together “in harnessing the rivers common to both countries for the benefit of the peoples of the two countries”. However, the Statute, due to its general nature, failed to include any provision obligating India to adapt or change the operation of the Farakka Barrage, which left Bangladesh to continue with its complaints. <sup>1</sup>

In 1976, Bangladesh took its case to the United Nations, and sponsored a resolution calling on India to share more water and consider the interests of Bangladesh in the operation of the Farakka Barrage. The resolution failed to pass, but a Statement of Consensus was adopted by the UN General Assembly calling on the parties to resolve the issue peacefully. As a result, in 1977, India and Bangladesh signed an Agreement for a five-year period during which they agreed to seek a long-term solution to the allocation of water of the Ganges River.

The 1977 Agreement expired in 1982, and in that year, India and Bangladesh signed a Memorandum of Understanding, which acknowledged that this Agreement “had not proved suitable for finding a satisfactory and durable solution” to the problems of the Farakka Barrage. To address the river management issues on an interim basis, both nations agreed to a temporary allocation of water for the 1983–1984 dry seasons. This Memorandum also expired, and India continued to operate Farakka Barrage in 1985, without a binding legal document in place. A second Memorandum of Understanding addressed dam operations between 1986 and 1988, but that also expired. The period

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<sup>1</sup>Aaron T. Wolf and Joshua T. Newton, “Case Study of Transboundary Dispute Resolution: the Ganges River controversy”, 1-3.

between 1989 and 1996 passed without a formal legal instrument. Finally, in 1996, India and Bangladesh signed a treaty on sharing the Ganges River at Farakka.

The 1996 Ganges Treaty, which expires in 2026, establishes a formula for sharing water. Moreover, the Treaty also calls on both governments to attempt to reach water-sharing agreements on another 53 “common rivers”. That the Treaty calls for future cooperation over the common rivers shared by Bangladesh and India, from a political angle, is significant.<sup>2</sup>

After a number of short-term legal instruments, India and Bangladesh have been able to resolve their long and bitter dispute over the Ganges through a 30-year Treaty. However, almost half of the 30 years during which the Treaty is to remain in force have elapsed. Yet, no agreement has been reached between the two parties on how to augment the flow of the Ganges during the dry season and provide sufficient amounts of water for both parties, which is the crux of the dispute on the Ganges River. It should also be added that no agreement on any of the other 53 shared rivers has thus far been concluded. Incorporation of a clear mechanism for dispute resolution is a precondition for effective long-term basin management. In many river basins, lack of such a mechanism has made treaties ineffective.

In the case of the Ganges, the basin governance is between Nepal and India on the upstream part and between Bangladesh and India on the downstream part. There is no one single commission for the entire river basin. The Ganges Treaty establishes a Joint Committee and defines its jurisdiction for monitoring implementation of the Treaty and exchanging data and information. The Joint Committee, consisting of an equal number of representatives nominated by the Parties, is entrusted to observe and record the daily flows below the Farakka Barrage as well as at Hardinge Bridge.

Guided by the principles of equity, fairness and no harm to either Party, both agree to conclude water sharing treaties/agreements with regard to 53 other common rivers. The

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<sup>2</sup> MMQ Mirza, “The Ganges Water-Sharing Treaty: Risk Analysis of the Negotiated Discharge”, *IJW*, 57–74, 2(1).

Treaty discourages unilateral development, and calls for conclusion of water-sharing agreements on the basis of the principles of equity, fairness and no harm, in turn, acknowledging the necessity of coordinated management of the watercourses. The Treaty further states that its sharing arrangements will be reviewed at five years interval or earlier, as required by either Party, and needed adjustments thereto. The Ganges Treaty does not include a clear and specific dispute resolution and arbitration provision. The preamble of the Treaty mentions that both Parties wish to find a fair and just solution without affecting the rights and entitlements of either country. Article VII states that if the Joint Committee fails to resolve a dispute arising out of the implementation of the Treaty, it should be referred to the Indo-Bangladesh Joint River Commission, an entity established in 1972.

The Commission, which has met annually, to discuss problems and undertake joint investigations on the lower part of the Ganges River, does not, however, have the power to allocate water. The Treaty, however, fails to specify the level of government involved and the timeframe for the settlement of the dispute, nor does it bind the Parties to seek resolution of the dispute. The Treaty, it appears, chose political means, not legal; to resolve any dispute arising from its implementation the absence of arbitration mechanisms makes this legal Instrument less effective.<sup>3</sup>

## **STATEMENT OF PROBLEM**

Equitable distribution of water and division of water bodies is an issue to be resolved with comity and co-operation of nations. It is not possible for a single nation to establish a viable regime which reflects all water related problems including quality, quantity, distribution and the environment. The needs of States change with population, location and economic growth and allocation agreements are quickly becoming outdated and even restrictive to development. This approach to inter-country water runs contrary to the whole idea of water being a shared resource. Allocation agreements lack the commitment

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<sup>3</sup>Upreti Kishore and Salman M. A. Salman, "Legal Aspects of Sharing and Management of Transboundary Waters in South Asia: Preventing Conflicts and Promoting Cooperation", HSJ, 641-661, 56:4

to a shared set of priorities, principles and goals and lacks mechanisms to deal with changes in resource availability and flexibility. Treaty implementations that provide opportunities to defuse the potential conflicts between countries have a very weak framework. The conflicts relating to water sharing remain unresolved due to lack of norms in water sharing agreements to manage, control and regulate water flows.

## **HYPOTHESIS**

Many countries in the world and especially south Asian countries share the same river resource. Difficulty arises on the issue of water sharing especially when the upstream country blocks the water in reservoirs leaving the downstream country dry or flooded. International agreements and instrumentations on water laws lack mechanisms to deal with disputes relating to the resource availability and proper utilisation of such resources. Flexibility in the implementation of such treaties that provide opportunities to diffuse the actual and potential conflicts between states on allocation of water resources is not there. The legal framework relating to the Indo- Bangladesh water sharing too suffers from this short coming of water allocation. A convention addressing the holistic issues of water resource sharing is the need of the hour.

## **RESEARCH QUESTIONS**

1. What were the terms and conditions of water sharing between India and Bangladesh initially?
2. What are norms of trans-boundary water sharing?
3. Whether allocation of the uses and benefits of a watercourse has been done in an equitable manner?
4. Whether the various institutional arrangements and mechanisms as reflected in treaties and agreements have lived up to their expectations?
5. Whether Indian water-dispute settlement mechanisms are transparent and just?

## **RESEARCH METHODOLOGY**

The present study will be a *doctrinal method of research*, where an extensive literature review will be done, which will include text-books, articles appearing in different journals, statutory laws and international instruments.

Doctrinal method shall be employed because abundant literature is available on the issue including, primary sources such as Helsinki Rules, International Conventions and secondary sources available in the form of scholarly articles, books, journals, and data collected by international organizations. However, the aspect of legal solution to the transboundary water sharing between India and Bangladesh is not dealt with in any of the research conducted.

## **OBJECTIVE OF THE STUDY**

The objective of the study is to understand the difficulties in trans-boundary water sharing and an attempt to evolve a successful dispute resolution mechanism that is just, equitable and transparent. The researcher also wishes to explore whether comity and co-operation of nation is a ground reality in the water sector of the world.

## **SIGNIFICANCE OF THE RESEARCH**

The research is significant in that it will record and consolidate the world endeavour and evolving transparent, just and equitable water jurisprudence over the past 40 years. It is also significant in that after the formation of Bangladesh there has been repeated impasse in water sharing negotiations between India and Bangladesh. This research will look into the various issues and impediments between the two countries with regard to sharing of water.

## **SCHEME OF THE STUDY**

### **INTRODUCTION**

The chapter deals with a brief insight into the topic of research. It will introduce the reader to the main topic of research. There is a situation in international law as well as in Indian context where the States are finding difficult to come to a solution regarding sharing their water resources. This chapter also deals with the reasoning for undertaking the present research and the objective and significance of the present research work.

### **CHAPTER I: THEORETICAL AND CONCEPTUAL FRAMEWORK**

This part of the thesis will deal with an overview of importance of water and the evolution of water law. It intends to focus on the concept of transboundary water sharing among countries and the impact and influence it has on other riparian states. International water law principles will be looked into to further explain and support the research.

### **CHAPTER II: PRINCIPLES OF INTERNATIONAL LAW AND SETTLEMENT OF WATER DISPUTES**

This Chapter deals with the position and principles of water and water sharing between countries and tries to delve into the international norms available regarding the water allocation and sharing. Convention on the Law of the Non-navigational Uses of International Watercourses 1997 is first of its own kind of Convention to focus on protection, preservation and management of water courses. Similarly this chapter also focuses on different other Conventions introduced in due course of time for the purpose of bringing in some parity for understanding the rights and obligations of States when it comes to water sharing.

The different theories developed over time for equitable and reasonable utilization and participation of States are: the theory of limited territorial sovereignty; the principle of equitable and reasonable utilization; an obligation not to cause significant harm; the principles of cooperation, information exchange, notification and consultation; and the peaceful settlement of disputes. These principles form the basis of the 1966 Helsinki Rules on the Uses of the Waters of International Rivers (hereinafter Helsinki Rules) and the 1997 UN Convention on Non Navigational Uses of International Watercourses.

This Chapter then individually focuses on each of the principles mentioned above and the factors responsible for water conflict which marks a very important presence in understanding the reasons for such conflicts ranging from sovereignty, economics to water scarcity. This chapter also focuses upon the water conflicts between India and Bangladesh especially the Ganga Treaty on sharing of Gange's waters and draws a comparative analysis between Ganga Treaty and International Watercourse Law, taking into consideration different Conventions available for water sharing.

After dwelling upon international instruments and India- Bangladesh context, the Chapter comes to a conclusion that transboundary water sharing resources crisis could be avoided by a balanced legal framework, a treaty that balances the demand of both the state and adhere to the principle of equitable and reasonable utilization.

### **CHAPTER III: LEGAL FRAMEWORK ON WATER SHARING IN INDIA: AN INTER-STATE AND TRANSBOUNDARY APPROACH**

This chapter purports to look into constitutional provisions dealing with water use and water sharing such as Art. 262 of the Indian Constitution, Schedule 7, List 2, Entries 17 and 21, List I, Entries 24, 25, 57 Further, a study as to the reasons for adopting a water law in India is also looked into. A reference would be made to the prior existing water laws such as Indian Canal and Drainage Act, 1873, Inter-State Water Disputes Act, 1956 and River Boards Act, 1956 .Besides statutory Indian Framework, common law

principles as deduced in landmark judgments, such as *Subhash Kumar v. State of Bihar*, by the Hon. Supreme Court. Next, the water sharing agreements between India and Bangladesh, Pakistan is also looked into in detail.

This chapter attempts at studying the Indian legal framework that governs transboundary water sharing between India and its neighbours and the inter-state regime. Further, the chapter attempts to answer the research question as to whether the existing legal framework is sufficient in dealing with such transboundary conflicts.

Though sharing of water resources across political boundaries is a matter of concern, India in this context, experiences a major challenge, as it faces both trans-national and intra- state conflicts on common and pooled rivers. Almost all states in India face inter-state water disputes, and international water disputes with Pakistan, Nepal and China to name a few. The Indian experience of water conflicts differs in regard of water sharing from the global one , due to the sole reason , that India , being a country not only shares water resources with other countries, but water sharing occurs between the domestic states at large. Being a federal country, the different federal units of a state through which the river flows may have strong differences and contentions with respect to water sharing, as each state may want a fairly large allocation of the river water on its side. Further, most water disputes among countries and states occur predominantly due to the sole reason and lucidity that rivers do not follow any specific political limits which poses a problem among nations. Second, the uneven distribution of water resources affects the hydrological cycle and water availability, thereby directly affecting water quality. Third, the regionalization of national polity is another cause for the Indian experience of water conflicts among states. Therefore, it became pertinent to resolve such water conflicts through constitutional and legislative means. The existing water law regime in India is largely a product of principles, rules and policies that were adopted over many decades and for substantiating the current position, reference is also made to the laws dealing with water sharing in Australia and the US.

## **CHAPTER IV: INDO- BANGLADESH WATER SHARING: AN OVERVIEW OF TERMS AND CONDITIONS**

This Chapter attempts to look into the problems in execution of water sharing agreements between India and its neighbours, with specific reference to the Indo-Bangladesh Treaty, such as lack of finite resources and unwillingness and lack of co-operation between the governments and reasons for non-implementation. Further, an analysis would be made into the lacunae and flaws in such the Teesta deal and the Ganges Treaty.

This chapter also attempts at considering the ambit of transboundary water sharing with definite reference to the India- Bangladesh water treaty. Further, the chapter attempts at reviewing the said Treaty in light of its terms and conditions and its implementation and moreover, answer the research question as to whether the said institutional mechanism has lived upto its expectations.

In order to establish a viable solution, the origins of the water dispute between India and Bangladesh is researched upon minutely and the negotiations that took place is also researched upon. What is pertinent to note in this chapter, is the application of international law principles of water law and customary norms to the said treaties signed between India and Bangladesh. It is worthwhile to mention that the 1996 water treaty seeks to incorporate a reasonable and fair solution and formula for water allocation and utilization by India and Bangladesh which is in consonance with the Human Rights and the UN Watercourses Convention which advocate for the principle of ‘no-harm rule’.

Further the Ganges Water treaty which forms the basis of the agreement between India and Bangladesh is analyzed and the fallouts of the said Treaty are also researched upon in this chapter.

## **CHAPTER V: ISSUES IN THE IMPLEMENTATION OF WATER SHARING TREATIES BETWEEN INDIA AND BANGLADESH**

The main purpose of this chapter is to highlight the issues between the implementation of water sharing treaties between India and Bangladesh. Water rights in India are closely linked to property right in land. And the implication of the same is one of the reasons for over exploitation. There is a dramatic fall of water in some of the Indian agriculture states, resulting in poor agriculture conditions and reduction in the production. This chapter deals with the established legislations crated to resolve the dispute between India and Bangladesh over Ganges water sharing and Teesta water sharing and how the implementation of these legislations is still in question and why there is delay in resolving the dispute over water sharing.

This chapter also deals in brief to highlight the problems and inadequacies in the Treaty's implementation in a simple and easy to understand manner such that steps may be taken to try to rectify some of these issues on the ground.

## **CHAPTER VI: CONCLUSION AND SUGGESTIONS**

The final chapter aims to provide a comprehensive conclusion to the present statement of problem after compiling all the above information. Solutions and mechanisms would be proposed that can work towards the enhancement of the water sharing process and provide a model so as to remedy the defects in the enacted transboundary water sharing agreements and their implementation issues in regard to the Indo- Bangladesh water treaty.

## **LITERATURE REVIEW**

With the growing population and rapidly expanding water demand for development an upstream country would clearly benefit from continuing to divert more water in trans-boundary water sharing of a river. In Bangladesh, the final downstream country along the Ganges, fresh water availability depends on the share of water diverted by the upstream country, India. For decades, India and Bangladesh failed to resolve the water sharing issues; even it signed the major new agreement on water sharing (Ganges Water Treaty 1996) to resolve the dispute. Under International law many principles of transboundary water resources management have been evolved and are embodied in the form of different Rules and Conventions. The inclusion of these internationally accepted transboundary water resources management principles in the bilateral treaties which could serve as guiding principles for water based collaborative development endeavours in the region failed to resolve the conflict over sharing of common rivers between India and Bangladesh.

There are many books, articles, journals concerning the inter country water sharing particularly water sharing between India and Bangladesh, but still available materials are inadequate to give clear insight about the problem of proper and effective implementation of water sharing agreements between these countries. While pursuing on the present research topic a sharp dearth of existing text materials have been noticed.

As far as the present research on the area of water sharing between India and Bangladesh is concerned the text books available under International Law as well as books exclusively covering water sharing between these countries have been thoroughly reviewed. Besides these, articles as appearing in different journals, statutory laws, international conventions relevant to the research topic have also been reviewed for the purpose of getting acquainted with the studies already done in respect of the research problem.

## **BOOKS**

For the purpose of the research the following books have been reviewed:

1. Wirsing R and Jasparro C, **“River Rivalry: Water Disputes, Resource Insecurity, and Diplomatic Deadlock in South Asia”**, Water Policy, (2007).

This book is the result of collaboration between the Robert M. La Follette School of Public Affairs at the University of Wisconsin Madison and the U.S. Central Intelligence Agency Office of South Asia Analysis. This study has provided graduate students at La Follette the opportunity to improve their research and policy analysis skills while producing a report that contributes to knowledge about South Asia. The authors of book are all in their last semester of their degree program and are enrolled in Public Affairs, Workshop in International Public Affairs. Although acquiring a set of analytic skills is important, there is no substitute for doing policy analysis as a means of learning policy analysis.

The authors of this book explore potential conflicts that could arise between India and neighbouring Pakistan, Bangladesh and Nepal over the growing shortage of water. Their detailed analysis highlights international disputes over water that could arise, and they suggest policies that may help minimize these disagreements. Increasing demand plus decreasing supply and access is likely to exacerbate disputes over regional water resources. Thus far, conflicts between India and other nations have been mediated through a combination of treaties and international arbitration. As a number of rivers flow across national boundaries, these agreements govern water allocation between India and its neighbours and develop a protocol for hydrological construction projects. However, if present demographic, economic and environmental trends continue, increased tensions between India and its neighbours may lead to conflicts that could threaten regional stability.

The authors argue that despite a history of cooperation, the likelihood of conflict between India and Pakistan and Bangladesh over shared river resources is expected to increase. Disputes over water will likely undermine prospects for a more stable and sustainable peace between the two countries. Nepal and Bangladesh remain weak politically and militarily in relation to India, and they generally possess little leverage in negotiating water issues. Of greater concern are the substantial public health consequences of these disputes. Flooding, soil salinization and destruction of arable land in the northern Indian states of Bihar and Uttar Pradesh and in Bangladesh have displaced people and disrupted economic, social and political life. Such issues raise the potential for increased local-level, interprovincial and border-area conflict. In addition, these disruptions threaten the quality of economic, social and political relationships between India and Nepal, and between India and Bangladesh.

This book begins by summarizing current conflicts between India and its neighbours Pakistan, Bangladesh and Nepal. Next, it employs available data and statistical projections to examine anticipated trends in supply and demand for water. By integrating political, economic and climactic trends, the report highlights areas of concern and outlines probable developments. Finally, the report assesses several policy measures that South Asian countries might employ to mitigate water shortages and the conflicts likely to accompany them. External assistance may play an important role in these efforts. Disputes include disagreements over the Farraka Barrage, the Teesta River project and the River Linking Project to connect the Ganges and Brahmaputra rivers in the east to the Kaberi and Mahanada rivers in the south. The Joint Committee of Experts is staffed by the secretaries of water resources for each country and is charged by Article IX of the 1996 Ganges Treaty with negotiating agreements on common rivers between India and Bangladesh. Since its inception, the committee has met seven times and made little progress in resolving these disputes. However, the committee could provide a framework for resolving other conflicts about water in the region.

The author also highlights on The Helsinki/Berlin rules and the UN convention which all address the equitable and reasonable distribution of international waters and include provisions mandating that countries sharing rivers have an obligation not to cause significant harm and a general obligation to cooperate.

The book is divided into four main components. Section 1 summarizes the history and status of major water disputes between India and three of its neighbours, Pakistan, Bangladesh and Nepal. Section 2 forecasts trends in water accumulation of salts in soil and fresh water demand by analyzing expected growth patterns in domestic, agricultural and industrial use. It also examines the probable effects of climate change on the projected water supply in each major South Asian river system. Section 3 extrapolates from current trends to forecast the likelihood, location and magnitude of conflicts about water in South Asia. Finally, Section 4 presents an opportunity analysis, in which strategies to mitigate potential conflict are discussed.

As the book shows, water issues likely will continue to be a major source of conflict between India and neighbouring Pakistan, Bangladesh and Nepal in coming decades. Mechanisms such as the Indus Water Treaty can provide a basis for resolving these disputes, but new circumstances, including growing demand and the retreat of glaciers, will lead to new a challenge which has not been dealt in this book. And how South Asian countries respond to these challenges will be key in determining the long-term sustainability of regional water supplies and the author is silent in this point. No mention is made about the control and regulation of water sharing treaties regarding their effective implementation between countries particularly Indo- Bangladesh.

2. Brahma Chellaney, **“Water: Asia’s New Battleground”**, Washington, D.C.: Georgetown University Press, 2011.

The so-called ‘rise of Asia’ in the past two decades is complex and multi-faceted, but most analyses focus on the galloping rate of economic growth or the fast-paced militarization of China and India. Brahma Chellaney, the author takes a different approach in his book, *Water: Asia’s New Battleground*, by analyzing the fissures between Asian states over shared water resources, particularly rivers. Chellaney argues that water disputes threaten not only the collective rise of Asia as a responsible world power, but also foreshadow a type of conflict other regions will experience with increasing frequency and intensity. Chellaney’s objective is to provide a systematic analysis of water and peace that spans the entire continent of Asia. The book brings together compelling data on topics as diverse as the links between food, water, and the global economy, the cultural history of Tibet, and the importance of biological diversity.

Indian and Chinese differences in international engagement over transboundary waters are explicated through their history with water treaties. While India has entered into water treaties with Pakistan, Nepal and Bangladesh, China has not signed a water treaty with any state, and has active water disputes with at least nine of its neighbours. Chellaney’s interpretation of customary international watercourse law is that the upper-riparian has first right to exploit water resources when unencumbered by binding treaties. According to this interpretation, as long as China avoids entering into water treaties, it can exploit its position as an upper-riparian with the full support of customary international law. While he portrays the democratic and liberal style of Indian water development favourably as it contrasts with the Chinese autocratic model, he ruefully notes the disadvantages of the Indian approach. In doing so, he seems to express a wistful hope that India’s water situation would improve if its management scheme were only more like China’s.

There is no doubt that Brahma Chellaney’s book contains a wealth of carefully referenced data about water conflicts throughout Asia. But the theoretical and analytical tools he employs to analyze this mass of information are less than satisfying. Portions of

his book deal with the Middle East, Korea, and Central Asia, and touch on interesting topics like the intersection of territorial disputes, transboundary conflicts, and minority populations. But it is not clear how these sections fit with the main thrust of the book--the geopolitical implications for India of water development on the Tibetan Plateau resource scarcity. The chapters dealing with the hydrological significance of Tibet and Chinese water development plans are very informative and well-researched. Chellaney's *Water: Asia's Next Battleground* will be useful primarily for a descriptive overview of the major Asian water disputes, and to gain insight into how a prominent figure of the Indian security establishment understands the water development activities.

3. Ashok Swain, "**The Environmental Trap: The Ganges River Diversion, Bangladeshi Migration and Conflicts in India**", Uppsala University Department of Peace & Conflict Research, Report No. 41, 1996.

Environmental destruction, besides being the immediate factor in fuelling competition over natural resources, can also potentially lead to loss of source of living, which may result in the population migration. In this book, the author makes an attempt to develop a conceptual framework of conceivable social conflicts that are more likely to develop in an environmental migration induced scarcity situation. In order to test some of the ideas of the framework, a case study was conducted in South Asia. Emphasis has been made on the environmentally displaced Muslims in Bangladesh who are migrating to Hindu dominated India from the late 1970s and it has culminated in a number of native-migrant conflicts in the receiving society. According to the findings of his case study, he asserts that the possibility of environmental migration from the environmentally destroyed region may trap the powerful state in a troublesome situation.

In his book he makes the possible linkages between environmental destruction and social conflict which has come to the forefront. In his study, Dr Ashok Swain of the Department of Peace and Conflict Research makes an important and novel contribution to this development. He does so by introducing useful concepts from conflict theory and applying them to a particular case where linkages might be found between human made

environmental change, and social conflict. The study concerns the use of the Ganges River by the two neighbouring countries sharing this river, India and Bangladesh. Dr Swain is able to bring new light on an issue, which has been a source of contention between the countries. By analyzing the internal implications, first in Bangladesh and then in India, of India's construction of a barrage across the Ganges, he shows that the fate of these two countries is closely intertwined.

A further effect, Dr Swain demonstrates with entirely new material, the migratory movement away from the area and, surprisingly but logically, into India. This then appears to be an important factor in intensifying tensions inside the country which intervened into the environment in the first place: India. Thus, Dr Swain recounts a story with implications for an understanding of the impact of human-made changes on nature, on the social cohesion of the affected societies and on conditions for peaceful international relations. His particular project is designed to explore the spill-over effects of trans-border environmental destruction. It is done by examining various forms of environmental destruction on the south-western part of Bangladesh due to India's diversion of Ganges River water at Farakka Barrage and their contribution to the native-migrant conflicts in different parts of India between Bangladeshi migrants and the Indian citizens. Field investigation and interviews in different parts of these two countries have been carried out for this study in three phases from 1993 to 1995.

In order to test some of the ideas of the framework, a case study is conducted in South Asia. Conforming to the discussion in the Chapter 1, the Ganges River case study establishes a linkage between population growth, scarcity of the natural resource and the conflict among users. Due to multiplying pressure on the water resource from their growing population, both the countries are trying to obtain more shares from other party, while protecting what they already have, and that blocks the implementation of the augmentation proposals. In Chapter 2, he discusses the bilateral dispute between India and Bangladesh over the sharing of the Ganges River water. India's water diversion at Farakka barrage has caused a bitter disagreement for the last twenty years at the bilateral level. But, why Bangladesh is complaining the operation of the Farakka barrage? To this

question the author lacks in his study, which is the main basis of present research work. In this Chapter 3, he assesses the adverse environmental consequences of Farakka diversion over the Ganges dependent region of Bangladesh. While assessing the adverse environmental effects of Farakka withdrawal, his study has taken note of the existing research works available on this subject. In this chapter he also gives an account of environmental hardship of the people of south-western Bangladesh due to India's water diversion from the Ganges River at Farakka. But, how these affected people are adapting to the changing situation for their own survival? There lies no answer to this question, however in Chapter 4; he tries to address this question but lot more research is to be done to this topic.

The author is able to interview six Bangladeshi migrants in and around the Shillong city, the capital of Meghalaya in December 1993. All of them had left their homes in Bangladesh after 1975 and four of them traced their origin to the south-western part of Bangladesh. All four, who had come from the south-western region were Muslims and their reasons of migrating with their family members was attributed to environmental reasons: one mentioned reduced fish catch, one river-bank erosion and the other two talked about repeated heavy flooding.

Many of the typical issues which result in neighbourhood disputes between India and Bangladesh are nearly non-existent. Only the issues which stand them apart over the sharing of the Ganges River water and the Muslim migration from Bangladesh to India, the author discusses in his book. No answer has been given as to whether the water dispute over the Farakka withdrawal is the typical resource scarcity conflict between the two countries contesting scarce water resource.

4. Ashok Swain, "**Conflicts over Water: The Ganges Water Dispute**", Sage Publications, 1993.

The author Ashok Swain is Research Fellow in the Department of Peace and Conflict Research, Uppsala University, Uppsala, Sweden. The constitutional conversion of Bangladesh from secularism to Islamic ideals in the 1980's has provided grounds for some Indian political organisations to portray the Ganges conflict as a struggle between Hindus and Muslims. In his book Ashok Swain refers that the religious importance of the Ganges River for the Hindus has further aggravated the issue. The author mentions about the environmental destruction in Bangladesh after the Farakka Barrage was put into operation. The decreased lean season flow has also adversely affected the hydrological and morphological behaviour of the Ganges and its tributaries, causing excessive riverbed siltation with consequent reduction in conveyance capacity, which has led to frequent changes of the river regime and devastating floods during the monsoons. At the same time, he writes that on the Bangladeshi side, the power struggle among various groups has not allowed the regime any compromise which might be termed by the opposition as a 'sell out' to India. Moreover, increasingly devastating character of the floods has ravaged the country's dwindling economy, making Bangladesh virtually an "international basket case".

At the end, he talks about the need for a third agency to act as a mediator, who might change the nature of both of the parties positions, and help in solving international river disputes. He focuses on India's reluctance to accept any third party mediation for solution of river disputes. Thus he says that the SAARC could be a platform for dealing with issues common to the South Asian Region, so that the overall development of the Ganges- Brahmaputra river system, which carries the largest volume of water in the world except for the Amazon, can promise a better future for hundreds of millions in one of the poorest regions on earth. However, regarding permanent solution to the water sharing dispute between India and Bangladesh, implementation of the treaties signed between them, which is the main thrust of the research, the author is silent about it.

5. Ashok Swain, **“Water Scarcity: A Threat to Global Security, Environment & Security”**, Sage Publications, 2002

This book is one of the products of an on-going project in the Department of Peace and Conflict Research, Uppsala University, Sweden, on the theme of “Environmental and Conflict”. The author in his book tries to highlight that water scarcity has become a threat to global security. Between 1940 and 1980, global water use has doubled and is expected to double again by the turn of the century, and as the population increases and the amount of available water resources remains constant, the maximum per capita demand that a country can support decreases correspondingly. Water quality has also become a major environmental issues in many of the industrialised countries.

In the first chapter, he perceives how water has become a source of conflict. He suggests, population growth accompanied by rapid industrialisation, massive urbanisation, and intensifying agricultural activities will increase the demand for water resources as well as pollute the supply, which will result in an acute shortage, then the social actors will work purposefully and consciously for their own interests. This increasing competition can potentially destroy the existing social arrangements regarding water distribution in society and the incompatibilities between existing actors will weaken the administrative structure. In the second chapter, he highlights about the conflicts among the states, and the origin of many conflicts in history which can be found in the states desire to acquire territory and natural resources. When one state works for ‘development’ by acquiring or exploiting more than its perceived share of the water resource, it affects the interests of other user states. Subsequent actions by the affected states to protect their interests eventually result in conflict.

He cites and discusses a list of international major water conflicts arising out of the rivers shared between two riparian countries. In the third chapter, the author highlights that the construction of large scale dams for the efficient use of water resources has created tension between the state and a group of its own citizens in the past few years. A weak structure weakened by strong ethnic identities, inefficient administration, and a lack of

water resources predisposes the developing countries to this development. In the entire book, the author stresses, that most of the countries are weak states and lack the resources and administrative abilities to deal with problems arising from water scarcity. Lack of education and blind ethnic loyalties also easily lead to politicisation of the water problem as well as ethnicisation of the issue. The book does not particularly deal with the water sharing issues between indo- Bangladesh. However, this book will certainly help me to understand the basis and origin of water conflicts and how these conflicts have arisen with the increasing incompatibilities among competing parties over the sharing or use of a scarce water supply.

*Apart from text-books, various articles, published in different journals have been reviewed for the purpose of finding out the works, research and studies already done and also for understanding the present position regarding the research work proposed to be done. The articles and papers surveyed are as follows:*

### ARTICLES

1. Anik Bhaduri & Edward B Barbier, “**International Water Transfer and Sharing: The Case of the Ganges River**”, Environment and Development Economics, vol. 13, no. 01, 2008.

In the following paper the author is concerned with water sharing of the Ganges River between India and Bangladesh, with possible augmentation through water transfers from Nepal. He has analyzed the case when water from Nepal can be transferred to Bangladesh through the upstream country, India as the local geography only permits such water transfer. A game theoretic model has been formulated by him to determine the optimal share of water diverted to Bangladesh by India, and the optimal amount of water transfer from Nepal. He discusses that in absence of altruism, India would allow less water flow to Bangladesh than in the case when there is no provision to buy water from Nepal. He has also explored that positive externalities could induce India to buy water jointly with Bangladesh, and such a case will only occur if the countries possess altruistic concerns

and share water according to an agreement. The paper demonstrates how issue linkage can facilitate agreement on a number of international river basin issues, and strengthen the enforceability of existing agreements. The following paper makes two contributions. Firstly the author develops a model of market based transfer in an international river basin to illustrate how such a water transfer can influence the water-sharing decisions of two countries in the basin. To the best of his knowledge, this contribution of the paper represents the first analysis to explore the potential of market based water transfers as a means of facilitating International River basin management and the resolution of water conflict. The second contribution of the paper illustrates the example of water sharing of the Ganges River between India and Bangladesh, with possible augmentation of the entire Ganges River flow through transfers from water stored in Nepal. The paper also makes a contribution to analyzing an important policy proposal concerning transboundary water sharing in the Ganges River Basin. To understand the importance of this water transfer. He formulates a water-sharing model is to determine the optimal amount of water transfer. Thus the paper illustrates the example of water transfer in an international river basin by focusing on Bangladesh's proposal to transfer water from Nepal as a case study.

2. Kishor Uprety & Salman M. A. Salman, “**Legal aspects of sharing and management of transboundary waters in South Asia: preventing conflicts and promoting cooperation**”, *Hydrological Sciences Journal*, 56:4, pp-641-661, 2001.

In this article the author presents that the development of cooperation among Bangladesh, India, Nepal and Pakistan with respect to the Indus and the Ganges-Brahmaputra-Meghna river basins, South Asia's major transboundary rivers, has been a cause of tension, apprehension and ongoing disputes. The paper draws attention to the hydro-politics on transference and allocation, along with the diverging positions and unique concerns of the riparian's on bilateral, multilateral, national as well as regional fronts. While examining the official water discourses and the evolution of different international legal instruments applicable to the governance of water relations among the riparian's, the paper also sketches the emerging concerns in their relationships, as well as their efforts to cooperate

and collaborate to avert disputes and manage water sharing and governance. The author has conducted a research on conflicts over transboundary waters and suggests that a change in resource environments, which outpaces the capacity of existing institutions to deal with that change, is one major cause of tension.

He cites ample examples from history in which the absence of mechanisms to deal with change has led to conflicts between countries. The 1944 Treaty between the USA and Mexico over three shared rivers (Colorado, Tijuana and the Lower Rio Grande) is one such example. Similarly, he addresses that how low water levels on the Ganges in 1997, combined with historically-engraved mutual suspicion between the parties, threatened the continuation of the Ganges Treaty signed just one year earlier and While both treaties were legally binding on the parties involved, controversies about their implementation led to a general atmosphere of mistrust. He further suggests that most conflicts related to water sharing remain unresolved due to lack of norms, in shared-water agreements, to manage water flows. Finally, he has presented a model for the choice of governance mechanisms to address variability, discussing the likely advantages and disadvantages of each, and providing insights to elements that can also be beneficial to others.

3. B. M. Abbas A.T, “**Sharing The Waters of the Ganges**”, International Journal of Water Resources Development, 1:1, pp- 51-64. 1983.

B. M. Abbas A.T. is an irrigation engineer by profession and an internationally recognized authority on rivers and water resources development. He has been adviser to successive Presidents of Bangladesh and is a Former Minister for Water Resources in his country's government. He is a member of the Committee on International Water Resources Law of the International Law Association (ILA). In his article he gives an overview of protracted negotiation over the use of the waters of the River Ganges by Bangladesh and India, agreement was for five years on sharing the waters of the river and seeking a long-term solution to the problem within three years. But the two countries have not been able to agree on the long-term scheme. In his article the course of the talks

and the salient features of the agreement are briefly outlined. The author has been associated with the negotiations for about three decades and, as Adviser to the President of Bangladesh, he headed the official Bangladesh Delegation which concluded the 1977 agreement with India. The article concludes with a strong plea for a basin-wide approach to the problem and joint efforts by the co-basin states to develop the water resources of the Ganges and the Brahmaputra Rivers and establishment of Joint Committees as appropriate of the concerned countries to co-operate in the collection of data, exchange of information, flood control and equitable joint management and development.

4. Shlomi Dinar, **“Assessing Side-Payment and Cost-Sharing Patterns in International Water Agreements: The Geographic and Economic Connection,”** Political Geography, Vol. 25, No.4, pp.412-437, 2001.

In this article the author clearly states that to a large degree, conflicts over transboundary freshwater resources arise because property rights have not been clearly defined. International water law provides only hints and suggestions as to how states should resolve their water disputes, since legal principles and clauses are ambiguous and contradictory. But conflict often creates a need for cooperation, which is achieved by means of negotiations, and the specific outcome of negotiations is almost always codified in an international treaty. This article considers bilateral water agreements for rivers with particular geographical configurations and aims to answer a fundamental question: how and why do bilateral treaties vary in their design? Further, it examines international freshwater treaties to deduce the nature of treaty remedies, particularly the side-payment and cost-sharing arrangements, used for resolving conflict over rivers shared by two countries.

The theory and testable hypotheses consider geography and economics in order to explore treaty design. In essence, the ‘willingness to pay’ of one of the states reflects on the property rights solution and can be explained by geography and economics. Three geographical configurations are investigated here. The findings affirm that side-payments frequently occur to offset an asymmetric geographical relationship between upstream and

downstream states, and are commonly regarded as an appropriate instrumentality for solving a property rights dispute. Side-payments are non-existent when the geographic relationship among the riparian's is symmetric and costs for the joint project are most always equally shared. As expected, in the latter case of the article the geography of the river acts as a focal point for equal participation. The author states that when economic differences are taken into account, especially when the upstream state is richer, the side-payment outcome is reversed. As expected, richer states internalize the costs of taking action in favour of poorer downstream states. When the geographical relationship between the riparian's is of a symmetrical nature, while the economic relationship between the states is of an asymmetrical nature, the richer state often assumes the bulk of the cost burden. In this way, it provides a side-payment to the poorer state. Such patterns reveal how property rights disputes over issues such as water quantity, hydropower, pollution abatement, and flood control have been concluded. They suggest how ongoing disputes may be resolved.

5. F. Breils, D. Coates, and F. Loures, "**Transboundary water resources management: the role of international watercourse agreements in implementation of the CBD**", CBD Technical Series no. 40-48, Secretariat of the Convention on Biological Diversity, Montreal, Canada, 2008.

The author presents an overall outlook of Convention on Biological Diversity in relation with the UN Convention on sharing waters of international rivers. He discusses that water issues in transboundary freshwater ecosystems too often continue to be a source of major contention between riparian States There is a better way—to work together towards common goals, to communicate and cooperate, to not only avoid harm to others but to benefit each other. This indeed is the essence of Article 5 on cooperation of the Convention on Biological Diversity. His document explains why biodiversity conservation and sustainable use present a powerful argument to manage transboundary waters better, how regulatory frameworks to achieve this can be improved and why doing so fulfils commitments made under the Convention on Biological Diversity.

The provisions of the CBD already address the broader issues and needs, particularly

through the programme of work on the biological diversity of inland water ecosystems. But these general provisions need strengthened regulatory frameworks to assist in their implementation at national and international level. In this context, the author investigates the role of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention) and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UNECE Watercourses Convention) for supporting and strengthening the implementation of the CBD towards the conservation, sustainable use and equitable sharing of biological resources, in particular in regards to the CBD programme of work on the biological diversity of inland water ecosystems.

He asserts that the UN Watercourses Convention and the UNECE Water Convention share common goals with the CBD. All three conventions promote international cooperation as a crucial prerequisite for Parties to achieve their goals. However, the CBD lacks specific rules and principles governing cooperation between watercourse States and promoting the equitable and reasonable use and management of international watercourses. This represents a problem for aquatic biodiversity conservation in transboundary watersheds and the UN Watercourses Convention and the UNECE Water Convention could help address that regulatory gap.

This paper compares the UN Watercourses Convention and the UNECE Water Convention in the context of water allocation and management and the CBD. The author also tried to highlight some similarities between the Convention on Biological Diversity and the two UN Conventions.

6. Suhas Paranjape and K.J. Joy, “**A Million Revolts in the Making: Understanding Water Conflicts**”, India Infrastructure Report, pp- 44-58, 2011.

Through this article the author provides a clear understanding of water conflicts which arise at different levels and the reason behind such conflicts. He points out that due to the complex nature of water, the boundaries of conflicting parties are not easily drawn so a

number of water conflicts arise which are difficult to classify into different types. Conflicts may be over equitable access for a common use conflict between different users but within the same kind of use. Examples could be the conflict between middle class localities and slums over drinking and domestic water, another type of conflict is between contending uses, Conflicts over Water Quality, Conflicts over Dams and Displacement, Conflicts over Privatization and transboundary conflicts. Citing various examples of above conflicts the author views that water is a shared resource that needs to be shared in a spirit of accommodation and cooperation.

7. Douglas Hill, “**Alternative Institutional Arrangements: Managing Transboundary Water Resources in South Asia**”, Harvard Asia Quarterly, pp- 60-66.

The author in this article acknowledges that transboundary water resources are an issue of importance in northern South Asia and that water sharing is contentious both between and within the countries of the region. However, while much has been written about relations between the governments of the region and the various water-sharing treaties that have been enacted at different points in time, there has been little analysis devoted to alternative institutional arrangements that might enhance the effectiveness of regional cooperation. This article argues that a new, transparent regionalism will contribute to a more just and equitable distribution of these water resources. He further states that the settlements between India and its neighbours have been come with political backlash and feelings of enmity in these latter countries. India has consistently refused to countenance multilateral discussions on the issues of transboundary water sharing, and indeed, water-sharing negotiations are conspicuously absent from discussions at the South Asian Association for Regional Cooperation (SAARC), the regional body that would otherwise seem to be an obvious forum for such multilateral coordination.

This paper argues that, in thinking through how a more just and equitable distribution of South Asia’s water resources may occur in the future, it is vital – both as an analytical and a practical task – to escape the “territorial trap” of thinking about transboundary

water resources solely in terms of relations between nation states. While much has been written about the relations between the governments of the region, there has been little attempt to study transboundary networks. The author writes about the role of India's civil society in contesting large-scale dams, but there are few well-functioning networks of South Asian civil society organizations that work to contest similar issues when they occur outside of India's borders.

8. Alan Richards & Nirvikar Singh, **“Inter State Water Disputes in India: Institutions and Policies”**, October 2001.

In this paper the author argues that Indian water-dispute settlement mechanisms are ambiguous and opaque. He distinguishes analytically between situations where cooperation is possible, and situations of pure conflict, where the initial allocation of rights is at stake. In the latter case, a search for a negotiated solution may be futile, and quick movement to arbitration or adjudication may be more efficient. However, he urges that in India, the process is slow, and effectively binding arbitration does not exist. The entanglement of inter-state water disputes with more general centre-state conflicts and political issues compounds problems. He argues that these impacts can be reduced by a more efficient design of mechanisms for negotiating inter-state water disputes. Some of the possibilities include a national water commission independent of daily political pressures, a federated structure incorporating river basin authorities and water user associations.

A key insight of their analysis and discussion is that the existing processes and institutions for resolving inter-state river disputes are not sufficiently well defined or definite. A cooperative bargaining framework suggests that water can be shared efficiently, with compensating transfers as necessary, if initial water rights are well-defined, and if institutions to facilitate and implement cooperative agreements are in place. Our analysis also emphasizes the role of complementary investments, and the need to expand the scope of bargaining to include these where feasible. Furthermore, delay in the dimension of agreement over water can encourage inefficient, non-cooperative

investments in dams, irrigation, etc. An overview of interstate water disputes Act, 1956 has been presented which fails to solve the problem.

9. Sreeradha Datta, “**Indo-Bangladesh relations: An overview of limitations and constraints**”, Strategic Analysis , vol. 26, no. 3, , pp- 427-440, 2002.

Historic links, economic interactions and geostrategic interests make India and Bangladesh vital to each another. As one of the main immediate neighbours surrounding Bangladesh, India naturally occupies a pivotal position in its foreign policy. The geographic conditions, economic interactions, energy supplies, trade links, ethno-cultural proximity and historical linkages provide a plethora of opportunities for close, cordial and co-operative relations between the two countries. Sufficient opportunities and incentives exist for developing relations beneficial to both the parties. However, despite the growing trade linkages and opportunities, fundamental structural problems inhibit the realisation of their full economic potentials. An attempt is made in this paper by the author to examine the factors that limit and constrain the strengthening of Indo-Bangladeshi relations. The paper seeks to examine six broad issues, namely, migration, insurgency, border disputes, anti-Hindu violence, Ganges sharing and trade disputes. On each of these areas, both sides adopt conflicting positions or minimize their relative importance to the bilateral relations.

10. Miah M. Adel, “**Effect on Water Resources from Upstream Water Diversion in the Ganges Basin**’, Journal of Environmental Quality, Vol. 30 No. 2, pp. 356-368, Mar, 2001.

The author in this article articulates the main problem faced by Bangladesh. Bangladesh faces at least 30 upstream water diversion constructions of which Farakka Barrage is the major one. The effects of Farakka Barrage on water resources, socioeconomic, and culture have been investigated downstream in the basins of the Ganges and its distributaries. A diversion of up to 60% of the Ganges water over 25 yr has caused (i) reduction of water in surface water resources, (ii) increased dependence on ground water,

(iii) destruction of the breeding and raising grounds for 109 species of Gangetic fishes and other aquatic species and amphibians, (iv) increased malnutrition, (v) deficiency in soil organic matter content, (vi) change in the agricultural practices, (vii) eradication of inland navigable routes, (viii) outbreak of water-borne diseases, (ix) loss of professions, and (x) obstruction to religious observances and pastimes. Further, arsenopyrites buried in the pre barrage water table have come in contact with air and formed water-soluble compounds of arsenic. Inadequate recharging of ground water hinders the natural cleansing of arsenic, and threatens about 75000000 lives who are likely to use water contaminated with up to 2 mg/L of arsenic. Furthermore, he states that the depletion of surface water resources has caused environmental heating and cooling effects. Apart from these effects, sudden releases of water by the barrage during the flood season cause devastating floods. In consideration of such a heavy toll for the areas downstream, the author views that strict international rules have to be laid down to preserve the riparian ecosystems.

11. Raphael Susewind, **“How "integrated" is the Indian Foreign Service? The example of Farakka, 1982-1997”**, *Journal of International Relations*, Vol. 8, no.2, 2010.

This article examines the role of connections (objective relations between various issues) and linkages (strategic exploitation of said connections) in Indian diplomacy through an analysis of the negotiations leading to the 1997 Farakka water-sharing treaty between India and Bangladesh. It does not intend to contribute another factual summary of the dispute, but rather to use it as an example to illuminate some aspects of the diplomatic strategy and culture of the IFS: “diplomacy is about the means, not the ends, of foreign policy”. While interconnections as such are increasingly recognized in International Relations, few studies have been assessed as how they are embedded (as purposeful linkages) in negotiation strategies.

The article seeks to asks as to what extent and in which particular contexts were India’s diplomatic strategies towards Bangladesh in the negotiations of the 1997 Farakka Treaty influenced by other contentious bilateral issues, namely migration, border security and

economic cooperation? If such connections were perceived by negotiators, were issues deliberately linked or kept apart in negotiations, either to bolster bargaining power or out of a characteristically “integrated” policy? This article concentrates on the period from 1982 to 1997, which also covers “radical readjustments of India’s foreign policy between 1989 and 1996 in the aftermath of the disintegration of the Soviet Union”. Bangladesh as such has been stated as a particularly apt example to bring to light the alleged “integral” nature of IFS(Indian Foreign Service) diplomacy, given that India’s relations with Pakistan – its other large neighbour – are exceptionally militarized and overshadowed by strategic concerns.

This article thus contributes the first ever systematic account of an aspect of the IFS which will become increasingly relevant as the world recognizes that “other functional fields tightly intertwined with political diplomacy” as well as the transition of Bangladesh to democracy in 1991. This sufficiently reduces the dangers of endogeneity and over-determination inherent in single-case short-term research by providing variation in international and domestic context variables. This article argues that integration might be preferred by the IFS for quite different reasons, namely as an expression of its departmental culture and unique Nehruvian approach to diplomacy.

12. Asit K. Biswas, “**Management of International Waters: Opportunities and Constraints**”, International Journal of Water Resources Development Vol. 15, Issue 4, 1999.

The author International presents a critical evaluation of international organizations playing role as mediators in conflicts on international water bodies. He asserts that except for Eugene Black, President of the World Bank, who played a critical role in the 1950s on the formulation of the Indus Water Treaty between India and Pakistan, their contributions have been somewhat marginal. These organizations have become increasingly risk-averse during the past three decades, and their leaderships have given the potentially thorny issue of development of international rivers a wide berth. In 1970, the United Nations decided to take up the case of the law of the non-navigable uses of international

watercourses. Some 27 years later, the UN General Assembly approved, on 8 July 1997, a convention on this subject. He further states that the convention, though a useful step, is very broad, general and vague, and thus is likely to be of only limited help to the negotiators on the various international watercourses. But even when the convention is ratified, agreements on the development and management of international water bodies are likely to be achieved only through protracted negotiations between the countries concerned, as has been the case in the past.

13. Cecilia Tortajada, **“Water Governance: Some Critical Issues”**, International Journal of Water Resources Development, Vol. 26, Issue 2, 2010.

The author in this paper presents an analysis of the issues discussed at a special international workshop on water governance. While it is generally accepted that good governance for the water sector is essential, it is also clear that its implementation requires qualitative and quantitative factors, which may vary from one country to another. In order to objectively assess the opportunities and constraints of implementing good water governance practices, a group of selected international experts were invited to address this complex issue.

14. Ashild Kolas, Jason Miklian and Katherine Edelen, **“Water Scarcity in Bangladesh- Transboundary Rivers, Conflict and Cooperation”**, Peace Research Institute Oslo (PRIO), 2013.

In this report the authors present the findings of their primary research on water scarcity in Bangladesh. The methodology of their study combines quantitative and qualitative research. The first section contextualizes current debate on water scarcity in Bangladesh by analysing long-term trends in rainfall and in key transboundary river flows. Stakeholder mapping has been carried out to explore the views and perspectives of a variety of stakeholders in transboundary river water management in Bangladesh, the patterns of communication and interaction between them, the social context surrounding river water management, and how river water users and other stakeholders view the

impact of key projects and treaties. Following the stakeholder analysis the authors return to a quantitative study of the correlation between conflict and extreme weather events, including drought, in an effort to assess whether water scarcity is causing violent local conflicts within Bangladesh.

An attempt has been made to state the indo- Bangladesh water sharing but not to the fullest extent. The history of the Ganges Water Treaty illustrates, negotiations over shared rivers may develop into zero sum bilateral disputes over allocations of transboundary river water. Many interviewees taken by the authors highlighted the lack of communication between policymakers and experts, and the lack of expert independence. The report also investigates water scarcity in Bangladesh and explores institutional mechanisms and strategies for basin wide and multilateral cooperation on the management of transboundary river water.

15. Muhammad Mizanur Rahaman, **“Principles of international water law: creating effective transboundary water resources management,”** Int. J. Sustainable Society, Vol. 1, No. 3, 2009.

In this article the author summarises the principles of international water law related to transboundary water resources management and analyses to what extent these principles are incorporated in recent international conventions and treaties. His study reveals that principle of equitable and reasonable utilisation, obligation not to cause significant harm, principles of cooperation, information exchange, notification, consultation and peaceful settlement of disputes are widely acknowledged by modern international conventions, agreements and treaties. These principles could facilitate effective transboundary water resources management involving riparian countries of shared watercourses and hence, promote sustainable development around the world.

16. Muhammad Mizanur Rahaman, **“The Ganges Water Conflict- A Comparative Analysis of 1977 Agreement and 1996 Treaty”**, The International Water Law Project, 2006 1/2: pp. 195-208.

In his paper the author examines two treaties between Bangladesh and India for sharing waters of the Ganges River and augmenting the flow during lean season. After illustrating the historical evolution of water conflict and cooperation between the two nations, this paper focuses on the water sharing and management provisions of the 1977 Agreement and 1996 Treaty. The paper has two objectives. Firstly, it highlights the historical evolution of water conflict and cooperation between Bangladesh and India. Secondly, it analyses the two sharing Agreements, through the paper an attempt made to resolve water conflict and promote cooperation for the long term solution of the water crisis.

17. Nahid Islam, **“Indo-Bangladesh common rivers: The impact on Bangladesh”**, Contemporary South Asia, Vol. 1, Issue 2, pp. 203-225, 1992.

The author in this article deals with the environmental and legal issues arising from Indo-Bangladesh's economy and society and Bangladesh common rivers, the diplomatic problems over water usage and the impact on Bangladesh's economy and society and indeed its security in the long term. The author further views that India's enormous size, its cultural heritage and the successful endeavours of Indian science, technology and diplomacy have all contributed to its undoubted preeminence in the region. He outlines a gross disparity between India and other countries of the region which gives rise to a considerable feeling of insecurity among smaller states, which is evident over the issue of the common rivers of India and Bangladesh, with India's geographical position at the head of all the major rivers of Bangladesh.

18. Mosharefa Shahjahana & Nick Harvey, **“Integrated basin management for the Ganges: challenges and opportunities,”** International Journal of River Basin Management, Vol. 10, Issue 1, pp- 49-64, 2012.

The paper analyses the challenges of multilateral cooperation towards IRBM(Integrated river basin management) in the Ganges context and examines the scope for overcoming these challenges. The paper argues that IRBM in the Ganges context depends on cooperation towards a basin-wide management approach, and a basin organization is a prerequisite to that. It views the creation of a basin organization in the Ganges context by sharing experiences from other parts of the world and concludes with a framework for adopting IRBM in the Ganges basin.

19. Roshni Chakraborty & Ismail Serageldina, **“Sharing of River Waters among India and its Neighbours in the 21st century: War or Peace? The wars of the next century will be about water”**, Water International, Vol. 29, Issue 2, pp. 201-208, 2004.

The author in this paper intends to comprehend in conceptual terms the extent to which the prevalent water sharing among India and its neighbours is peaceful and whether the water scarcity and population rise in India intensifies the chances for water conflicts. In doing this, he tries to start by addressing the water problems. This paper has concentrated much on the Ganges-Brahmaputra Meghna Basins (GBB), which is the thirteenth largest river basin in the world, densely populated, and shared with a number of neighbours. The current debates opposing plans to link rivers of the Ganga basin and Brahmaputra Barak with water deficient regions such as western and southern India in order to handle drought and floods and water scarcity, in a broad sense, develops insecurities in the minds of rational people on the chances of water conflicts.

20. Alyssa Bakke, “**A Complex River System: Issues Facing the Ganges River**”, Water Resources Paper, May 2002.

The author explicitly draws in this article an examination of the water sharing issues facing the Ganges River and how India and Bangladesh came to a long-term agreement after years of negotiations which further illustrates the complexities facing this river. The economic, environmental and social aspects of the river are discussed as well as how these impact the lower basin of Bangladesh. A comparison of the Ganges River to the Colorado River as a water source for both the U.S and Mexico is made which shows the difficulties of managing a river system that crosses international boundaries. Finally, by examining the Ganges River and the Colorado River, an analysis has been made to show how complicated it can be to manage a transboundary resource.

21. N. Kliota, D. Shmuelia, U. Shamir, “**Institutions for management of transboundary water resources: their nature, characteristics and shortcomings**”, Water Policy 3 pp. 229–255, 2001.

The author in this paper examines the evolution structure and characteristics of the management systems of transboundary river basins: The Mekong, Indus, Ganges–Brahmaputra, the Nile, Jordan, Danube, Elbe, Rio Grande and Colorado, Rio de la Plata, Senegal and Niger. The paper presents the legal principles which guide the legal regime of the studied rivers, particularly the principle of equitable use of transboundary water resources and the obligation not to cause harm in the management of transboundary water resources. The practice of management in the Abovementioned Rivers is divided into three categories:

- (a) Treaties and agreements stopping short of allocating water between riparian states such as free navigation treaties or institutions which were established for a sole purpose such as combating pollution (Elbe, Danube, Rhine).

(b) Treaties and agreements allocating water between states (the Indus, Nile, Ganges, Jordan).

(c) Agreements for joint management of internationally shared waters (Colorado and Rio Grande, Mekong, Senegal and Niger).

The purpose of author in this paper is to explore the nature, characteristics and particular management systems of organizations or institutions which manage international water resources. The author stresses on three specific research areas: the legal and organizational foundations for management of shared water resources, their structure and functions, and their strength and weakness as institutions. The article is divided into two sections. In the first, general principles for the development of organizations for the management of transboundary water resources are presented; in the second part, the structure, functions, strength and weakness of the abovementioned institutions of the 12 river basins are discussed.

Any form of legal research remains incomplete until and unless the relevant statutes on the concerned research topic are examined. Therefore in order to understand the issue of inter country water sharing with reference to Indo-Bangladesh water sharing relevant conventions treaties and statutes have been analyzed and reviewed. They are as follows:-

## **REPORTS**

1. Sergei Vinogradov, Patricia Wouters & Patricia Jones, **“Transforming potential conflict into cooperation potential: The Role of International Water Law”**, PCCP Publications 2001-2003, UNESCO-IHP, pp-106

The present study discusses the relevance and role of international water law in the promotion of cooperation over shared transboundary watercourses. With its focus on actual case studies and through examination of contemporary state practice and detailed

analysis of the 1997 UN Watercourses Convention, this work aims to provide water resource experts from all disciplines with an overview of the rules of international law that govern interstate relations over water. In line with the central theme of the UNESCO project, this legal report focuses on the PCCP cycle: how potential conflicts over water are transformed into cooperation potential. The author discusses tries to explain that from a legal perspective, the PCCP cycle has four identifiable phases, which are connected and reiterative: Phase I. The legal context (the rules of international law that apply to the conflict and its resolution). Phase II. From conflict to cooperation (the means used to transform the conflict into a cooperative arrangement). Phase III. The agreement (the new legal framework). Phase IV. Implementation (how the agreement is implemented and how changing circumstances and potential new conflicts are being dealt with).

Each of these phases is examined through the perspective of international water law, with a particular emphasis on actual state practice. The most important universal legal instrument dealing with international waters is: the 1997 UN Convention on the Non-Navigational Uses of International Watercourses (1997 IWC Convention). This document has been referred to throughout this study as the principal and only universal treaty in this area of international relations to answer the question as given such a range of possibilities for water-related disputes between independent and sovereign nation states, how can international law provide meaningful solutions? How and why do “conflicts” over international waters arise?

Each of these phases is examined through the perspective of international water law, with a particular emphasis on actual state practice. Part One of this report lays the foundation for this work and concludes with an analysis of the Lake Lanoux dispute as a model case study for the PCCP cycle. Part Two provides an overview of the fundamental principles and rules of international law, in general, and those related to international freshwaters, in particular. This sets the stage for understanding Phase I (the legal context) of the PCCP cycle. Part Three identifies the principal causes of water disputes and reviews mechanisms used by states to resolve them, demonstrating how states employ available means of dispute resolution in order to transform conflict into cooperation: Phase II

(Transforming Conflict into Cooperation). Part Four looks at the key elements of a “good” watercourse agreement, one for example that promotes dispute avoidance and provides a flexible regime for managing shared trans-boundary water resources. Finally, part Five provides a summary of lessons learned, and offers a checklist of best practices for states to use in their management of international water resources.

The primary focus here has been made on the issue of “water conflicts,” their principal causes and exigencies. The discussion provides an insight into how various diplomatic and legal techniques of conflict resolution have been used in the past, and will thus inform the process of determination and selection of the optimal conflict resolution mechanisms to be employed in possible future arrangements. Most of these arrangements are spelt out in international agreements, which are guided by the primary rules of international law reflected in the 1997 UN Watercourses Convention.

2. Pal Tamas, **“Water resource scarcity and conflict: review of applicable indicators and systems of reference”**, PCCP Publications 2001-2003, UNESCO-IHP, pp-29

In considering water conflicts the author in this paper takes note the importance of intra-state water tensions, which are related to inter-state conflicts. He asserts that water conflicts are related to a wide range of other socio-political tensions, such as border disputes or mega-projects such as dams and reservoirs, environmental problems, or political identity. A range of instruments may be deployed, including: lobbying, open and hidden negotiations, violence, network building, recourse to international organizations, and the actions of elites. The article considers conflict resolution capabilities, in particular the institutional dimensions, comparing the capacities in developed and developing countries. While most of the items presented in the article are tools for large-scale change, the relevance of incremental advances is also considered. Early warning models to predict the likelihood of conflict are compared, as are risk-assessment models such as that of the Minorities at Risk Project, and conflict prevention trajectories to identify “preventers” of conflict.

3. Dr Patricia K. Wouters, Dr Sergei Vinogradov, Andrew Allan, Patricia Jones, Dr Alistair Rieu-Clarke, **“Sharing Transboundary Waters :An Integrated Assessment of Equitable Entitlement, The Legal Assessment Model** Transboundary Water Resources Management: Using the Law to Develop Effective National Water Strategy”, International Water Law Research Institute, IHP-VI Technical Documents in Hydrology No. 74 UNESCO, Paris, 2005.

More than 40 per cent of the world’s population -- including some of the most poverty stricken -- depend upon water that originates in sources beyond their national borders. But how can they be assured access to adequate water supply and sanitation if their State is subject to the activities of other sovereign entities? When a transboundary watercourse State (TWC State) uses more than its “fair” share of water or pollutes the resources located in its territory, what recourse does the adversely affected State (and its citizens) have? What are the rules of international law that govern TWC State actions and who defines and enforces them? How can a TWC State develop a national water strategy in line with its international legal rights and duties?

In this paper the authors have focused on LAM (Legal Assessment Model) and to answer the above questions. They have stressed that the principal aim of the (LAM) is to provide a methodology for a TWC State to identify, in a systematic way, the parameters of its legal entitlements and obligations with respect to its shared freshwater resources. This LAM offers the basis for developing a strategy that ensures equitable and reasonable access to freshwater resources for all, especially the most disadvantaged. In the whole article the authors have discussed about LAM as how it enables a TWC State to collect and process the data required to identify and comply with its international obligations regarding the use of its shared waters, as well as providing information for the formulation and achievement of National water policy. Such information may be critical in the context of interstate negotiations and joint basin studies, and plays a crucial role in conflict prevention. The selected case studies were chosen to test the model in very different circumstances -- China (upstream on the Mekong), Mozambique (downstream on the Incomati) and Palestine (shared transboundary groundwater).

## **INTERNATIONAL INSTRUMENTS**

### **HELSINKI RULES OF 1966<sup>4</sup>**

The International Law Association, a highly-regarded non-governmental organisation of legal experts founded in 1873, completed the best known study of the customary international law of transboundary water resources in 1966. The result is known as the Helsinki Rules on the Uses of the Waters of International Rivers. The Helsinki Rules were the first attempt by any international association to codify the entire law of international watercourses. The resulting rules have heavily influenced state practice as well as the efforts of other international associations in examining the law of internationally shared fresh waters.

- Although the title of the Rules refers to international rivers only, Article I states that the Rules are applicable to the use of the waters of an international drainage basin. Such a drainage basin is defined 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”. As such, the Helsinki Rules also apply to groundwater connected to surface water. This is the first time that transboundary groundwater was addressed by any international legal instrument.
- The Helsinki Rules under Article V established the principle of “reasonable and equitable utilization” of the waters of an international drainage basin among the riparian states as the basic principle of international water law. For that purpose, the Helsinki Rules have specified a number of factors for determining the reasonable and equitable share for each basin state.
- Article VI of the Helsinki Rules confirmed the decline of the primacy of navigation by stating that a use or category of uses is not entitled to any inherent preference over any

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<sup>4</sup>Adopted by the International Law Association at the fifty-second conference, held at Helsinki in August 1966. Report of the Committee on the Uses of the Waters of International Rivers (London, International Law Association, 1967)

other use or category of uses. The Article, as such, equates all uses of international drainage basins. The Rules also include a chapter on procedures, not only for settlement, but also for the prevention of disputes. The latter part of the chapter deals with notification of other riparian's of any proposed construction or installation that would alter the regime of the basin or give rise to a dispute. As such, the Helsinki Rules. he Helsinki Rules have no formal standing or legally binding effect per se. However, until the adoption of the UN Convention 30 years later, they remained the single most authoritative and widely quoted set of rules for regulating the use and protection of international watercourses cover a wide range of issues, including both navigational and non-navigational uses of international watercourses.

- Some of the bilateral treaties also made specific reference to the Helsinki Rules such as the 1992 Agreement between Namibia and South Africa on the Establishment of a Permanent Water Commission. When India and Bangladesh presented their case on the dispute over the Ganges River to the United Nations in 1975, both relied heavily on the Helsinki Rules. Many of the decisions of the Supreme Court of the United States of America on inter-states water disputes relied on similar factors in determining the water share of each of the riparian states.
- Peaceful Settlement of Disputes, this principle advocates that all states in an international watercourse should seek a settlement of the disputes by peaceful means in case states concerned cannot reach agreement by negotiation. (Article XXVII)
- The Helsinki Rules are insufficient in that they do not provide an answer for what happens when the rule of equitable utilization conflicts with the no-harm rule. Some States have ignored the Helsinki Rules and chosen to follow their own rules or no rules at all. Over the years, these guidelines have played a significant role in the development and codification of international water law.
- However, there are two main problems with the Helsinki Rules. First, the Helsinki Rules can only be enforced on a voluntary basis. States can use the Helsinki Rules as a model

for their own agreements only if they chose to do so. The lack of enforcement power of the Helsinki Rules renders them insufficient to deal with international watercourse issues today.

### **UN WATERCOURSES CONVENTION<sup>5</sup>**

- In 1970, the United Nations (UN) General Assembly commissioned the International Law Commission (ILC) to draft a set of Articles to govern non-navigational uses of transboundary waters. After considerable discussions during 1991 to 1997 on the draft prepared by the ILC, on 21 May 1997, the UN General Assembly adopted the UN Watercourses Convention. This Convention incorporated the principles of transboundary water resources management, building on the 1966 Helsinki Rules. Out of 133 nations, 103 nations voted in favour, 27 nations abstained and three nations voted against the Water Convention Bangladesh and Nepal both voted in favour of the Convention and India abstained.
- The Convention needs 35 instruments of ratification or accession to enter into force. As of this year, 10 years after its adoption, the Convention is still to enter into force. It has only been ratified or acceded to by 16 states, a number far short of that required under the Convention.
- The Convention is a framework convention that aims at ensuring the utilization, development, conservation, management and protection of international watercourses, and promoting optimal and sustainable utilization thereof for present and future generations. As a framework convention, it addresses some basic procedural aspects and few substantive ones, and leaves the details for the riparian states to complement in

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<sup>5</sup>Convention on the Law of the Non-navigational Uses of International Watercourses 1997. Adopted by the General Assembly of the United Nations on 21 May 1997. The 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses is the only treaty governing shared freshwater resources that is of universal applicability. It is a framework convention, in the sense that it provides a framework of principles and rules that may be applied and adjusted to suit the characteristics of particular international watercourses

agreements that would take into account the specific characteristics of the watercourse in question. Such agreements can adopt or adjust the provisions of the Convention.

- The Convention is divided into seven parts and consists of 37 Articles. In addition, it includes an Annex on arbitration. The main areas that the Convention addresses include the definition of the term ‘watercourse’; watercourses agreements; equitable and reasonable utilization and the obligation not to cause harm; planned measures; protection, preservation and management; and dispute settlement.
- Similar to the Helsinki Rules, the Convention embraces the principle of equitable and reasonable utilization, and lays down in Article 6 certain factors and circumstances that should be taken into account for determining such equitable and reasonable utilization. Article VI (1) of the Convention states that utilization of an international watercourse in an equitable and reasonable manner, within the meaning of Article V, requires taking into account all relevant factors and circumstances.
- A careful reading of Articles V, VI and VII of the Convention should lead to the conclusion that the obligation not to cause harm has indeed been subordinated to the principle of equitable and reasonable utilization. Hence, it can be concluded that, similar to the Helsinki Rules, the principle of equitable and reasonable utilization is the fundamental principle of the UN Watercourses Convention.
- The Convention also includes a detailed part on the environment entitled ‘Protection, Preservation and Management’ of international watercourses. Article XXXIII and the Annex to the Convention deal with dispute settlement mechanisms and procedures. The Article lays down a number of methods for settlement of disputes, including negotiations, jointly seeking the good offices of, or mediation and conciliation by a third party, or use of joint watercourse institutions, or submission of the dispute to arbitration or to the International Court of Justice.

- Although the UN Watercourses Convention is based largely on the Helsinki Rules, the political compromise introduced by the Working Group on the relationship between equitable and reasonable utilization and the obligation not to cause harm has generated considerable ambiguity for some states as to which principle prevails. The Berlin Rules have exacerbated this confusion.
- As of December 2006, only 16 countries have ratified or acceded to the Convention. The reasons for the reluctance of the states to ratify or accede to the Convention and the valid question that arise is why have Bangladesh and Nepal not ratified or acceded to the Convention, even though both voted for the adoption of the Convention needs to be researched. Even when agreements exist, interpretation and implementation of these agreements has not been an easy task. As a result, disputes over shared waters are on the increase, and now cover a wide array of issues that go beyond quantity and quality of the shared waters.

### **THE BERLIN RULES**<sup>6</sup>

- In 1997, the year the UN Convention was adopted, the Water Resources Committee of the ILA started considering the question of how to proceed with the revisions of the Helsinki Rules. Discussions took place during the ILA conference in London in 2000 and the revision process continued after that conference. The Committee presented its third report at the New Delhi Conference in 2002 where it was agreed to set a goal of completing the project by 2004. During the Gent meeting of the Water Resources Committee in March 2004, the 11 members of the Committee who attended the meeting (out of the 22 members) completed the work and voted unanimously to present the revised set of rules to the ILA. The rules were discussed and approved during the ILA Seventy-first Conference held in Berlin in August 2004. The previous title of the rules ‘The Revised ILA Rules on Equitable and Sustainable Uses in the Management of Waters’ was changed, and a new title ‘The Berlin Rules on Water Resources’ replaced it.

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<sup>6</sup>The Berlin Rules replace the Helsinki Rules on the Use of Waters of International Rivers, approved by the Association in 1966.

- The Berlin Rules are quite comprehensive and detailed. They consist of 73 Articles, divided into 14 chapters, covering various issues on water resources which go beyond the Helsinki Rules and the UN Watercourses Convention. The Report of the Water Resources Committee stated that the Rules incorporate the experience of the nearly four decades
- It is also worth noting that a number of the Berlin Rules are applicable to the management of all waters, both national and international. This is indeed a major deviation by the ILA from its entire previous work that dealt exclusively with international rivers, international drainage basins and trans-boundary groundwater.
- Chapter II of the Berlin Rules addresses various issues related to all waters, ranging from participation of persons likely to be affected by decisions concerning the management of waters. Chapter III applies to internationally shared waters. Article XII states that: Basin States shall in their respective territories manage the waters of an international drainage basin in an equitable and reasonable manner having due regard for the obligation not to cause significant harm to other basin States.
- The major distinction between the Helsinki Rules and the UN Convention on the one hand, and the Berlin Rules on the other, is that the former establish and emphasize the right of each basin state to a reasonable and equitable share. This is based on the concept of equality of all riparian states in the use of the shared watercourse. On the other hand, the Berlin Rules obliges each basin state to manage the waters of an international drainage basin in an equitable and reasonable manner. Thus, whereas the Helsinki Rules and the UN Convention establish and emphasize the right of each of the riparian states to a reasonable and equitable share, the Berlin Rules emphasize the obligation to manage the shared watercourse in an equitable and reasonable manner.
- After subjecting the principle of equitable and reasonable utilization to the obligation not to cause significant harm, as stipulated in Article 12, the Berlin Rules addressed significant harm separately in Article 16. That Article requires the basin states, in managing the waters of an international drainage basin, to refrain from and prevent acts

or omissions within their territory that cause significant harm to another basin state “having due regard for the right of each basin State to make equitable and reasonable use of the waters”.

- Over-view of the Berlin Rules indicates that the Rules have drawn heavily from the Helsinki Rules and the UN Watercourses Convention. However, three basic features distinguish the Berlin Rules from their predecessors. First, a number of the provisions of the Berlin Rules apply to both national as well as international waters. This is a marked departure from all other international water law instruments that apply strictly to shared waters. Second, the Berlin Rules have gone beyond what the ILC considered as established principles of customary international law, and incorporated emerging principles as well. This approach differs from the Helsinki Rules which reflect the established principles only. Similarly, the UN Watercourses Convention reflects, as widely agreed, the basic established principles of customary international law.

#### **GANGES WATER TREATY (1996)**

- After the commissioning of the Farakka Barrage along the mainstream of the Ganges in 1975 and subsequent conflict regarding the water shortage in downstream Bangladesh, Bangladesh and India signed two treaties (1977 and 1996) and two MoU (1983 and 1985) for sharing the Ganges waters at Farakka. On 12 December 1996, the two governments signed the most recent Treaty for sharing the Ganges waters at Farakka during the dry season (1 January to 31 May). This Treaty is valid for 30 years. Article II, Annexure I and II of the 1996 Ganges Treaty establishes the formula for water sharing of the Ganges at Farakka during the dry season. Annexure II provides an indicative schedule of the sharing arrangement based on 40 years (1949–88), a 10-day period average availability of water at Farakka.
- Articles IV to VII of the Treaty establish the Joint Committee and its jurisdiction for monitoring the Treaty and exchanging data and information.

- The Preamble of the Treaty notes that both countries wish to share the waters of international rivers and optimally utilize the water resources of the region in the field of floods management, irrigation, river basin development and hydropower generation for the mutual benefit of the people of the two countries. Although oblique, the inclusion of these issues could result in the cooperation of other water related issues and hence promote overall Ganges basin development.
- The Preamble and Article VIII recognize the need to cooperate to find a solution to the long-term problem of augmenting the flow of Ganges during the dry season. These Articles approve the principle of cooperation and information exchange.
- On sharing of ‘common rivers; Article IX obliges India to conclude to ‘water sharing agreements’ with Bangladesh on principles of equity, fairness and no harm to either party. But the real problem is different. Although a 30 year water treaty has been in effect between the two countries since 1996, it has been seen that India diverted water according to its own will, depriving Bangladesh from her just share during dry season. It ultimately discourages unilateral development on the other common river and agreed to conclude water sharing Treaties Agreements.
- Treaty does not include clear dispute resolution and arbitration mechanisms. The preamble of the Treaty mentions that both Parties wish to find a fair and just solution without affecting the rights and entitlements of either country. Article VII states that if the Joint Committee fails to resolve conflicts arising out of the implementation of the Treaty, it should be referred to the Indo-Bangladesh Joint River Commission. If the difference or dispute still remains unresolved, it should be referred to the two governments, which would meet urgently at the appropriate level to resolve it by mutual discussion. What level of government it refers to and what the timeframe is for the settlement of disputes are not specified in the Treaty. In addition, the Treaty does not bind any Party to resolve the dispute if a disagreements persist.

## **THE INDO-BANGLADESH WATER TREATY<sup>7</sup>**

The treaty was entered into by the two nations India and Bangladesh in the year 1996 aiming at resolving the on-going conflict primarily centered on the sharing of the waters of River Ganges, that originated way back in 1951, when Bangladesh formed a part of East Pakistan, due to the construction of the Farakka bridge and the allocation and use of the river Ganga, flowing from Northern India into Bangladesh. Following a series of tensions, dialogues and bilateral discussions on the said issue, a water sharing agreement was formulated thereby executed between the leaders in 1996. The 1996 water treaty is the most crucial development and possessed a validity of 30 long years. The Preamble of the Treaty notes that both countries wish to share the waters of international rivers and optimally utilize the water resources of the region countries. The Annexure I and II discuss the mode of allocation of water between the two riparian states. Further, to prevent future conflicts, a Joint Committee and a dispute resolution mechanism is established. Moreover, water sharing between the two countries is to be guided by the “principles of equity, fairness and no harm”, thus indicating application of internationally recognized principles to the dispute.

The treaty fails to provide for a minimum guarantee clause of amount of water being shared and allocated. Further, there is a lack of efficient dispute resolution and arbitration mechanisms. Art. VII specifies that in an event of a conflict, the dispute is to be referred to the Joint Committee, who if fails to resolve conflicts arising out of the implementation of the Treaty, then it is to be referred to the Indo- Bangladesh Joint River Commission. If the difference or dispute still remains unresolved, it should be referred to the two governments, which would meet urgently at the appropriate level to resolve it by mutual discussion. There exists an conundrum on the level of government referred to, moreover no specific timeframe is provided for the settlement of disputes. In addition, the Treaty does not bind any party to resolve the dispute if a disagreements persist. Despite their being a water sharing agreement, water conflict between the two countries has only

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<sup>7</sup>Treaty between the Government of the Republic of India and the Government of the Republic of Bangladesh on the Sharing of the Ganges Waters at Farakka , signed on 12-12-1996

further escalated. Thus, the possible solutions for the same would be researched upon.

### **THE TEESTA AGREEMENT**<sup>8</sup>

The Teesta agreement over the sharing of Teesta River is a major irritant between the two countries. Teesta is one of the major transboundary rivers, in the basin between India and Bangladesh. The dispute emanates by the demand of constructing a barrage across the Teesta that saw major opposition by Bangladesh, claiming loss of agriculture. The issue saw many ad-hoc agreements and negotiations over the allocation of the waters of the Teesta between the two claimants. In 2013, attempts were made to resolve the said issue by allocation of the waters in a proposed ratio of 50:50 in the lean crop season. India by way of this claims 55% of the share, leaving Bangladesh with the remaining 45%. The proposed treaty however, lacks formal authority and legal backing and does not contain any dispute mechanisms to be resorted to, in future in case of any disagreement with respect to Teesta water sharing. Another major being flaw being the lack of mutual trust and confidence between the two governments with respect to the usage in the lean period. There is hence a need for an overarching mechanism in place for both the countries for proper governance of the regulation of sharing and efficient allocation of the Teesta waters.

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<sup>8</sup>Agreement between the Government of the Republic of India and the Government of People's republic of Bangladesh on the access and use of the Teesta River.

## **POLICIES AND LEGISLATIONS:**

1. **National Water Policy, 2002**<sup>9</sup>: The National Water Policy was promulgated with the aim of treating water as an economic good, which requires accurate conservation and efficient use. It seeks to govern the planning and development of water resources; thereby ensuring optimum utilization. This it seeks to achieve by implementing measures such as establishment of standardized data base, recycling of water for maximum availability and setting water allocation priorities. The policy lacks in following the polluter pay principle.
  
2. **River Boards Act, 1956**:<sup>10</sup>The act intends to provide a framework for setting up of river boards by the CG to advise governments, concerning the use, allocation and development of river valleys and inter – state rivers.
  
3. **Indus Water Treaty, 1960**<sup>11</sup>: The said treaty governs the utilization of waters of the River Indus between the two republics; India and Pakistan for 56 long years. Allocation and use of rivers Jhelum, Beas, Ravi, Chenab and Sutlej is further facilitated through the said treaty. The treaty establishes the Indus Commission for implementation in an effective manner.
  
4. **Mahakali Water Treaty, 1996**<sup>12</sup>: The said agreement entered concerns the integrated development of the Mahakali River including the Sarada Barrage, the Tanakpur Barrage and the Pancheswar Project. The treaty contains provisions concerning arbitration in event of a dispute. Despite its operation, its implementation is tardy.
  
5. **Inter-State River Water Disputes Act, 1956**<sup>13</sup>: The Act stems from Art. 262 of the Constitution and thus aims to resolve disputes among states pertaining to the use, control and allocation of an inter-state river. This particularly has implications of the sharing of

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<sup>9</sup> New National Water Policy, 2002

<sup>10</sup>River Boards Act, 1956 (Act 49 of 1956)

<sup>11</sup> Treaty between the Government of India and the Government of Pakistan

<sup>12</sup> Government of Nepal and the Government of India.

<sup>13</sup>Inter-State River Water Disputes Act, 1956 (Act 33 of 1956)

trans-boundary Rivers such as the Ganges, which flows through regions of North India; thus entering Bangladesh.

# CHAPTER I

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## THEORETICAL AND CONCEPTUAL FRAMEWORK

*“Water is not a commercial product like any other, but rather a heritage that must be protected, defended and treated as such”<sup>14</sup>*

Since last five millennium, the relationships and the rules pertaining to water have developed and resulted in clashes between the natives of a region. Their wants, social, cultural, spiritual beliefs and customs have been at dispute because of these water conflicts. However, almost all the civilizations in their long history somewhere or the other managed to curb such clashes with dignity and grace. The civilizations like, Egyptian civilization, the Indus Valley civilization and the Chinese civilization introduced rules governing irrigation, floods or water management which managed the conflicts so gracefully that even present day laws would fail to do so. The water rules and systems in the earlier periods normally centered on the community rights, the post-industrial revolution rules have elaborately stressed on non-public possession and their problems. Equally if, within the late 20<sup>th</sup> century, the prime focus of the governance of water has shifted towards limiting pollution along with the allocation of waters and the stress within the 21<sup>st</sup> century has taken a shift from towards managing water in an integrated manner within the context of the development of property rights.

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<sup>14</sup> European Commission Water Framework Directive, 2009

Water as a conflict has been arising at numerous levels namely, between countries, regions, and further down to the sub-regions and even amongst different states, districts, political parties, castes and even farmers which becomes detrimental for the growth of economy, security, social stability and even health schemes. These conflicts, thus, signify the lack of appropriate administrative, democratic and legal measures to handle problems that lead to such disputes. Water has always been a complex resource which was made so through its material and philosophical means, which suggests that it, was created by uninflected and imposing an economic proprietor framework on a complicated part of the scheme.<sup>15</sup>

The ecosystem has made water a mediated resource and it is accessible in common however is employed individually; in contrast to different public purposes, it cannot be utilized in common. Water is partible and open to sharing and has non-public edges. It is however, hard to prohibit people who receive it within its natural course because the costs of such exclusion could be terribly high. Water has completely different scales of convenience and usage like water at the small watershed, homestead, basin, sub-basin inter-basin and also at inter-country level that need other methods of handling it. Also, the manner in which water flows and the way in which it is used, managed or planned also causes unidirectional and uneven difficulties. For instance the upper riparian countries use affects the downstream countries, however not contrariwise.

One of the most politically debated and charged matter between India, Bangladesh, Nepal and Pakistan has been the distribution of water which has mounted tensions between these countries over the control and management of supply of water arising from mistrust, shortage and mal governance. Increasing demand and the scarcity of water has acted as an catalyst to the ongoing conflict and also the demarcation of boundaries due to decolonization and division of the river basin due to political changes have created more friction amongst these countries including their inner states and provinces.

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<sup>15</sup> Muhammad Mizanur Rahaman, “Principles of Transboundary Water Resources Management and Ganges Treaties: An Analysis”, Water Resources Development, Vol. 25, No. 1, pp- 159–173.

The term inter-country conflicts generally refer to the conflicts that arise between sovereign countries over water which are primarily disputes that are based on the political borders of such countries. However, the so called conflicts may be an advanced mixture of all the opposite types of conflicts viz: previous use problems, upstream–downstream problems, clash of allotment and the privileges, and generally even non-water conflicts. Inter- country problems are usually additionally an indication of the shortage of scientific approach to water management in Asian countries especially in India. However, management of water in India is somewhere trapped in ancient ideas, that arose even when water itself was not a problem, however the investments for the construction of dams was the way larger restriction. Moreover, this suggests that even a single drop of water is not wasted and a concerted attempt is made to construct dams to retain each drop of water within the stream, resulting in drastic fall of stream flows below their resurgence levels and much of them have even disappeared in several delta regions, resulting in salt water ingress, salinization, drop in channel evoked recharge, decline in fish catch and diverse different environmental issues. Rivers ought to flow into the ocean if humans and also the ecosystems on that rely, are to flourish.<sup>16</sup>

The insufficiency of the present watercourse agreements and negotiations and also the need for agreements for varied international watercourses area unit ominous legal vulnerability in the present international legal arrangement governing trans-boundary waters. Such vulnerabilities make it difficult for some countries to manage their rivers, capriciously, unalterably and while not sharing relevant data that their neighbours may require. This result in a conflict over progressively scarce and contaminated provides, deteriorating variety, and heavy threats to human health, economic development, and sustainability.

This chapter attempts at bringing an overview of the importance of water as a life sustaining resource and the indiscriminate use of water resources leads to water crisis which in turn puts a pressure on the available water resources. Further, the chapter

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<sup>16</sup> Suhas Paranjape and K.J. Joy, “A Million Revolts in the Making Understanding Water Conflicts”, IIR51 (2011).

attempts to answer the research question as to how do transboundary water sharing impact nations and the role played by principles of international law governing the same.

## **I.1. INTRODUCTION**

Water is a creator, enhancer and the primary supporter of human life on the planet and hence undoubtedly is the only resource which sustains life and promotes all forms of advances and nonetheless this most essential resource has now become the most underappreciated asset and an over- exploited resource, due to the plethora of degradation, shortages and competition eliciting inter-country and intra state sharing disputes. Water covers more than seven tenths of the planet's surface, but yet the world today is confronted with an escalating water crisis, which ultimately leads to the inference that the abundance of water in the world is a mere optical illusion. Indisputably, water is critical to continued socio- economic advances. The availability of water is integral to sustain the demand for food, manufacturing, generating electricity and supporting ecosystems and biodiversity; thereby binding humanity together virtually with its daily existence.

In the earlier times, water was never seen as a commodity which could be bought, sold and owned like any other commodity. The advent of modernity and the flourishing of capital introduced changes in thoughts. The rapid growth and expansionism of capitalism sought to capitalize nature more and led to the conversion of it into private property. The significance of water has been acknowledged in different cultures and traditions. For instance; The Bible was written amid water scarcity and was a recurring theme in the Old and the New Testament.<sup>17</sup> Further, water has determined the centres of civilization. Rivers have helped to initiate agriculture , foster evolution from nomadic to urban settlements facilitate trade and transportation and have served as a catalyst for cross-culture interactions. In the thirteenth and sixteenth centuries, these water sources became England's gifted economic development and later became central to industrialized and

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<sup>17</sup> Joshua Getzler, "A History of Water Rights at Common Law", Oxford University, 1

urbanized transformation of the late eighteenth and the nineteenth centuries.<sup>18</sup> Legal conflicts over water rights especially for domestic, agricultural and manufacturing were prevalent and led to competing access to flowing water. To ensure sufficient water availability, the common law courts in 1750 developed a set of legal doctrines attaching property rights to riparian possession of flowing water and limited rights to the use of surface and underground waters. These doctrines eventually served as an influence for the new water doctrines of Roman law and civil law concepts of common goods. Over the years, philosophers such as Blackstone and John Locke used water to illustrate their theories of property rights.<sup>19</sup> In the ancient times, water as a source of power, rather than for transportation was little known and exploited, which subsequently lead to Roman backwardness in the field of power and technology. However, Classical Roman law sought to provide a solution to this by introducing doctrines that demarcated rights for the use of rural and urban water use. As the society progressed, the Europeans in the medieval age had sharper incentives of increasing and making efficient usage of water and contribute to the improvement of agriculture and technologies and improve urban trade, in contrast to the ancient world. To avoid future potential water conflicts and ensure systematic water resources, legislative attempts were made to codify and enact statutes regulating the use of water between states and citizens. The Magna Carta in England as seen as the first attempt to govern the use of causeways and dams.<sup>20</sup> Further, the common law doctrines governed conflicts between private parties. Moreover, the significance of water use and water power was reflected in the economic life, concerning riparian and water rights in the phase of industrialization where there was extensive use of water power both as an energy source and a crucial raw material.

A significant part of the problem related to water-sharing between nations escalates from the explicit and definite use and the characteristic of water, including its social, bio-physical, and economic characteristics. This is particularly because water is such a crucial resource that it is implanted in ecosystem and the approach of water being manipulable and free resource would be a wrong approach. Also, mega projects linked to damns and

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<sup>18</sup> Id.

<sup>19</sup> Supra note, 17

<sup>20</sup> Id.

inter-linking of rivers though aim at development yet tend to underscore and undermine the long term viability and sustainability of water and water resources at a whole; henceforth affecting the health of the riparian ecosystems and tend to cause an impact on livelihoods. Moreover, in the process of water-sharing, often the issue of water quality seeks to get ignored. The use of water by users is a two- way process which not merely involve the use of water but further also includes the return of water. The amount of water that is to be returned and its condition i.e. the quality is crucial to the health of ecosystems. While, water sharing involves contesting claims over the use and allocation of optimum share of water which is loud and clear, there is no attention given to who returns how much of that water to the ecosystem and in what condition with the result being pollution and deterioration of the water quality.

Water being a scarce geo-political resource, has been the root cause of water disputes ranging from traditional military attacks to international disputes over shared waters in the region. Water supplies have been central to the military power and expansionism. Water being a fundamental resource served as a defining factor in the power of a nation. Though traditionally, non renewable resources such as oil, due to its scarce nature were the target of military action, water later became the focus for military power as it provided nations and states a source of economic and political strength.<sup>21</sup> Due to this reason it was essential to maintain sufficient water supply systems. Further, regional water conflicts became a common trend. One such example being the Middle East region where sharing of water supplies had severe implications. Rivers in the Middle East like Nile, Tigris and Euphrates became a cause of concern due to the increasing pressure faced by population growth and irrigation. In the seventh century, Ashurbanipal of Assyria, as a part of his strategy seized control of water wells against Arabia.

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<sup>21</sup> Peter H. Gleick, "Water and Conflict: Freshwater Resources and International Security" *International Security* 8, no. 1, (Summer 1983): 153.

## I.2. EVOLUTION OF WATER SHARING DISPUTES

Water as ammunition and the water related disputes trace long back into early civilizations and have been described in myths, legends and historical accounts. These involve the dispute over the Mesopotamia River between Umma and Lagash on the shared use of irrigation systems.<sup>22</sup> Further, in 612 B.C. an alliance of the Babylonian, Persian and Egyptian forces attacking and destroying the capital city of Assyria, Ninevah with a sole reason to get a larger portion of the Khosr River illustrates the problem of water sharing even in olden days.<sup>23</sup> As societies progressed, water was being used a weapon by countries in an attempt to coerce other nations to comply with demands over the use of water. Instances of such water conflicts can be witnessed in a plethora of disputes such as; the Israel and Jordan water conflict over the use of Jordan River's drainage basin in 1948. This basin is collectively used by Jordan, Israel Syria, and Lebanon. Tension in the basin arose when members of the Arab League sought to distract the waters of the Jordan River from Israel.<sup>24</sup> Next, conflict over the Nile River is a contentious one because of the treaty signed between Sudan and Egypt in 1959.<sup>25</sup> This treaty provided for additional water supply to other upstream nation such as Kenya, Ethiopia etc. thereby reducing the water availability in the Egypt region and spurring tensions in the arid region. Water resources have been used as weapons for target and tools in cases where conflicts between nations escalate and take the shape of military aggression. Although water is a renewable resource, yet the fact of it being a scarce and a finite resource is a bitter truth and is thus a subject of substantial control by nations and is an easy temptation for military purposes. An instance of such military attacks over water include the deluging the water supply in North Vietnam by the United States in 1960s and the Turkish Syrian water supply conflict of 1987 over the water sharing of the Tigris- Euphrates river, as Turkey attempted at blocking water to Syria due to its support to the Kurds. Further, water has not only originated military tensions but moreover has also led to ethnic clashes and violence between groups. This can be witnessed from the

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<sup>22</sup> Haleh Hatami and Peter H. Gleick, *Journal of Environment: Science and Policy Development*.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> Agreement between the United Arab Republic and the Republic of Sudan for the Full Utilization of the Nile Waters, November 8, 1959. The treaty provided for the allocation of water of the Nile River.

case of poisoning of wells in the 1990's by the Yugoslav forces with carcasses and other hazardous materials which led to echoes of violence between the Albanians and Yugoslavians.<sup>26</sup>

The past decades have been witness to not solely large scale global water wars, instead regional fights and ethnic waters have largely revolved around the sharing of waters. The current position is centered on the Transboundary Rivers between nations such as India and its neighbours.

Ownership of water means an entitlement to its use in a certain way. Such ownership is not only limited to a share of a common water resource but also implies the share tied to a specific use and hence affecting the prioritization. Even though water is a divisible resource which is amenable to sharing, yet it is important to realize that even though it is a common pool of resource, yet it is used separately. Implying, that the use of water by one, denies other the use of that water. This brings us to an important concept of excludability, as the multiple uses involve high trade-offs which lead to high exclusion costs, thereby making it problematic in excluding another user from its natural access. Seen from a traditionalist point of view, water is both a local and a non-local resource, meaning that modification in the availability and sharing of water in the upstream regions leads to basin-wide implications in the downstream area.<sup>27</sup> Thus, it is important to realize that water is a shared resource which involves the usage of a different approach i.e. recognition of different users.

### **I.3. DIMENSIONS OF WATER SHARING**

The concept of water sharing has various dimensions attached to it. The first one being physical in nature and as per the physical dimension, water crisis is the result of an increasing imbalance between the supply of water and its demand. The implication being that, even though water is the most abundant resource on the Earth, it cannot be

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<sup>26</sup> The Journal of Contemporary Water Research and Education, Present and Future of Water Conflict and International Security.

<sup>27</sup> Ramaswamy R. Iyer, Water and Laws in India 217(Sage Publications 2009).

consumed for human consumption as 97.5% of it is excessively salty and unfit for the production of crops as well. Most of the fresh water is locked in ice covers. Therefore, only a small portion of what is called as the 'green water' it is physically accessible. Further, the remaining part, being 'blue water' cannot be utilized due to economic and environmental limitations such as salinization between the water supply and demand.<sup>28</sup> The second dimension being the economic one, which stresses on the linear correlation between economic development and water resources that escalates into water conflicts. Lastly, the important dimension being the institutional one, which highlights the limitations of institutions in dealing with water resource allocation and management of water so as to avoid conflicts.<sup>29</sup> Considering the above dimensions to the use of water, it becomes even more pertinent to adopt suitable arrangements for transboundary water sharing between citizens and neighbouring areas at the whole. It is hence easy to comprehend the existence of water conflicts, in the situation of absence of democratic, legal mechanisms in effectively dealing with the water conflicts posed between nations. Further, such water conflicts fall under two categories such as claims over water uses and conflicts over equity, access and allocation of water resources. Water sharing centres on the concept of equity which implies minimum assurance of water to all its users particularly where water resource is required for an adequate livelihood. The equity doctrine helps in providing a basic service by providing a minimum water assurance at a reasonable cost and dependability. The main idea behind the said being, that right to access water resources is a vested right in people due to maintenance of their adequate livelihood as opposed to the conventional approach where water resources are seen as any other asset, such as land which people own. Subsequent to the allocation of water to nations for livelihood, the rest of the remaining portion may then be treated as available water for allocation for other uses. Thus, the equity principle helps in the process of water sharing by separation of water entitlement into two; one based on rights and the other being based on economic opportunities as water serves both a fundamental right and the economic aspect of it also cannot be ignored.

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<sup>28</sup> Supra note 27.

<sup>29</sup> Id.

By way of the rapid advancement in technology the probability of water use and its availability has decreased to a considerable extent and has exceeded its availability in certain areas. Thus, in instances where the resource is scarce and over-abundant and where the flow is uncontrolled, it hence leads to conflicts and disputes which require a spontaneous and an immediate response. Hence, it becomes vital for determining the priorities and claims of users which can only be done by designing restrictive mechanisms to mediate between conflicting claims, thereby ensuring that water sustainability is maintained. The situation of absence of water -sharing centric laws is further heightened and made worse when the state bears the responsibility for allocating and exploitation of water. This leads to the regulatory role of state in operating water resources getting blurred. As water is a common resource, the determination of share of water to its claimants being states and nations is certainly a difficult task at hand. Determining the optimum quantity of water for the common benefit of all users and claimants depends on the relative weights attached by the society to different objectives and is liable to change with the changing technological conditions.<sup>30</sup> This is hence the principle underlying the idea behind the debate regarding “*Prior Appropriation and Optimum Utilization*”<sup>31</sup> that poses the question whether prior users of water should have a greater right over the access of shared water resources even if its appropriation is excessive and causes a loss to the other claimants on one hand, or whether the quantum of water resources must be evenly distributed as to sub serve the common good of all the claimants and ensure its efficient utilization. Tribunals and courts, adjudicating upon the said issue have recognized and protected the right of appropriation with respect to riparian sharing. But its implementation has been difficult due to the phenomenal expansion of agriculture and irrigation and the use of technology which lead to a severe competition for limited water resources. Further, another major contested issue of water sharing and water law in general, is the debate between the premise of appropriation of private property<sup>32</sup> for a public use by the state by payment of a monetary compensation to the owner for the use of his/her property. On the other hand, the public trust doctrine forbids state from transferring or converting the common pool of resources into private

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<sup>30</sup> Supra note 27 at 6.

<sup>31</sup> Id at 5.

<sup>32</sup> Id at 8.

use, being the holder of such public resources as trustees of the property. The above two thus have significant implications on the entitlements and rules of allocation between water sharing of nations. The water sharing issue becomes a pertinent one because of another reason being, lack of laws concerning the state or the governments to seek involvement of affected people by the sharing of water resources or its beneficiaries. Though the governments have formulated policy statements on compensation of project affected people due to sharing of waters, yet they seem to have no legal backing and therefore clearly lack in implementation.

Conflicts over water can either be inter-state i.e. those that occurs between two or more neighbouring States which has a common boundary water basin such as a lake or river or an intra-state conflict i.e. between the potentially same parties of the same country.<sup>33</sup> Any territory that contributes to a stream, a minimum of one in all the tributaries of that crosses a boundary, can be defined as a transboundary water resource.<sup>34</sup> These transboundary water resources and allocation crosses political borders and also include the underground and surface water and also the interconnections between these two. Such transboundary allocations of water resources can often prove to be complex in nature. The primary reason being the uncertainty of interactions between key actors that function in the political domain due to different political needs, knowledge and political boundaries. Such transboundary water conflicts have been foremost in South Asia predominantly between India, Nepal, Pakistan and Bangladesh over the Ganges and Indus Water River. One of the key factors affecting the issue of transboundary water allocation is the political relations between nations and the involvement of the political community at large. Hence, to resolve the transboundary water allocations and ensure an efficient and sustainable water distribution, transboundary water sharing arrangements become an important concern due to the following reasons:

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<sup>33</sup> Upriety & Salman, "Legal Aspects of sharing transboundary waters in South Asia: Preventing conflicts and Promoting co-operation," *Hydrological Sciences Journal*, Volume 56, 2011 - Issue 4: Water Crisis: From Conflict to Cooperation.

<sup>34</sup> *Water Encyclopedia: Science and Issues*, [www.waterencyclopedia.com](http://www.waterencyclopedia.com)

- i. First, nations compete for economic growth which leads to an indefinite pressure on water supplies as nations intend to secure an enormous portion of the pooled water resources in a region. Hence, only through specific water-sharing arrangements in place, water supplies can be conserved or protected for users beyond the national borders.
- ii. As riparian neighbours compete to appropriate resources of shared rivers by establishing structures such as dams and reservoirs, the relations between the upstream and downstream nations tend to get relentlessly affected and further lead to mistrust and discord.
- iii. The competition for sharing water resources springs in violent water conflicts and threatens world peace, security and impedes regional collaboration and integration.
- iv. Growing prosperity, population-size and economic development cause a major increase in water demand, thereby limiting its availability and supply to meet consumption levels.
- v. The advent of industrialization has spurred industrial wastes and pollutants such as sewage discharges, therefore aggravating the water crisis and hence making it arduous for nations and governments to provide the basic right of water and leading to denial of accessibility.

Considering that transboundary water resources has served and has been a root cause of water crisis, having lurked past hostilities, it thus becomes an important geo-political agenda. The troubling lack of mechanisms in most international shared resources to facilitate transboundary water cooperation over nations poses significant geo-political risks.

The management and prevention of such transboundary water conflicts over transnational waters and rivers demands for an institutionalized approach that is a mix of three basic elements. Firstly, what is required is a combination of certain international norms and rules. Second, is establishing accommodating institutional mechanisms amongst States

which share a common water course and the third being the most crucial one, that centres on a prudent and an environmentally sustainable management of water whose primary focus is on and efficient usage of water resources. In matters of a transboundary water conflict, where determination of an equitable water share is a matter of concern, in such cases, norms and rules help in determining a reasonable share .important. The fact that much of the global freshwater is shared water in the form of transnational river or lake basins which extends to almost the half of the planet's land surface, hence calls and underscores the necessity for rules-based, institutional arrangements among nations to govern shared waters. Therefore, to promote the reasonable use and protect the integrity of shared waters, the principle of the rule of law suggests that it becomes essential for the global riparian community to provide for a basis for the effective usage and dissemination of water resources. This is strengthened by the facet of international law which rests primarily on treaties and customary law.

#### **I.4. INTERNATIONAL WATER LAW: RULES AND PRACTICE**

The laws pertaining to different aspects of human activities like maritime and space activities, environmental protection and international trade, further as access to and use of trans-boundary natural resources fall within the category of international law which is a system of legal rules, norms and general principles, substantive or procedural rules that govern State relations.<sup>35</sup> Akin to the present body of legal rules are the basic principles set forth within the Charter of the United Nations (UN Charter),<sup>36</sup> codifying the legal foundation of the international community's collective commitment to market regional peace and security, world cooperation and advance the basic freedoms to all. The importance of the rule of law in development and surroundings was recently emphasized within the world organisation Resolution "*The Future we Want*", the out-come manuscript from the "*UN Conference on Sustainable Development, Rio+20*".<sup>37</sup>

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<sup>35</sup> R. Jennings and A. Watts Oppenheim's International Law, 4 (Pearson,NinthEdition,1996)

<sup>36</sup> The Charter of the United Nations was signed on 26 June1945and entered into force on 24 October 1945. 1369 U.N.T.S.181.

<sup>37</sup> Rio+20, the United Nations Conference on Sustainable Development was convened 20 to 22 June 2012.

**Paragraph 7** of the resolution provides, "We affirm that we continue to be guided by the purposes and principles of the Charter of the United Nations, with full respect for international law and its principles."

International legal rules also govern the use and protection of water resources shared by two or more countries, which are often found in various international treaties and are reflected conjointly in rules of customary law of nations that mostly relies on State practice.<sup>38 39</sup> However, the law of nations are not the sole instruments available to resolve trans-boundary water conflicts, but it provides a large degree of framework for addressing a broad vary of water-related challenges and considerations that span across “scales sectors and disciplines,” which highlights the vital inter-connectivity of trans-boundary water resources management issues. Endeavor is made to tackle the world water challenge, particularly at international and regional levels which needs associate degree of integrated approach that takes into consideration various factors, at intervals the ever-changing context of the world community and therefore the evolving structure of international water governance.

The UN meeting on “Water, Peace, and Security of 2012 highlighted the importance of finding ways to enhance trans-boundary water resources co-operation and collaboration.”<sup>40</sup> It particularly emphasized that “since water resources may become a true supply of manipulation and increasing instability and may be a priority in each nation’s policy and domestic agenda, we want to figure along to advance cooperation on shared waters.”<sup>41</sup> While, unquestionably, the political will of national governments determines to an oversized extent the degree of cooperation across State borders, law plays a vital role through its prescription of the foundations of the sport governing the

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**Paragraph 8** states “We also reaffirm the importance of freedom, peace and security, respect for all human rights, including the right to development and the right to an adequate standard of living, including the right to food, the rule of law, gender quality, women’s empowerment, and the overall commitment to just and democratic societies for development.”

<sup>38</sup> M.N. Shaw, *International Law*, Cambridge University Press, Fifth Edition, 2003.

<sup>39</sup> Article 38 (1) of the 1946 Statute of the International Court of Justice (ICJ) is generally recognized as a statement of the sources of international law. Article 38 (1.a) requires the court to apply international conventions, whether general or particular, expressly recognized by the contesting states. Article 38 (1.b) requires the court to apply international customs as evidence of general practice accepted as law. Article 38 (1.c) requires the court to apply the general principles of law recognized by civilized nations. This section summarizes some important customary and general principles of international law applicable to trans-boundary water resources management that are accepted globally and incorporated in modern international conventions, agreements and treaties.”

<sup>40</sup>Patricia Wouters, *International Law “Facilitating Trans-boundary Water Cooperation, Global Water Partnership Technical Committee”* TEC, 17.

<sup>41</sup>Round table on Water Security, Remarks by Hillary Rodham Clinton, Secretary of State, United Nations, New York City, 25 September 2012. <http://www.state.gov/secretary/rm/2012/09/198179>. html.

conduct of individual nations and relations between them. The law of states defines the boundaries of State sovereignty and provides the context for trans-boundary water resources co-operation.<sup>42</sup>

#### **I.4.i. Rule of Law and its Role**

There is always a need felt to look at the role of rule of law in the context of international law in managing the trans-boundary water conflicts and building international cooperation in such trans-boundary issues which are provided in three ways:

- Relations of sovereign States and the framework governing it.
- A policy for applying an integrated approach and
- A system for implementing the rules of the game i.e, the substantive and procedural legal norms applying to specific water courses or water related activities.

International water law being a meta-framework for international relations provides associate identifiable corpus of rules of accord and customary law that verify the lawfulness of State actions with relation to water resources that cross national boundaries. International water law provides a platform for distinguishing and desegregation the legal, scientific, and policy problems relevant to the employment of trans-boundary water courses (such as ancient relation to all relevant factors and circumstances in determinant equitable use). At associate operational level, jurisprudence offers a spread of tools and mechanisms for implementation through concrete rules containing specific rights and duties further as procedures which will be invoked in managing trans-boundary water courses or breakdown inter-State conflicts.

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<sup>42</sup> Supra note 40.

## I.5. THEORIES AND DOCTRINES OF INTERNATIONAL LAW OF WATER

The establishment of the concepts of international laws on water pertaining to trans-boundary water resources management evolves from different theories and doctrines.

- **Absolute Territorial Sovereignty Theory:** Every country has absolute authority to use the waters of the river that flow in its territory even if the river has an international character. The country's right to use the river corresponds to the fact that it is under no obligation to even consult the other nation through which the river passes. As per the theory, without considering the needs of a lower riparian country, the upper riparian country can divert all the water from the shared watercourse.<sup>43</sup> This theory is named after the US attorney, Mr. Judson Harmon as the "Harmon Doctrine", who declared the absolute right of the USA over the Rio Grande in 1895. According to him, Mexico lacks the authority to impose restriction on the US on the ground that the Rio Grande lacked sufficient water for its use by the citizens of both the countries. However, this doctrine is rejected by most of the experts in this field and even the US backed out from the Harmon Doctrine with Mexico and Canada. Thus, this theory garners very little support as a state practice and also does not represent international laws on water.
  
- **Absolute Territorial Integrity Theory:** This theory expounds the contention that, along with having the right of full flow of water, the lower riparian country also has the right to oblige the upstream country to take consent before interfering with the free flow of water from the lower riparian country. Therefore, "no matter what the priority",<sup>44</sup> the lower riparian country has a right to claim the sustained and continuous flow of water. This theory is supported by the lower riparian country because of the guarantee that the country can utilize the river in an unchanged condition. Like the Harmon doctrine, this theory also has limited support in state practice, jurisprudence or the writings of commentators.

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<sup>43</sup> Supra note 17.

<sup>44</sup> Barandat and Kaplan, 1998; Schroeder-Wildberg, 2002.

- **Limited Territorial Sovereignty Theory:** This theory states that, unless the interests and the rights of riparian countries are prejudiced, each state is free to use the shared rivers flowing through their territories. In this case, sovereignty over shared water is qualified and related to other factors. The co-riparian's along with having equal share of the benefits of the international watercourse also share the rights and duties accruing from the same. This theory also known as theory of "*sovereign equality and territorial integrity*", has an added advantage that the rights of the upper riparian and the lower riparian countries are concurrently recognized and establishes the equitable use of water by all the interested parties. Along with the other said principles, this theory also entails, "*principles of equitable and reasonable utilization and obligation not to cause harm.*" Because of these reasons this theory has been widely accepted and has formed the basis of international water law.<sup>45</sup>
  
- **The Principle of Equitable and Reasonable Utilization:**<sup>46</sup> This rule stresses on shared sovereignty and entitles each nation in the basin to have a reasonable share of the water resource for the beneficial use of others. By this, the doctrine reinforces the balance of interests by accommodating interests of each riparian state. The said principle further finds its place in the UN Watercourses Convention and The Helsinki Rules. This theory was also endorsed in Gabkivo-Naymaros Dams case.<sup>47</sup>
  
- **The Obligation of not causing harm:**<sup>48</sup> Taking a clue from environmental law, the principle recognizes and enforces an obligation on the nations in the basin sharing a resource to ensure systematic use of water resources and thereby not using them in a manner that potentially causes a momentous detriment to the co-basin states or the environment at a whole.

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<sup>45</sup> Muhammad Mizanur Rahaman, "Principles of International Water Law: Creating Effective Trans-boundary Water Resources Management", International Journal of Sustainable Society, Vol. 1, No. 3 (2009)

<sup>46</sup> Id.

<sup>47</sup> 1997 I.C.J.Pg 7

<sup>48</sup> Supra note 45.

Due to its fundamental importance, the principle finds its place in several international watercourses and agreements, such as the Helsinki rules, The Stockholm Declaration etc.

- **The Doctrine of Prior Appropriation:**<sup>49</sup> The rule stresses on the first user, implying that the first user shall have the priority on the use of river waters. Hence, both the upper- riparian and the downstream state can have a priority access on the use of water resource to meet their respective demand, if it is the first user of the transnational waters.<sup>50</sup> However, the said rule by giving a priority right of use diverts from and neglects the use of the watercourse by other users for its beneficial applications and uses, involving irrigation, mining etc.
- **The Colorado Doctrine:**<sup>51</sup> Reinforcing the doctrine of prior appropriation, the Colorado doctrine stresses that the first user of the transnational water automatically gets a priority for its future use.<sup>52</sup>
- **The Principle of consultation, negotiation and consultation:**<sup>53</sup> The said principle calls upon every riparian state to give a prior notification to the other riparian state, in case where the sharing and use of such watercourse may cause serious harm to the other state and its interest. The said rule stems from Art. 3 of the Contemporary Rules of International resources devised by the “International Law Association”.<sup>54</sup>
- **Peaceful Settlement of Disputes:**<sup>55</sup> In course of sharing of transnational watercourses where disputes cannot be settled by a negotiation arrangement, all nations shall attempt to resolve such disputes through a peaceful means.

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<sup>49</sup> Id.

<sup>50</sup> Id.

<sup>51</sup> Supra note 45.

<sup>52</sup> Id.

<sup>53</sup> Id.

<sup>54</sup> Supra note 45.

<sup>55</sup> Id.

Though the custom made aspects of international water law attempt at resolving the problem of transboundary water dispute, yet they remain underdeveloped, and hence in situations such as these, comprehensive international rules backed by enforcement mechanisms is elusive. With the increase in industrialization and increase in demands for water resources required a law which was innovation driven so as to be applicable to non-navigational uses of water, being flood control etc., in contrast to the early conventions which solely focused and related to the navigational uses of water, for instance the '*Convention and Statute on the Regime of Navigable Waterways of International Concern.*'<sup>56</sup>

## **I.6. INTERNATIONAL INSTRUMENTS FOR TRANS- BOUNDARY WATER SHARING**

### **I.6.i. The Harmon Doctrine<sup>57</sup>**

The 1895 theory advocates that even if there are any possible hazardous consequences, the states have absolute liberty to use waters situated within its territory. This implies that a country is absolutely sovereign over the portion of watercourse situated in its particular domain and territory.

With the passage of the '*Act of the Congress of Vienna of 1815*', the process of the development and codification of international water law for the purposes of navigation commenced. However, in international context, the '*Manheim Convention on Navigation on the Rhine between Belgium, France, Germany and The Netherlands*' of 1868 is considered to be one of the important water treaties which adopted the recommendation of the '*Congress of Vienna, 1815 and Convention of Mainz, 1831.*' it was provided in this convention that the parties to this convention were obliged to maintain the river Rhine

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<sup>56</sup> Also, referred to as the Barcelona Convention of 20 April, 1921 to ensure navigation in waterways

<sup>57</sup> Based on the opinion of Attorney Judson Harmon, the doctrine holds that a country is absolutely sovereign over the portion of an international watercourse within its borders. Thus, that country would be free to divert all of the water from an international watercourse, leaving none for the downstream states.

and make it sure that the navigational independence through Rhine is maintained.

*“The Convention and Statute on the Regime of Navigable Waterways of International Concern,”* widely known as *“Barcelona Convention,”* was adopted at Barcelona on 20th April 1921, which dealt with the navigational use of trans-boundary water courses. The aftermath of the twentieth century and the rapid industrialization which in turn increased the demand for water and paved the way for drafting more laws which became applicable to the non-navigational uses of water, such as hydropower, water allocation, flood and quality management of water. As a result of which, these non-navigational principles have become more prominent in a state’s practice and water laws. This part of the research highlights the *‘the Helsinki Rules, 1966; the UN Watercourse Convention, 1997 and the Berlin Rules, 2004* for establishing the fact as to how much the principles on trans-boundary water resources are provided in the recently developed international conventions.

#### **I.6.ii. The 1996 Helsinki Rules on the uses of the Waters of International Rivers**

*‘The Helsinki Rules on the Uses of the Waters of International Rivers’* was adopted at the 52nd conference, by the International Law Association (ILA) at Helsinki in August 1966. Popularly known as the Helsinki Rules, this document has become acceptable as the basis for negotiation amongst the riparian states and have become relevant even for non-navigational uses of trans-boundary waters, although the Articles XII to XX provide for the navigational uses.

Article II the Rules defines *“international drainage basin’* 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.”*

Article IV, V, VII, X, XXIX (4) ascertain the “*principle of equitable and reasonable utilization*” of the water resources by stating, 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.*”

Article V subject to Article V, paragraph II determines the factors that may be taken into consideration for the determination of equitable and reasonable share of water resources in the international drainage system.

Article V, Paragraph II reads as:

- The earth science of the basin, together with the extent of the drainage basin within the territory of every basin state.
- The climate that affects the basin.
- The geophysics of the basin, including the contribution of water made by each basin state.
- The past usage of the waters of the basin, including the existing utilization.
- The costs of different means of satisfying the economic and social needs in each basin state.
- In each basin state, the population dependant on such basin.
- The economic and social needs of the basin state.
- The availability of other possible resources.
- The viability of reimbursement for the adjustments of any conflicts.
- Avoiding unnecessary waste in the utilization of waters of the basin.
- The extent to which the needs of a basin state may be contented, without causing any injury to a co-basin state.

The addition of the term “without inflicting substantial injury” in Article V (II) demonstrate the espousal of the principle “not to cause significant harm”. Articles X, XI, XXIX (2) additionally endorse this principle. Articles IX–XI provides provisions for dominant pollution of a global geographic area on the premise of the principle of

evenhanded utilization. It is fascinating to note that the paragraph 1(a) of the Article X uses the principle of “not to cause significant harm” in dominant pollution. It mentions:

*“Consistent with the principle of equitable utilization of the waters of an international drainage basin, a State must prevent any new form of water pollution or any increase in the degree of existing water pollution in an international drainage basin which would cause substantial injury in the territory of a co-basin State.”*

A state is bound under Article XI, for the violation of paragraph 1(a) of Article X, to stop any unlawful conduct and should provide with a compensation to the co-basin state for any injury caused, thus, anything that causes pollution of water falls within the ambit of the “*not to cause significant harm*” principle, but still the matter is controversial, as the term “*substantial injury*” is not properly defined. “*In addition, injury does not always necessarily equate with harm and substantial does not always equate with significant.*”

For the prevention and settlement of the disputes, the Helsinki Rules under Articles XXVI-XXXVII provides for the key objective to prevent or settle the disputes by peaceful means (Article XXVII). Also, Paragraph 1 of the Article XXIX recommends that, each basin state should provide for all required available information to the other basin states concerning the waters of a drainage basin within its boundary of Article XXIX, Paragraph 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} and the notice should include such essential facts as will permit the recipient to make an assessment of the probable effect of the proposed alteration.”*

Proposal for the settlement of disputes by alternative mechanisms like negotiation and the establishment of an agency for creation of plans for the proficient utilization of water can be found in Articles XXX and XXXI.

For the purpose of settlement of disputes Article XXXII provides for mediation by a third party this could either be an international organisation or a qualified person. In cases where states in dispute have not been able to resolve their disputes through negotiation or any other measures provided in Articles XXXI and XXXII, Articles XXXIII– XXXVII, in such cases provide for certain guidelines for settlement of disputes and even for arbitration mechanisms. Thus, the 1966 Helsinki Rules provides for the principles of:

- Notification,
- Information sharing
- Negotiation,
- Cooperation
- Consultation, and
- Peaceful settlement of disputes.

The ILA's subsequent resolutions ,The 1982 Montreal Rules on Pollution and the 1986 Seoul Complementary Rules later supplemented the Helsinki Rules and of late, these Helsinki Rules and subsequent resolutions have been reformulated by the ILA's 2004 Berlin Rules. However, the Helsinki Rules do not have any official status internationally as they were drafted by the ILA, which is a professional organisation although these rules are important in the enhancement of international water laws. But, the fact remains that these Rules have to be given great value as the subsequent bilateral and regional treaties have adopted a great deal from the Helsinki Rules and since many years these Rules have been pivotal in the development and codification of international water law.

The Helsinki Rules and their supplementary declarations have however enjoyed a little recognition as official codification of international water law although these Rules have certain applicability and are considered to be sound Rules and to overcome this

inconclusiveness, the UN General Assembly, in 1970, specially required the International Law Commission (ILC) to draft articles to direct non-navigational uses of trans-boundary waters. Thus, the work of ILC is highly regarded as an official codification of international water law and after 21 years of extensive work, the ILC prepared the draft text of the UN Watercourses Convention in 1991.

### **I.6.iii. The 1997 UN Convention on Non-navigational Uses of International Watercourses**

The UN General Assembly on 21<sup>st</sup> May 1997 adopted the “*Convention on Non-Navigational Uses of International Watercourses*”, after considerable discussions between 1991-1997, popularly known as the “*UN Watercourses Convention*” and is based on the “*1966 Helsinki Rules*”.<sup>58</sup> After Turkey’s request, the General Assembly voted on the Resolution 51/229 for the implementation of the Convention and out of 133 countries, 103 nations voted in favour, 27 abstained and 3 nations voted against the Convention.<sup>59</sup>

The Convention was open for signature from 21 May 1997 till 20 May 2000 provided under Article 34, however, Article 36 provided that States or regional economic integration organizations may continue to ratify, accept, approve or accede to the Convention indefinitely. Only 16 countries as of 9 January 2008 had ratified or consented to be bound by the UN Watercourses Convention. But, as per the wordings of Article 36(1) a minimum of 35 instruments of acceptance, ratification and approval are necessary to bring the Convention into force.

Although this Convention has not been brought into force yet, it provides for the general customary principles of international water law that was developed by international judicial bodies and scholars of relevant field.

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<sup>58</sup> United Nations Declaration Programme, 2006

<sup>59</sup> IWLP 2008.

The following part of the research discusses the scope of the Articles of the Convention relevant to the principles of international water law.

As per the Article 1(1), the scope of the Convention applies to *“non-navigational uses of international watercourses and their waters.”* The navigational uses are out of the scope of the Convention except insofar non-navigational uses affect navigation or are affected by navigation (Article 1, paragraph 2). Article 2 of the Convention defines ‘international watercourse’ as *“a system of surface waters and ground waters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus, parts of which are situated in different states.”*

Article 5 provides for the theory of equitable and reasonable utilization:

*“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.”*

Article 5(2) provides for the watercourse States: *“to participate and cooperate in the use, development and protection of the watercourse in an equitable and reasonable manner.”*

Article 6(1) state that *“all relevant factors and circumstances should be taken into account in determining equitable and reasonable utilization.”*

These factors include:

- Population that is dependent on the watercourse in each water-course State.
- Social and economic needs of the Watercourse States.
- Effects of the uses of the watercourses in one watercourse state on another.

- Ecological, hydrological, hydro-graphic, climatic, geographic, and other factors of a natural character.
- Safety, preservation, growth and economic use of the water resources of the watercourse.
- Existing and potential uses of the watercourse.

For Articles 5 and 6(1) to apply, Article 6(2) mandates states to “*enter into consultations in a spirit of cooperation.*” Moreover, it is to be noted that, neither of the above mentioned factors in Article 6(1) can be clearly defined as they are ambiguous in nature and entail larger aspects of the same.

The Preamble and the Article 24(2) highlights the need to “manage international watercourse by promoting the rational and optimal utilization, protection and control of the watercourse.” Article 7 of the Convention provides for the principle of the “*obligation not to cause significant harm*” in its paragraph 1, which reads:

*“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.”*

Article 7(2) provides that all states should comply with the provisions of Articles 5 and 6 to diminish significant harm on another watercourse State. Article 10 states that “*any conflict among uses of an international watercourse shall be resolved with reference to Articles 5-7.*” Articles 12,15,16,17 and 19 prohibits the execution of any action on an international watercourse that are contradictory to the provisions of Articles 5 and 7.

Article 27 provides for taking “*appropriate measures to prevent or mitigate conditions that may be harmful to other watercourse states, whether resulting from natural causes or human conduct, such as flood, siltation, erosion, water-borne disease and drought.*”

The UN Watercourses Convention however endorses the “*principles of co-operation and exchange of information.*” Article 8(1) and Article 8 (2) in this context places an obligation upon States for the cooperation for utilization and proper protection of international watercourses and also obligates the States for the establishment of mechanisms or commissions for the facilitation of cooperation amongst themselves. For exchanging data and information, the States are obliged under Article 9 for “*proper dissemination of such information relating to hydrological, meteorological and ecological nature of the water quality as well as such related forecasts.*” Articles 24(1) and 25(1) provide for joint management mechanism of the international watercourse and that the States shall “*cooperate to respond to the needs and opportunities for the regulation of the flow of the waters respectively.*”

Article 11-19, Articles 24(1), 26(2), 27, 28 and 30 of the Part III of the UN Watercourses Convention entails the “*principles of information exchange, cooperation, consultation, notification and negotiation.*” Articles 11-19 provides for the “*detailed procedures for the notifications, information exchange, consultations and negotiations on any planned measure in an international watercourse.*” Article 11 stresses: “*Watercourse States shall exchange information and consult each other and, if necessary, negotiate on the possible effects of planned measures on the condition of an international watercourse.*” Article 12 makes notification of the planned measure in an international watercourse obligatory and states:

*“Before a watercourse State implements or permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof. Such notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, in order to enable the notified States to evaluate the possible effects of the planned measures.”*

Article 24(1) states, “*Watercourse States shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.*” Article 26(2) requires states to “*enter into consultation in case any installations, facilities and other works related to an international watercourse causes or poses to cause significant adverse effects to watercourse states.*” Article 28(2) requires all “*watercourse states to notify other states by the most expeditious means in case of emergency situation that causes, or poses a threat of causing, serious harm to watercourse states.*” Paragraphs 3 and 4 of the Article 28 call for “*cooperation among all potentially affected states to prevent mitigate and eliminate harmful effects of the emergency situations and to develop contingency plan for responding to emergencies.*” Article 30, recommends amongst states who do not have direct contact for the “*cooperation, data and information sharing, notification, consultations and negotiations through any indirect procedure accepted by the states concerned.*” Thus, the above mentioned Articles provide for the “*principles of information exchange, notification, cooperation, consultation and negotiation.*”

Articles 20 to 22, point at the conservation and enrichment of watercourse ecosystem on the basis of the principle of “*not to cause significant harm*”. Paragraph 2 of the Article 21 entails “*watercourse states to individually and/or jointly prevents, reduce and control the pollution of the international watercourse that may cause significant harm to other watercourse states, or to their environment, including harm to human health, to the use of any beneficial uses of the waters or to the living resources of the watercourse.*” Article 22 provides “*all states to prevent the introduction of alien or new species that may cause significant harm to ecosystem and other watercourse states.*”

Thus, the above mentioned Articles (Articles 21 and 22) expand the span of the “*not to cause significant harm*” principle provided in Article 7(1) of the UN Watercourse Convention, for the preservation of watercourse ecosystems and human health and recommends “*watercourse States to take measures to harmonize their policies for preserving watercourse ecosystems*”. Detailed provisions for settlement of disputes are provided under Article 33 of the Convention. Article 33(1) state that “*in the absence of*

*agreement, all states shall settle the disputes by peaceful means in accordance with the provisions of Article 33.”*

The UN Watercourse Convention though not operative, became norms of international legal follow and adds towards progressive growth and codification of international water law. However, the ILC’s draft Articles even before its adoption has influenced many regional treaties and international agreements , such as “*1992 UNECE Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes, the 1995 SADC Protocol on Shared Watercourse Systems (revised in 2000), the 1995 Mekong river basin agreement.*”

#### **I.6.iv. The 2004 Berlin Rules on Water Resources**

In the ILA’s 71st conference held in Berlin, the Berlin Rules on water resources were approved on 21<sup>st</sup> August 2004 and unlike the earlier principles provided in Helsinki Rules and UN Watercourses Convention, the Berlin Rules also include “*international human rights law and the humanitarian rights law relating to the war and armed conflict.*”

Articles 4-9 provided under Chapter II addresses the principles of international law governing the management of all waters. Articles 5 and 6 assimilate the need for connective and integrated management of water resources. Article 5 entails states to manage groundwater, surface water and other sources of water together. Article 6 recommends states to integrate appropriately the management of waters with other resources. Article 8 requires states to take all appropriate measures to prevent or minimize environmental harm.

Articles 10-16 provided under Chapter III deal with internationally shared waters. Article 10 ascertains that “*basin states have the right to participate in the management of waters of international drainage basin in an equitable reasonable and sustainable manner.*”

Article 12 mentions:

*“Basin States shall in their respective territories manage the waters of an international drainage basin in an equitable manner having due regard for the obligation not to cause significant harm to other basin States.”*

To draw a comparison between Helsinki Rules, UN Watercourses Convention and the Berlin Rules, it can be observed that the earlier Rules emphasize the *“right of each basin state to a reasonable and equitable share and the Berlin Rules oblige each basin state in international drainage basin to manage water in equitable and reasonable manner.”*

Article 13(2) of the Berlin Rules provides *“for the list of all the factors that should be considered in determining the equitable and reasonable use as provided in Article 12. In addition to the factors listed in Article 6(1) of the UN Watercourses Convention, Berlin Rules include two new factors to be considered, i.e.”*

- the sustainability of proposed or existing uses and
- the minimization of environmental harm.

Article 14 (1) clearly mentions that *“in determining equitable and reasonable use, allocation of waters to satisfy vital human needs should receive the first preference over the other uses of water.”* Article 16 requires states to *“refrain from and prevent acts within their territory that causes significant harm to another basin state.”*

Article 11 requires that *“the basin states should cooperate in good faith for proper management of waters of international drainage basin.”* In Chapter XI *“international cooperation and administration”* is provided for in which Article 56 requires *“basin states to exchange relevant and available information on the quantity and quality of waters.”* Article 64 provides for the establishment of *“basin wide commission or a joint agency to ensure the sustainable and equitable use of waters and the prevention of harm.”* Articles 57, 58, 59 and 60 recognize that *“each basin state is entitled to receive*

*prior notice, consultation and negotiation in cases where the proposed programme, plan, project or activity may cause significant effect to its rights or interest.”* Articles 72 and 73 provided under Chapter XIV provides for the “*peaceful settlement of water disputes as well as guidelines for arbitration and litigation.*”

A point however should be noted here that though the ILA is significant, the proposals and rules made by them have no force unless:

- the United Nations adopts them in a Convention.
- the International Court of Justice uses the rules in some ruling.
- A trans-boundary water sharing agreement is adopted by countries.

## **I.7.WATER CONFLICTS BETWEEN INDIA AND BANGLADESH**

Water is a magnificent substance. It has been described as the noblest of the elements and the first of things.<sup>60</sup> *Mccaffery* in his book has expatiated upon various writers and poets<sup>61</sup> who have written well on the usage and importance of water. In this regards he quotes Benjamin Franklin, “*we tend not to appreciate water fully until we are without it, when the well’s dry, we know the worth of water.*”<sup>62</sup>

Water rejuvenates all sectors of society. Nearly half of the world’s accessible surface water is found in 263 international stream basins, and groundwater resources that account for over hundred times the quantity of surface water, cross below a minimum of 273 international borders. National boundaries make water problems political so way more advanced. All trans-boundary water bodies produce social, economic and hydrological interdependencies between societies.

History has usually shown that the important nature of freshwater may be a powerful

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<sup>60</sup> McCaffrey, *The Law of International Watercourses*, Oxford University Press, 2nd Edition, (2010)

<sup>61</sup> Poets as early as Ovid have drawn inspiration from water’s remarkable properties as a solvent: “What is harder than rock, or softer than water? Yet soft water hollows out hard rock. Only preserve.”

<sup>62</sup> *Supra* note 60.

incentive for cooperation, compelling the stakeholders, to reconcile even the foremost contrary views. Water additionally usually unites than divides peoples and societies. It has been observed that out of the known water conflicts, only 37 occurrences of acute conflicts have arisen since 1948 and around 295 international water agreements have been signed and negotiated since the same time. Clearly, avoidance of disputes is usually a robust political driver for initiating cooperation on trans-boundary waters, as riparian States acknowledge that they have to safeguard their larger common interests.<sup>63</sup>

The so called inter-state and international water disputes often occur, recur and continue over years and generate issues with numerous economic, social and political implications additionally to the legal disputations and tensions. These tensions arise from the unsatisfactorily addressing of the problems of water insecurity, modified environmental condition, ever growing demographic pressure, and therefore the organic process desired by the contesting stakeholders described by the governments. Most of the states in Republic of India have inter-state water disputes and also India has International Water Disputes with Asian nations, like, Pakistan, Nepal, Bangladesh and China, where the parties have tried to seek out solutions through legal and even non-legal means. Efforts for settlement of international water disputes through negotiation, agreement and arbitration also are occurring so as to deal with the issues arising from ever-changing economic, environmental condition and geographic conditions.

As distinct from the past, today's laws on water disputes prominently point on the issues of environmental protection, human rights, development with justice and fair access to resources. Amongst all this the concept of federalism and international comity also undergo critical test.

Water stress and climate change are some issues which States are experiencing on a rising number and such issues will also increase the numbers of countries experiencing high variations in their water resource availability and higher frequencies or intensities of

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<sup>63</sup> Trans-boundary Waters: Sharing Benefits, Sharing Responsibilities, UN Water, Thematic Paper, 2008

floods and droughts. These issues can further lead to competitions over water, which in turn can increase tensions between States and can lead to open conflict.

In-order to identify the root cause of water tensions, one can make an assessment of past water-related conflict, which shows that dam construction, water abstraction, water scarcity and chronic and accidental water pollution by industry, as well as non implementation and non-acceptance of existing treaty provisions, often are the main causes for the same. There are much greater risks because of the growing populations, urbanization and economic development all require more water for agricultural, municipal and industrial uses.

One of the continuing vital problems is that the deficiency and sharing of fresh water resources between India and Bangladesh, where large rivers like the Indus, Ganges, and the Brahmaputra River are born within the lofty heights of the Himalaya Mountains and are controlled for electricity power before flowing to the huge plains of the Deccan and on to either the Arabian sea to the west or the Bay of Bengal region to the east. The matter of water resource allocation and sharing, mainly for irrigation functions, has infested relations between India and its neighbours, and has led to a real case example of environmental security wherever environmental problems are entwined with national security problems.

Flowing from the Himalayas in Nepal and Tibet the rivers Ganges and Brahmaputra form some of the largest river basins in South Asia encompassing over 1.6 million km and ultimately join Bangladesh wherever they discharge into the Bay of Bengal. Before the Ganges enters Bangladesh, it divides off a smaller stream, the Bhagirathi- Hooghly that flows through the port of Calcutta. Four-fifths of Bangladesh, is straddled by this delta system whose half of the GDP is predicated on agriculture, and therefore this river's irrigation value is important to the country's economy and its over a hundred and twenty million inhabitants.<sup>64</sup> The topography of East Pakistan and its geographical location

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<sup>64</sup> P.H. Gleick(ed.), *Water, Politics, and International Law*, in *Water in Crisis: A Guide to the World's Fresh Water Resources*, (Oxford University Press, 1993)

create it extraordinarily prone to natural disasters. Typhoons associate degreed monsoons manufacture multiple floods virtually on an annual basis, and through the season between Jan and May, the Ganges might drop to levels that have a powerful damaging impact on agriculture and fisheries.

Water has been a cause of conflict since very oolden times. One of the earliest water conflicts in the sub-continent is recorded in the famous Goutama Buddhar Kappiyam: a conflict over the sharing of Rohini river water between the Sakyan and Koliyan clans, which was, according to Dr. Ambedkar, the cause of the Buddha"s leaving home. As the Kappiyan describes it,

*“When the Sakiyas and Koliyas waged a terrible war  
About sharing the river Rohini,  
Blood, gushing like a spring, flooded the waters,  
The Buddha, coming to know of it,  
Did what was needful  
To end the long-drawn discord and  
To bring both sides together  
All shall be well if good men try.”*<sup>65</sup>

The Southern part of Asia is finite by the mountain range on the north and also the Indian Ocean on the south, includes India, Bhutan, Nepal, Bangladesh, Afghanistan, Sri Lanka, Pakistan, and the Maldives. It covers a diversity of ecosystems and agro-climatic conditions that vary from tropical and temperate forest to dry deserts and from immense drought prone regions to flood affected plains and areas with the best rain within the world. It is additionally one amongst the foremost thickly settled regions in the planet. Since it might take another few decades for the population of the region to stabilize, the demand for water – each for domestic use and for production and process is predicted to travel up considerably within the close to future. More than half of the world's poorest

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<sup>65</sup> S. Guhan, The Cauvery River Dispute: Towards Conciliation 47(Madras Frontline Publication, Kasturi and Sons.1993)

people live here and virtually forty per cent of its population falls below the poverty level. It is all-time low average Gross Domestic Product (GDP) compared to the other major geographical regions of the planet.<sup>66</sup> It is additionally one amongst the foremost conflict stricken regions within the world and these conflicts between the neighbouring countries are coupled with civil unrest in these countries. The region is additionally distinctive in terms of the various political regimes<sup>67</sup> and social systems<sup>68</sup> that exist in the region.

### **I.7.i. Duration: 1951 till Date**

The origin of the water conflict between India and Bangladesh can be traced to 1951 when Bangladesh was part of Pakistan.<sup>69</sup> India, during this period had long term plans to build a barrage at Farakka which would be a mile long. This barrage was supposed to be built 18kms from the Bangladeshi border and the main object of building this barrage was to increase the diversion of Ganges water to the Bhagirathi-Hooghly River and keep Calcutta harbour operational during the dry season as was believed that by increasing the river flow, the Calcutta harbour could be kept away from deteriorating from silt deposition. However, the then Pakistan protested on the grounds that this action would wreak havoc on it's land and also the environmental impact would be great. However, India continued, with the plan of the construction and started it in 1962. With no other recourse left, the then Pakistan took the matter before the United Nations General Assembly in 1968 and discussions continued in that forum until 1976. However, the attention garnered by this issue internationally made India recognize that the Ganges was an international river, and that each riparian State was entitled to a reasonable and

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<sup>66</sup> Rural Poverty Report 2001 (Kulkarni, Seema and Nagmani Rao, 2002)

<sup>67</sup> For example countries like India, Pakistan, Bangladesh and Sri Lanka, and recently, Nepal have elected "democratic" governments whereas in Bhutan it is the hereditary "rule" of the Royal family with limited powers to the elected representatives. Afghanistan is a post-war society in transition and the political system is still evolving.

<sup>68</sup> Broadly, one can characterize the social systems in India, Pakistan, Bangladesh and Sri Lanka are more modernist in their outlooks and their social relations are more capitalist in nature as compared to Nepal, Bhutan and Afghanistan where feudal relations and value systems are much stronger Nevertheless there is tremendous regional and sectional variation in all these societies and caste, ethnicity and religion too play an important role in the social, economic, political and cultural spheres.

<sup>69</sup> A. Swain, Conflicts over Water: The Ganges Water Dispute, Security, 24, 429-439(1993)

equitable share of the waters of an international river.<sup>70</sup>

After Bangladesh became an independent nation in 1971, it was expected that better relations between India and Bangladesh would result, but India's persistence on building of the Farakka barrage led to a general spoiling of the relationship. However, in 1972, an Indo-Bangladesh Joint Rivers Commission was formulated to study the flow of the river and develop the river water on a cooperative basis, but work on the Farakka barrage continued, which was finally completed in 1975 and a short-term agreement was signed by India and Bangladesh to conduct a 40 day trial test of the barrage during the dry season.

However, four months later, the President of Bangladesh was assassinated for being too co-operative with India and in the next dry season, India began the diversion of water at Farakka one-sidedly, and continued to do so until 1977 when a treaty on "*Sharing of the Ganges Waters at Farakka and on Augmenting its Flows*"<sup>71</sup> was signed between the two countries which guaranteed a minimum level of flow for Bangladesh for a period of five year. After the expiration of this treaty in 1982, two more short-term agreements were signed on water sharing till 1988, but, India continued unilateral diversions of water.

A sense of stability came up when in 1992; the then prime ministers of both the countries met for a concerted effort to come to a solution. In addition, Bangladesh was also reviving its attempts to internationalize the issue by bringing forth the dispute before the UN General Assembly and the Commonwealth Heads of Governments Meeting in 1993 and also in the South Asia Association for Regional Co-operation (SAARC),<sup>72</sup> with no definite action being taken.

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<sup>70</sup> Supra note 17.

<sup>71</sup> Sharing of the Ganges Waters at Farakka and on Augmenting its Flows, signed between India and Bangladesh on November 5, 1977, NO - 14(1)76 -EP. IV

<sup>72</sup> SAARC comprises Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka, and its main goal is to "accelerate the process of economic and social development in member states, through joint action in the agreed areas of cooperation.

An atmosphere of regional cooperation evolved in 1996 when there was a change of government in India, and in December of 1996, a *Ganges Water Sharing Treaty* was signed that is to last for thirty years. The Treaty addresses the main issue of the conflict: *“water allocation during the five months of the dry season (January-May). During the rest of the year, there is sufficient water that India can operate the Farakka diversion without creating problems for Bangladesh.”* However, increasing upstream withdrawal in Northern India has further lowered the dry-season flow at Farakka, further complicating matters. Hence, the Treaty stipulates that *“below a certain flow rate, India and Bangladesh will each share half of the water. Above a certain limit, Bangladesh will be guaranteed a certain minimum level, and if the water flow exceeds a given limit, India will withdraw a given amount, and the balance will be received by Bangladesh, which will be more than 50%.”*

## I.7.ii. Historical Evolution of Water Conflicts and Negotiations between India and Bangladesh<sup>73</sup>

YEAR	EVENT
1951	<p>India declares its intentions to build a Barrage across the Ganges Bangladesh objects on 29th October 1951.</p> <p>The Barrage diverts water into the Baghirathi-Hooghly River to flush out silt and increase navigation accessibility to Calcutta.</p>
1961	<p>India formally admitted the sole construction of the barrage on 30th January 1961.</p>
1972	<p>India and Bangladesh signed Indo- Bangladesh Joint River Commission (JRC) On 24th November 1972.</p>
1974	<p>Construction of Farakka Barrage is completed.</p> <p>In a joint statement both the prime ministers of Bangladesh and India on 24th November 1972, recognized the need for augmentation in the lean season flow of Ganges and expressed their determination that before the commissioning of the Farakka Project, both the countries would arrive at a mutually accepted allocation of water available during the periods of minimum flow in the Ganges.</p>

<sup>73</sup> Trans-boundary Water Politics and Conflicts in South Asia: Towards 'Water for Peace', Richa Singh, Centre For Democracy And Social Action, [http://in.boell.org/sites/default/files/downloads/water.\\_Final.pdf](http://in.boell.org/sites/default/files/downloads/water._Final.pdf)

1975	<p>On 21st April 1975, the Barrage was commissioned.</p> <p>With this commissioning India gained control over Ganges flows into Bangladesh even during the dry season.</p> <p>In the spring of 1975 India withdrew 40,000 of the 55,000 ft<sup>3</sup>/s of water from the Ganges, which led to disastrous consequences on Bangladesh.</p> <p>India and Bangladesh however, were unable to reach to an agreement.</p>
1976	<p>Bangladesh on 26th November 1976 raised this issue in the U.N. which adopted a consensus statement and directed both countries to urgently negotiate a reasonable and expeditious settlement of the problem to promote the sustainability of the region.</p>
1977	<p>On 5th November 1977 India and Bangladesh signed the <i>Ganges Water Agreement</i> on for the period of 5 years. This treaty gave Bangladesh 80% of Ganges flow during the dry season and was followed by two memorandums of understanding lasting through 1988, which did not include any minimum flow into Bangladesh.</p>
1982	<p>A Memorandum of Understanding (MoU) was signed between the two countries on 7th October 1972 for sharing dry season flow of Ganges at Farakka and this MoU was followed by the understanding reached between the then prime ministers of both the countries at the Delhi Summit on November 1982.</p>

1988-1996	The MoU's expired and no further agreements were reached between 1988 to 1996. However, India withdrew 40- 45,000 ft <sup>3</sup> /s from the Ganges every dry season during this period.
1995	Bangladesh once again brought the issue to the notice of the 50th UN General Assembly about the misery of the people of Bangladesh due to the unilateral water diversion at Farakka Barrage on 23rd October 1995,
1996	On 12th December 1996, the two countries reached a 30 year agreement which provides that Bangladesh will receive a minimum flow of 35,000 ft <sup>3</sup> /s from January to May. This resulted in further agreements between India and Bangladesh.
2005	The 36th Indo-Bangladesh Joint River Commission meeting was held on September 2005, in which Bangladesh again proposed to have tripartite talks involving Nepal for building reservoirs in Nepal in order to augment the dry season flow of the Ganges.

To conclude, it is hence pertinent to note that a serious water crisis, centered on transnational water sharing now confronts the world, and has the potential of becoming worse. Water being a tool of sustainable development and having an over-reaching value has the potential of causing conflicting interests among nations. The sharing of international watercourses can have wide reaching significant implications for states. History has been a witness to such water conflicts that prevailed in the early civilizations. In this context, the important thing is to have a better water management system in place so as to build a better harmonious system in place. Hence, water security is essential for maintenance of a central balance and in achieving preventive diplomacy between nations. So as to incorporate all characteristics of an international watercourse, i.e. cultural, political, social, economic, physical and environmental, it is essential to manage water resources particularly basing on geographical restrictions than merely based on political and administrative limitations of a state or nation. The global challenge of transboundary water sharing requires a proper allocation of water between riparian states, thereby ensuring that each nation in the basin has an access to water sharing based on the principle of equity. In situations wherein, water poor countries are involved in an international sharing of water resource, the only option available is to sustainably optimize water resources and to cooperate and collaborate with co-riparian states on a holistic and an efficient water sharing.

Despite having numerous initiatives undertaken and having water treaties between nations, there is a clear lack of a detail and legal institutionalized framework, clearly laying down and specifying guidelines for water sharing and water cooperation along with effective dispute resolution mechanisms involving riparian countries. Water treaties and cooperative water arrangements can help in improving the social accord only when they are backed by equity and planning, hence contributing to political stability between riparian nations. The underlying problem being that water treaties involving a transboundary resource, lack definite specified sharing numbers of allocation. In case where the treaties do specify the sharing figure, are quite rigid in nature, hence it becomes a challenging task to adjust the allocation of the water resource as per changing dynamics of the basin or according to hydrological variations. Further, such

transboundary water sharing agreements often ignore the aspect of water quality and its sustainability. To make matters worse, most existing water sharing arrangements are toothless in the absolute sense as they lack enforcement at the elementary level, conflict-resolution mechanisms and the basic monitoring provisions. The lack of a clear and a well-defined comprehensive framework of water laws lead to arbitrariness and opaque decision making, therefore leading to fragrant violations.

Henceforth, it is essential that the water treaties regulating the sharing of transnational waters are significantly revised so as to ensure proper allotment of shared waters between nations or states in the basin. Furthermore, where water flow between nations is uncontrolled, and becomes a subject of water disputes, such conflicts can be taken to the judiciary for settlement.

The issue of transboundary water sharing is essentially a significant one which crucially affects the aspect of water quality and its sharing, thereby generating enormity between nations at large. The international principles relating to the same though help in coordination among nations relating to the same and management of water yet are insufficient as a whole and need work in enforcement and ensuring its implementation. In diplomatic, economic and political, manner water wars have long been fought between the riparian neighbours, thereby inflicting a series of accusation, worsening water challenges, and nurturing distrust that prevents larger regional integration and cooperation. Thus, to mitigate this challenge of transboundary water sharing, the only way forward is to build stable and entrenched cooperation among the participating parties for a mutual benefit.

## CHAPTER II

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# PRINCIPLES OF INTERNATIONAL LAW AND SETTLEMENTS OF WATER DISPUTES

### II.1. INTRODUCTION

Lives and livelihoods of millions of people around the world is supported by trans-boundary waters which include lakes, river basins and the aquifers which are shared by two or more countries.<sup>74</sup> According to UN report approximately there are 300-transboundary water recourses, which fulfill the demand of 2 billion people for water consumption. Transboundary water resources not only fulfill and support the needs of human being but also maintain ecosystem, essentially required for other living creatures as well. Transboundary Rivers, Aquifers and international lake helps in making an ecosystem to reduce the flood impact. Transboundary water resources economically support the region through irrigation, hydroelectricity and reducing the economical backwardness of the region. The earth's surface which is covered by almost 263 trans-boundary lakes and river basins<sup>75</sup> have fresh water resources that are continuously degraded either in the quantity or the quality. The shortage of water resources and its huge demand made these resources very valuable.

Transboundary water agreements and its history can be traced back from 2500BC when the two Sumerian states of "*Lagash and Umma*" entered into an agreement to settle dispute around Tigris River. Transboundary water, word itself is very vague and defines very complicated network of water resources which flows through different sovereign

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<sup>74</sup> Trans-boundary Waters, [http://www.unwater.org/water-facts/transboundary-waters/#dismiss\\_notice](http://www.unwater.org/water-facts/transboundary-waters/#dismiss_notice)

<sup>75</sup> Id.

states in various forms like glacier, lake, river, basin, sea, and ocean. The availability of water in various resources in different states is the main reason of conflicts, the claim of ownership rights results in a formation of agreement a peaceful solution to overcome conflicts between them and in today's situation war is not the solution for water dispute rather than it can be settled through legal negotiation which is far more better solution than war.

The first of its kind of convention to focus on protection, preservation and management of water courses is the '*Convention on the Law of the Non-navigational Uses of International Watercourses 1997*'<sup>76</sup> which is located in different states therefore it will lead to sharing of water in different states in which it is situated, the Convention also lays down principle on which water is going to be divided. The three principles viz: equitable and reasonable utilization and participation of this Convention also restrict the harm causing activity done by one state. These principles are:

- the principle of equitable and reasonable utilization;
- the principles of cooperation, information exchange, notification and consultation;
- the theory of limited territorial sovereignty;
- an obligation not to cause significant harm; and
- the peaceful settlement of disputes.

These principles also form the foundation of the Helsinki Rules on the Uses of the Waters of International Rivers 1996 and the UN Convention on Non Navigational Uses of International Watercourses of 1997.<sup>77</sup> The success of several trans-boundary water sharing agreement e.g. *The Convention to Protect and Sustainable Use of Danube River of 1994*; the second longest river of Europe swayed other states to come under multi and bilateral agreement of water sharing. India being southern Asian nation having

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<sup>76</sup> The Convention on the Law of Non-Navigational Uses of International Watercourses, commonly referred to as the UN Watercourses Convention, is an international treaty, adopted by the United Nations on 21 May 1997, pertaining to the uses and conservation of all waters that cross international boundaries, including both surface and groundwater.

<sup>77</sup> Supra note 45.

Himalayas at the north which is main water source for many rivers which also enters into other neighboring state, has several transboundary agreement e.g. *The Indus Water Treaty of 1960*, *The Mahakali Water Treaty of 1996* which was ratified and resigned to resolve the issue of water sharing, *The Ganges Treaty* signed in 1996 between India and Bangladesh; *Memorandum of Understanding (MoU) in 2013* between India and China which helped India to gain more hydrological information at the start of flood season.<sup>78</sup>

Transboundary water sharing resources crisis could be avoided by a balanced legal framework, a treaty that balances the demand of both the state and adhere to the ‘*principle of equitable and reasonable utilization*’. Various other factors also determine this particular principle of equitable and sustainable development as per mentioned in ‘*The Convention on the Law of the Non-navigational Uses of International Watercourses*’.<sup>79</sup> Sharing the water resources could also bring out the problem of damages done to the watercourse due to pollution or excess use of water, therefore it is obligatory on the part of the states to preserve such water courses as well as protect it and prevent any major damage to water course. Article 5 and 6 of *The Convention on the Law of the Non-navigational Uses of International Watercourses* put significant emphasis on protection of water along with the Article 7.

International agreement on water sharing will be insignificant if several other principles other than protection are not brought up in it such as mutual exchange of information and data and cooperation. Article 9 of *The Convention on the Law of the Non-navigational Uses of International Watercourses* tries to denote the positive aspect of sharing information and bridging the gap of information in matter of meteorological, hydrological, ecological and hydro geological nature and matters pertaining to the quality of water and such other related forecasts.<sup>80</sup>

There can be two types of instrument codified to come to an agreement of water sharing

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<sup>78</sup> Supra note 45.

<sup>79</sup> Adopted by the General Assembly of the United Nations on 21 May 1997. Entered into force on 17 August 2014. See General Assembly resolution 51/229, annex, Official Records of the General Assembly, Fifty-first Session, Supplement No. 49 (A/51/49).

<sup>80</sup> Supra note 45.

universal and regional which both the agreements has to reflect some common objectives to preserve, protect, and balance utilization of water course, Helsinki Convention was most important and famous treaty which addressed the problems of transboundary rivers and lake more effectively than UN Convention. Helsinki convention helped the UNECE region to form relationship between different states and negotiate for betterment of the European region.

Helsinki convention successfully covered wider aspect than several other convention of United Nation which includes the ‘notion of trans-boundary waters;’ ‘any surface or ground waters, which are located or crosses the boundaries between two or more States.’<sup>81</sup>

## **II.2. PRINCIPLE OF INTERNATIONAL WATERCOURSE LAW**

### **II.2.i. Absolute Territorial Integrity**

Absolute territorial integrity is a principle which is closely related with *Harmon Doctrine* named after the Attorney General of America during disputes between two states, The U.S and Mexico over the use of Rio Grande Water. Attorney General opinion of Absolute Sovereignty was accepted during the negotiation with the government of Mexico. According to Harmon the United States of America had no responsibility for the reduction of water available to Mexico. This argument of Harmon later became a proposition that an upstream country has no responsibility towards a downstream country for the usage of water from an International watercourse within its territory.

However the dispute between both the nations came to halt after two countries entered into convention 1906, the objective of the convention to equally distribute water of Rio Grande for the purpose of irrigation, the doctrine of Absolute Sovereignty on contrary side advances the practice of complete freedom of upstream state to however exploit the

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<sup>81</sup> Article 1.1, Helsinki Convention.

water of international water bodies.

### **II.2.ii. Absolute Territorial Integrity and Ganga Treaty**

India and East Pakistan now Bangladesh had controversy over the barrage built by India, being upstream riparian state India took stand that both the state have absolute power and control over the management and utilization of water present in their territories. Farakka Barrage over the river Ganges was the main point of controversy where India denied the status of Ganga to be an International watercourse; even the discussion was halted by both the states. India was not able to take Pakistan into confidence regarding the safety of downstream nation that no damage will be done due to the construction of Farakka Barrage. However there were further development in the relation of India and Pakistan and India not only ceased to deny that Ganga as an International river but also entered into agreement for the period of 30 years to mutually share the water of River Ganga. The principle of Absolute Territorial Sovereignty is very chaotic as it ignores the right of a lower riparian country and its reliance of water available through sharing of international watercourse. Absolute it ignores the duty of sovereign upstream country to protect the right of downstream country.

### **II.2.iii. Limited Territorial Sovereignty**

This principle of Limited Territorial Sovereignty is contemporary theory which prevails for the international watercourse rights and obligations. The objective of the principle is to provide peaceful solution to the smooth flow of international watercourse. The principle protects the interest of upstream as well as downstream country as the principle supports the concept of 'equality of rights'. The equal distribution of water or distribution of water according to the need of people residing in both the countries is important factors, which makes the principle important in contemporary world. It provides a way to settle dispute between downstream and upstream country as it puts both the country on equal par on the matter of water distribution on International watercourse.

## **II.2.iv.Limited Territorial Sovereignty and Ganga Treaty**

There is gradual shift taken by upstream state from the principle of *Absolute Territorial Sovereignty to Limited Territorial Sovereignty* that can be traced by the decision taken by India to recognize Ganga as an international watercourse and entered into agreement with the downstream country Bangladesh to share the water of the same, India suitably recognized the need of riparian state and its need for the Ganges's water. The theory of Limited territorial sovereignty has put legal restrictions on the state's usage of International watercourse.

## **II.3.FACTORS OF INTERNATIONAL WATER CONFLICT**

### **II.3.i.Sovereignty:**

Every nation has absolute right over its own resources that are what territorial sovereignty states; however the states do not have this absolute control over international water boundaries. Therefore the sovereignty is the prime cause for the clashes between the neighboring countries regarding water sharing. This concept compels the state to share less or more water with the other countries which involves the dispute regarding water sharing; India and Bangladesh are agrarian countries even though countries formed in 20<sup>th</sup> centuries are well aware of the fact of restricted sovereignty when it comes to the matters of water sharing. The idea of joint engagement regarding to resolve the dispute of water sharing of Ganges was firstly evolved with eastern Pakistan later became Bangladesh.

### **II.3.ii.Economics:**

Water sharing form international water is an important factor for the development in the country's amount of sharing water. In most of the cases one amongst the countries is dominant over their neighbour, these states place strategic and quantity on the international water resources they share with their neighbors. They will additionally veto or delay and quadripartite water accord in their various basins. Once downstream countries are comparatively less powerful than water dominant upstream countries, conflict could also be less possible; however social and economic insecurity will result in larger political instability.<sup>82</sup>

### **II.3.iii.Water scarcity:**

The international water mainly in the form of river derives its source from Himalayas and its melting ice which is continuously depleting resulting in the lower and polluted form for water resources of rivers, the need of water in both the countries Bangladesh and India is high in demand and whereas supply is not meeting to the demand, along with the weak monsoon support is creating water scarcity and creating tension between the nations to provides maximum water possible to their own people to meet the agricultural as well as daily life demand. The potency, organization and management of water resources, loss and wastage and policy choices (national and sub-national level) of the bank countries water are the most important factors in determining the insufficiency of water resources.<sup>83</sup>

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<sup>82</sup> Rakesh Tiwary, Conflicts over International Waters, Economic and Political Weekly, 411684-1692 (2006)

<sup>83</sup> Id.

## **II.4. WATER CONFLICTS BETWEEN INDIA AND BANGLADESH**

The conflict between riparian countries like India and Bangladesh is being influenced and supported by the geographical location, nation state formation and political development in the subcontinent. 1.75 million square km being the total drainage area of the basin, the population density is also the highest in the plains especially in Bangladesh i.e., 740 per sq. km 1991 figures. India has most important strategic point, as it is upper stream as well as downstream country sharing 54 International River.

### **II.4.i. Background of Creation of Bangladesh to Signing of Ganga Treaty**

The political division of the Ganges-Brahmaputra river basin was caused after the creation of two countries India and Pakistan. The line drawn between the nations was about to change the diversity and control over the water of the Ganga. The dispute was not only regarding the water but the national interest was coming into the whole issue of international water boundary; the proposal of constructing Dam at Farakka had been put forward by India in 1950. In 1961, the government of India began a formality to notify Pakistan, after ten years of discussion India finally recognized Ganga as an international water body in the form of river.

In 1971, the Ganges water dispute took a new dimension as creation of new nation Bangladesh. The new born nation made a strong demand for the Ganga water as resources, the river water was very important to agrarian dependent country. This time unlike Pakistan, which put forward Indus water dispute more strongly neglecting the demand of eastern Pakistan later Bangladesh for Ganga water, the government of Bangladesh put their concern more sturdily. It can thus be soundly concluded that, there was an Indian strategy of prolonging until at least 1971. One factor which may have influenced Indian leaders choice is the perception of general state of hostility between

India and Pakistan.<sup>84</sup>

In 1972 Prime Ministers of both the countries accepted the idea of establishment of a joint river commission on permanent basis, the commission having equal number of members from both the side discussing about the flood control and water resource development. India, however, agreed that a mutually accepted solution would be arrived at before operating the Farakka barrage at a ministerial level meeting with Bangladesh in 1974.<sup>85</sup>

The committee made two basic points and agreed for the same which are as following:

- The augmentations of water would be through optimum utilization of water resources available to both the countries.
- There was a need to increase the volume of Ganga during the minimum flow period to meet the full needs of both India and Bangladesh.

In April 1975, India started test operation for 41 days and later in March 1977 Morarji Desai became the prime minister and on 5<sup>th</sup> November Indo-Bangladesh relation was taken to a new standard wherein both the countries signed an agreement on sharing the waters of River Ganga.

#### **II.4.ii. India-Bangladesh Agreement on Sharing of Ganga River: An Overview**

An agreement between India and Bangladesh regarding sharing of the Ganges water at Farakka, was signed by the both the nations on 5<sup>th</sup> of November 1977 at Dacca. This agreement was a major step to promote the relations between both the nation and for the welfare of the people living both sides of the border, the main objective of the agreement

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<sup>84</sup> Ben Crow, A Lindquist, et.al., Sharing the Ganga: The Politics and Technology of River Development, (Sage Publication, New Delhi, 1995)

<sup>85</sup> Id.

was to come to a solution of sharing of water international river Ganges. The agreement is supported by fifteen Articles, which were effective for five years from the date of 5<sup>th</sup> November; the water was released within ten days. The two governments set up two committees to observe the flow and record at Farakka the daily flows below Farakka Barrage and in the Feeder canal. The committee had to submit the report regarding the same on a yearly basis to the both the governments and was also responsible for the implementation of the particular agreement and if still the dispute existed the committee was responsible to resolve the dispute. The two governments would meet to come to mutual agreement if the committee is unable to resolve the dispute immediately. The main issue was to resolve the water-sharing problem during the flow in the dry season. The committee had to propose an economical and reasonable solution within the period of 3 years or as speedy as possible; the committee would be able to resolve the matter during dry season. Following were the main components of the agreements:

- The treaty was to remain in force for the time period of five years.
- The provision of lean season low was mentioned that will be effective between January 31 to May 31.
- The agreement consisted of guarantee clause during the low flow of river which was provided for the Bangladesh which according to the agreement was provided below 55000 cusecs.
- Bangladesh was also provided for the guarantee for the specific 10 days known as the concerned period.<sup>86</sup>

The agreement was widely criticized in India as this agreement was a big achievement for Bangladesh, being downstream country it strongly got hold on the required amount of water, the guarantee clause made it mandatory for the India to release water for the downstream country Bangladesh, it adversely affected the Farakka project. The agreement was widely criticized in Bangladesh for its temporary nature. Bangladesh, however, in May 1976 raised this issue in the *Islamic Foreign Ministers Conference at Istanbul*, and also at the 31<sup>st</sup> session of United Nation in very same year. Bangladesh was

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<sup>86</sup> Para 11 of Article II

adversely politicizing the matter on international ground, and argued before United Nation on the basis of environmental degradation of the country. However, the UN Special Political Committee consulted both the countries and suggested for a bilateral solution which would be based on mutual agreement and consensus.<sup>87</sup> India did not want to sound as oppressor in the subcontinent therefore another round of bilateral discussion started during the period of 1976 and 1977. There was no sharing agreement after ending of MOU, which was for the period of 1984-1988. India continued withdrawing water from Ganges till 1996; Bangladesh continued blaming India for climate changes due to Farakka diversion. Bangladesh claimed that there was negative impact on the Bangladesh economy specifically in southern west part. As per the literature provided by the Bangladesh, the average discharge was reduced to 23,000 cusecs from 64,430 from the historical record of 1976. Bangladesh was not getting enough water for the irrigation purposes as the salinity of water also increased. Being agrarian economy Bangladesh suffered huge loss. India although neglected this claim as the data being scientifically was not evaluated and taken.

On 12 December 1996 after the termination of two MoU by both the nation, for sharing of the river Ganga during dry season, a treaty was signed for the valid period of over 30 years. The treaty very well contains the provisions for sharing Ganga water, in Article II the formula for sharing water in dry season is being laid down. Articles IV- VII lays down the jurisdiction of the Joint Committee formed by both the nations and about its jurisdiction for the monitoring of the treaty and mutual exchange of information and data. The joint committee like the previous agreement is having the equal number of members from both the side. The committee is delegated with the power to record the daily flow of water below Hardinge Bridge as per Article IV. The committee is supposed to submit the detail annual report collected by it to both the Governments.

Article VII of the 1996 treaty provides that, '*if the matter of dispute is unable to be disposed off by the commission, the matter is supposed to be disposed off by the meeting of both the governments' parties.*' Article 10 enunciates the provision of reviewing the

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<sup>87</sup> Supra note 84.

treaty in every five years, or if the need for the review comes before the expiry of five years the committee would look into the treaty for the needs of the hour. There is future clause in the treaty in which India will provide ninety percent of water as promised in the treaty by the Indian subcontinent after the expiration of the treaty in thirty years.

**Annexure 1** provides the formula for water sharing between both the nations, i.e.,

- If the water level drops below 70,000 cusecs at Farakka, both the nations have to share equal amount of water.
- If the water level is between 70,000 and 75,000 cusecs at Farakka, Bangladesh will get 35,000 cusecs and the rest will go to India, and
- If the water level rises above 75,000 cusecs, then India will receive 40,000 cusecs and remaining water will go to Bangladesh.<sup>88</sup>

The biggest benefactor of Bangladesh is guarantee clause which provide 35,000 cusecs of water from March 1 to 10 May if the water level drop below 70,000 cusecs, the same will be provided in three water cycles, each consisting of ten days.

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<sup>88</sup> Annexure 1 of 1996 treaty between Ganga and Bangladesh.

## Water Sharing between India and Bangladesh<sup>89</sup>

Ten Day Period	Total dependence supply at Farakka (Cusecs)	Amount For India Cusecs %		Amount for Bangladesh Cusecs %	
<b>January</b>					
1-10	107,516	40,000	37.2	67,516	62.8
11-20	97,643	40,000	41	59	
21-31	90,154	40,000	44.4	55.6	
<b>February</b>					
1-10	86,323	40,000	46.3	46,323	53.7
11-20	82,859	40,000	48.3	42,859	51.7
21-28/29	79,106	40,000	50.6	39,106	49.4
<b>March</b>					
1-10	74,419	39,419	53	35,000	47
11-20	68,931	33,931	49.2	35,000	50.8
21-31	64,688	35,000	54.1	29,688	45.9
<b>April</b>					
1-10	63,180	28,180	44.6	35,000	55.4
11-20	68,931	35,000	55.9	27,633	44.1
21-30	60,992	25,922	54.1	35,000	45.9
<b>May</b>					
1-10	67,351	35,000	52	32,351	48
11-20	73,590	38,590	52.4	35,000	47.6
21-31	81,854	40,000	48.2	41,854	51.8

<sup>89</sup> Sharing of Water at Farakka between 1 January and 31 May as Provided in Bangladesh-India Treaty of 12th December 1996. The Janakan ( Dhaka), 13December 1996

## II. 5. AN OVERVIEW OF 1996 GANGA TREATY

The treaty signed by both the nation in water sharing conflict management is a big and essential achievement for both the nations. It is crucial for the development of international water law. Ganga treaty is bilateral treaty, which tries to acquire as much characteristics as possible from the international laws, such as '*principles of fairness, equity, and no harm rule to either side.*' This principle is not being only laid down theoretically in this treaty but also being achieved practically. India being an upstream nation did not dominate downstream county Bangladesh instead cooperated to form commission to monitor the flow and exchange of data and information through the mutual consultation. India formally recognized the rights of the lower riparian over a shared river system, a rights of the lower riparian over a shared river system.<sup>90</sup>

India although is not a signatory to the *UN Convention of Non-navigational Use of International Watercourse (1996)*, still several of its principles have been accommodated in Indo-Bangladesh Treaty (1996).

### II.5.i. A Comparative Analysis of Ganga Treaty and International Watercourse Law

The principle of equality is one of the most essential characteristics of international instrument to settle the dispute between various countries. This principle is also one which has the potential to dispose of the dispute between India and Bangladesh regarding water sharing. Also it is the responsibility of each agrarian country to resolve the dispute as soon as possible for the overall economic development of different regions of both the nation. However there are various principles which make an international instrument, which widely helps in resolving dispute of international watercourse, although there is

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<sup>90</sup> Conflicts over International Waters Author(s): Rakesh Tiwary Source: Economic and Political Weekly, Vol. 41, No. 17 (Apr. 29 - May 5, 2006), pp. 16841692

various kind of International law which is not ratified by both the nation and therefore it is not binding. It is necessary for us to apply the various principles, which taken from this international treaty helps one to look into the possibility and capability of this instrument to resolve current dispute of India and Bangladesh.

### **II.5.i.a. Barcelona Convention 1921**

It is one of the international laws, which Pakistan sort to use it as a defense to oppose the construction of Farakka Barrage however India did not accept it. Article 10 of the Convention and Statue on Freedom of Transit better known, as Barcelona convention does not implicitly discuss about the sharing of water from the international water boundaries however it obligates countries not to take unilateral action to violate the rights of co-riparian nation.

### **II.5.i.b. Helsinki Rules 1966**

It was developed by prestigious International Law Association, which is a remarkable work, and among one of the most significant international laws till date. **Chapter 2** of Helsinki Rules (*Equitable Utilization of the Waters of an International Drainage Basin*) specially contains provisions, which strongly upholds the principle of equality. Under Article IV all basin states are entitled, inside its territory, “*to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin.*” Economic development of each state is kept in mind and the equitable sharing of water of an international drainage basin is determined by a lot of external factors including social needs, climate change, geography, availability of other resources, population, hydrology and unnecessary wastage. Article VII obligates basin states not to avoid reasonable use of water resources of co-basin state because of the intention to reserve water for future use. Again International Law Association in Berlin Conference 2004 revised the Helsinki Rules 1966 in which it also included principles of ‘*integrated management, sustainability*

*and minimization of environmental harm of water resources.*<sup>91</sup>

## **II.5.i.c. UN Convention 1977**

It is a revolutionary codified law which deals specifically matter related to international watercourse; it adopted a different approach to settle the dispute of international water sharing, principles of equity was now read along with idea of reasonable use of water. Article 6 mentions about the sharing of water in equitable and reasonable manner; also Article 7 obligates the riparian countries to make reasonable use of water and to implement possible measures not to harm co-riparian states. It also provides for provision of taking proper measures to be taken by states in the utilization of an international watercourse within their own boundaries preventing any repercussions to other States.<sup>92</sup> These characteristics are provided in the draft agreement between Bangladesh and India in Ganga Treaty under Article IX. Riparian states shall share information and required data with other riparian states as per mentioned in article 9 of the convention however we can find similar kind of clause in article VI of Ganga treaty, however this information will be provided to the both government by Joint committee formed by the delegates of both the nation. Article 11 of the UN Convention also provide provision regarding the prior consultation of the co-riparian state regarding the implementation of any policy of the government in the river, also the state has to provide all the information regarding the adverse affect of the planned if implemented on the river. The Convention also provide window for the negotiation between both countries for an equitable solution absence of such practical ideology is being absent in the Ganga treaty. A essential lacuna of 1996 Ganga treaty is the politicization of the dispute between both the countries instead of finding out practical solution in the form of Arbitration the same idea of settling dispute is being provided in Article 33 of UN convention of 1997.

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<sup>91</sup> Article 8, Berlin Conference on Water Resources Law, 2004.

<sup>92</sup> Article 7 (1), Convention on the Law of the Non-navigational Uses of International Watercourses 1997

## **II.6. CURRENT DEVELOPMENT IN AGREEMENTS BETWEEN BANGLADESH AND INDIA**

“Entry 17 of List II of Schedule 7 of the Constitution of India” makes water related issue as state subject and the information given is very much required to understand the politicization of another transboundary water sharing dispute. Teesta River which originates in Sikkim flows through the state of West Bengal which is ruled by non central government party does not provide a fair opportunity to the central government to resolve the dispute. Currently due to the obligation of Ad Hoc sharing agreement of 1983 India and Bangladesh are assigned 39 % and 36% water respectively<sup>93</sup> however India claims almost 55% of water, which clearly violates the principle of equitable share. Therefore, the current long-term solution for this dispute could be possible only by adhering to the Helsinki Rule’s modified version of the rules framed in Berlin Conference on Water Resources Law.

Similarly, the Tipaimukh Dam is a proposed dam on the river of Barak in the state of Manipur, India which is proposed with the objective of flood control and producing hydroelectricity. Bangladesh being co-riparian state have raised issue regarding the proposed dam, it is considered as threat to environment by them later they claimed the Dam will divert the natural watercourse of water. However, India has delayed the construction of Dam due to reason of more depth study to look into effect to environmental reasons. However Bangladesh raised the issue regarding the specific proposed project that it is in not in consonance with Helsinki rule 1966.

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<sup>93</sup> Ad hoc Agreement 1983, Dhaka

## **II.7. THE BENEFITS OF CO-OPERATION ON INTERNATIONAL RIVERS**

The objective of the world in the context of managing the river all over the world should be consensual; it is a change for societal change and goodness. Most of the International Rivers however were or are part of tension on both the side of the border of the Nations, and it's rare to find one institutional structure, which happens to be the ultimate authority between two sovereign nations. The action of one nation on the river has an impact on the other nation as River is treated as fundamental unit. It is up to the nations to decide the matter of river with cooperation or stuck with the conflict and this decision will be determined by their perceived benefits.

The incentives, linkages and catalyst should be explored during perceiving the decision of resolving the conflict and achieving the underlying potential of the decision should be achieved. The underlying benefits could be:

- Firstly, improvement of ecosystems and prospectively better management of it.
- Secondly, the underlying economic benefits that could be achieved after cooperative management of the rivers.
- Thirdly, the cooperation will reduce the cost; reduction in the cost due to reduction in the tension between co-riparian states will reduce unless the tension would have generated cost to some extent.

The result that could be achieved is river being itself catalytic agents, which will help the nations to obtain greater economic benefits. As the benefits also exist because of the co-operational use of river at the basin, this leads to economic generation among the states which extend to political, geographical and cultural harmonious growth between the Nations.

The broader the ambit of advantages under discussion; the additional doubtless riparians are going to be ready to notice a configuration of advantages that is reciprocally acceptable. Whereas, some benefits may be troublesome to share or compensate, generally the improvement of advantages ought to be additional strong and additional versatile than the improvement of physical water resources, as a result of this, benefits tend to be additional simply monetized and remunerated and that they have less political and psychological significance. Distinguishing and understanding the variety of usually inter-related benefits derived from the cooperative management and development of international rivers is central each to raised management of the world's rivers and to relations among the nations sharing those rivers.

### **II.7.i. The Centre of Water Conflict and Co-Operation: Institutional Capacity**

Scarcity of water is suppose to be one of the reason of conflict, scarcity derives people to scarcity, it is instinctive, the less amount of water is inversely proportional to the more dearly holding the conflict and obviously people will fight over it. However this theory seems changing in the today's world the number of conflict is increasing from the humid region not the Middle East's arid region and the conflict is hiked during the drought, various variables seems ineffective in finding the actual reason of the increasing conflict.

The main reason of stability in matters of water sharing in Middle East is strong institutional building; the arid countries very well understand the scarcity of water and therefore cooperate when it comes to water. The main factors, which increase the conflict, level primarily if the nations have basin to share or political atmosphere level changes, secondly it the Countries are unable to effectively manage the water distribution of international water.

Therefore there is strong need to reconcile the conflicting interests of balancing these g interests with water scarcity. Water is a matter of dispute in international river basins

wherein, water management institution normally fails due to non-enforcement of international treaty or even non-existence of treaty reminds the responsibilities of the countries for any agreements or cooperative arrangements. It is evident fact that scarcity of water is not the reason behind conflict but lack of cooperation, management and governance is. Many developing nations need better and stronger policies to control water use and justifiable management because in such countries there is a lack of human and economical resources as compared to the developed countries where there is better and comprehensive management plans and implementation. The institutions responsible for taking decisions for regional development, transport, fisheries, environment, agriculture, conservation and tourism responsible sometimes contradicts and delay the decision and management process.

Formal and customary management practices may be contradictory, as incontestable in Cochabamba, wherever formal provisions of the 1999 Bolivian water services law conflicted with customary groundwater use by farmer's associations.<sup>94</sup> In countries while not a proper system of water use permits or adequate social control and watching, additional powerful water users will override the customary rights of native communities provided if establishment distributes the water equitably between social teams, the danger of public protest and conflict will increase. In South Africa, social policy regime allotted water to favor the white minority. This ecological marginalization heightened the black population's grievances and contributed to social instability that ultimately led to the dying down of the regime.<sup>95</sup> Establishments may distribute prices and advantages unequally: revenues from major water infrastructure comes, like giant dams or irrigation schemes, sometimes profit solely little elite, feat native communities to deal with the ensuing environmental and social impacts, typically with very little compensation.<sup>96</sup> The assorted parties to water conflicts typically have differing perceptions of legal rights, the technical nature of the matter, the value of determining it, and therefore the allocation of costs among stakeholders. Reliable sources of knowledge acceptable to stakeholder's are

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<sup>94</sup> Nickson and Vargas, "Bolivia Water Management: A tale of three cities", World Bank

<sup>95</sup> Anthony R. Turton, "Water wars in Southern Africa: Challenging Conventional Wisdom", Green Cross International, Water For peace in the middle East and Southern Africa

<sup>96</sup> Environmental and Social Impact from Patrick Mccully, silenced Rivers(London: Zed Books, 2003)

important for any joint efforts. This not solely permits water-sharing parties to form selections supported a shared understanding, it conjointly helps build trust.

## **II.7.ii.The Elements of Conflict Resolution<sup>97</sup>**

The conflicts of International water sharing could come to end either on the positive note or negative note. Alternative is one of the important concepts applied in the discipline of economics however the same word and its profundity are very important to negotiate on the matter of international water boundaries. Alternatives are the options that a party takes and walks away if the nation fails to negotiate on the international water boundaries; in general the parties walk away from the agreement to those alternatives that are worse than the best possible available alternative of a negotiated agreement. The interests of the parties are important, under interest lay position which are demand; the needs, the desires, hopes and fears therefore it is best when in the negotiation interest of the parties are satisfied.

The negotiation should not only consist of narrow choice, instead the parties to conceivably reach an agreement should explore a full range of possibilities. Therefore it in the best interest of the parties that agreement must have various options specifically in the situation where all the parties come together for the mutual gains. Agreement after negotiation, agreement is of no value unless and until it is legitimate. The legitimacy would be the fairness of an agreement in this matter. The parties should not feel exploited and making both the parties fairly treated it is important to achieve certain benchmarks or the measures beyond the will of the parties. The benchmark includes laws and regulations, current fair practice, industry standards or some general principle like precedent or tradeoff which are a lot in the law of management on international water boundaries. It is always not found that the commitment made by the parties found in the agreement also and therefore commitments could exist in oral or written or both the

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<sup>97</sup> Terry Barnett; CMI Washington/Carolina. See p. 45 for more detail. ©2001 by Conflict Management, Inc.

forms, commitments regarding what a party will do or will not do in future course. There are certain qualities of the contracts, which should be embodied in the commitment part as well these qualities are well planned promises and well drafted which sounds practical, durable and also in simple words to be understood by the party which carries these commitment. And down the line it should also be verified timely.

Two more qualities of the parties communication and relationship, are important on which the entire negotiation of the parties depends, primarily the mutual understanding developed through communication and the efficiency of the process goes hand in hand the better understanding the better relation will be developed. Therefore high quality of understanding is required to minimize the expended resources, which is utilized to come to an agreement. And secondly the strong hold on relationship matters a lot; which means that a strong relationship between countries help them deal with the differences and that any future operations shall improve the country's ability to work together.

Thus, it can rightly be said that water crises will take us to the threshold of world war. Therefore it is high time that the government of various nations should dispose of their issues and come to a concrete solution of sharing international water bodies. It is very hard to believe that even today's world of advancement still cannot meet the need of clean drinking water and still it is a far-fetched dream for many. International water sharing agreements is a way optimum level of efficiency when it comes to the water management between two or more than two nations. Ganga treaty was the result of negotiations and diplomacy of India and Bangladesh, which took considerably more than three decades. The time taken to formulate the treaty was considerably more and therefore the purpose of water management was delayed. Formulation of treaties within reasonable time can serve the purpose of water management. Treaty should be updated accordingly to the changing requirements of generations. Since water management is a global concern therefore the nations should step up from their domestic interest to join and come forward to solve international transboundary water sharing issues and establish uniformity in the legal frameworks governing the global water management system.

## CHAPTER III

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### **LEGAL FRAMEWORK ON WATER SHARING IN INDIA: AN INTER-STATE AND TRANSBOUNDARY APPROACH**

This chapter attempts at studying the Indian legal framework that provides for transboundary water sharing between India and its neighbours and the inter-state regime. Further, the chapter attempts to answer the research question as to whether the existing legal framework is adequate in dealing with the transboundary water conflicts.

Rivers are reflected as the cradles of civilizations whose waters sustain human life, but in India and the Indian subcontinent, rivers are regarded to be a divine resource. River waters play a pivotal role in enabling the social, economic and political development of the country. The Indian rivers such as the Ganges, Narmada, Mahakali, Krishna, Cauvery etc. are hence of a crucial importance in this particular regard and are thus a major pillar and a contributor of the Indian development process.

Due to vast population that vests in the subcontinent, the sharing of river waters is both a central and a challenging aspect. Rivers such as the Ganges, Mahakali and the Indus are traditionally shared between India's ancient neighbours; Bangladesh, Nepal and Pakistan among the others. As discussed in the previous chapter, conflicts over shared water resources among various stakeholders arise particularly due to the depletion of water flow that is caused by factors such as:

- Quantum of the population
- The economic needs of the population.
- The need for social development
- The use of water by one stakeholder and its effect on the other.

Though sharing of water resources across political boundaries is a matter of concern, India in this context, experiences a major challenge, as it faces both trans-national and intra- state conflicts on common and pooled rivers. Almost all states in India face inter-state water disputes, and international water disputes with Pakistan, Nepal and China to name a few. The Indian experience of water conflicts differs in regard of water sharing from the global one , due to the sole reason , that India , being a country not only shares water resources with other countries, but water sharing occurs between the domestic states at large. Being a federal country, the states through which the river flows may have strong contentions and differences with respect to the sharing of water, as each state may want a fairly large allocation of the river water on its side. Further, most water disputes among countries and states occur predominantly due to the sole reason and lucidity that rivers do not follow any specific political limits which poses a problem among nations. Second, the uneven distribution of water resources affects the hydrological cycle and water availability, thereby directly affecting water quality. Third, the regionalization of national polity is another cause for the Indian experience of water conflicts among states. Therefore, it became pertinent to resolve such water conflicts through constitutional and legislative means. The existing water law regime in India is largely a product of principles, rules and policies that were adopted over many decades.

Various statutes came to be enacted under the British reign, wherein irrigation was a prime consideration. One of the legislations to standardize the aspect of navigation, irrigation and drainage, was the '*Northern India Canal and Drainage Act, 1873*'.<sup>98</sup> The *Madhya Pradesh Irrigation Act, 1935* further asserted state ownership over water.<sup>99</sup> In order to strengthen the said provision, '*The Government of India Act, 1935*', transferred

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<sup>98</sup> Madhya Pradesh Irrigation Act, 1931, Art. 26

<sup>99</sup> Phillipe Cullet, "Water Law in India", International Environment Law Research Centre.

the subject of irrigation from the control of the centre to the state, thus vesting the power to legislate on the said subject with the states.<sup>100</sup> Hence, deriving from the same, the Indian Constitution is what is known as ‘*supreme lex loci*’, and is termed as the ‘law of land’, lays down discrete provisions for water sharing and it seeks to achieve reasonable allocation by way of power-sharing arrangements between the Union and the States, and hence gives the power to states to legislate as water is largely state based. Hence, by virtue of the same, states have the power to regulate on matters such as fisheries, canals, drainage, irrigation, embankments and hydropower.<sup>101</sup> Article 262 of the *Constitution of India*, empowers the Union Parliament to adjudicate on matters which relate to the usage, distribution and the issue of control over waters or an transboundary river, these also include shipping and navigation on national waterways and the power to regulate the usage of territorial waters,<sup>102</sup> thus excluding the jurisdiction of the Supreme Court from entertainment of such disputes, which would ordinarily would vest with the apex court under Article 131.<sup>103</sup> Thus, the division of water across different heads between the legislature and the executive lays a clear demarcation of adjudication of water conflicts. Though the makers of the constitution attempted at dealing with the subject of water through clear allocation of powers amongst the Union and the States, yet the concern for sharing of water amongst states and countries still persisted. This was due to the year 1956, wherein the Parliament enacted the *States Reorganization Act*, through which the Union sought to realign the State territories to strengthen populations speaking similar language. Then, with the creation of these new boundaries, the central government was faced with a more peculiar problem of sharing of the inter-state rivers. This was because, states which became more uneven; newer states had river waters within their boundary and new laws that these states wished to implement which caused disarray among states and hence reaching a common consensus became difficult.

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<sup>100</sup> Entry 19 of the Provincial List.

<sup>101</sup> Schedule 7, List 2, Entry 17 and 21 of the Constitution of India, 1950.

<sup>102</sup> Schedule 7, List 1, Entry 24, 25 and 57 of the Constitution of India, 1950.

<sup>103</sup> Article 131 of the Constitution of India.

### **III.1. INDIAN FRAMEWORK ON INTER-STATE WATER SHARING**

In response to resolving this issue, the Parliament enacted two legislative instruments to adjudicate upon the inter-state water rights. These were:

#### **III.1.i. The River Boards Act, 1956**

Under the said legislation, the State Governments at their discretion may demand the creation of Inter State ‘River Boards’ from the central government to assist in developing inter-state rivers and adjudicate upon issues arising out of them, and help prepare versatile schemes for regulation of waterways. Further, potential activities include the control, conservation and optimum use of water resources, preparation of promotional schemes for irrigation, drainage, hydro-electric power, pollution and water supply etc.<sup>104</sup> Moreover, the Statute follows the ‘*Sub Basin Division*’ approach wherein the whole river basin is divided into sub-basins, with each party being allocated the rights and the command of the respective sub-division lying in their particular area. Further, in order to ensure water allocation in the sub-division the principle of ‘*Equal Apportionment*’ is followed on which the proportionate share of the parties are based upon factors such as investment, area of the basin and total volume of water.

#### **III.1.ii. The Inter-State River Water Disputes Act, 1956 (ISWD)**

This Act was enacted under the aegis of Article 262 of the Constitution of India. The Act defines water dispute as, “*any dispute or difference between two or more states in regard to the use, distribution or control of waters in an inter-state or the interpretation of any terms of an agreement with respect to the above matters.*”<sup>105</sup> The statute provides for the creation of a ‘*Water Disputes Tribunal*’ by the central government on receiving requests from the state governments, where water conflicts remain unsettled through negotiations.

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<sup>104</sup> River Boards Act, 1956, Sec. 13

<sup>105</sup> Inter-State Water Disputes Act, 1956, Sec. 2(c)

The responsibility of the tribunal is not limited to mere adjudication of disputes but also water quality deterioration, flood control, climate change effects and water productivity.<sup>106</sup> Further, under Section 4, the said Tribunal shall be constituted of “*three sitting judges of the Supreme or the High Court to be appointed by the Chief Justice of the India who are required to pronounce a decision within three years, unless so extended to two years.*”

Another landmark effort by the Union Parliament in allocation of water rights included:

### **III.1.iii. Creation of the Sarkaria Commission<sup>107</sup>**

The Commission was set up in 1988 to make recommendations and implementations so as to improve the functionality of the ISWD Act, 1956, which were then submitted as 2002 Amendments to the 1956 Act. The key recommendations included:

- Compulsory setting up of a tribunal within one year by the Union Government,
- Creation of a Data Bank and an information system at the national level,
- Enforcement of the arbitral award of the tribunal within five years,
- Statutory recognition of the tribunal award and according it a binding status as a decree of a Court.

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<sup>106</sup> Inter-State Water Disputes Act, 1956, Sec. 5

<sup>107</sup> Set up in 1983 by the Central Government.

### **III.1.iv. National Commission to Review the Working of the Constitution (NCRWC)<sup>108</sup>**

This Commission taking a divergent view suggested the repeal of the ISWD Act and suggested for the enactment of a new Act for shifting the jurisdiction of river water disputes from tribunals to the Supreme Court by virtue of its exclusive and original jurisdiction under Art. 131 by taking a cue from the US experience of adjudication of disputes.

### **III.1.v. Punchhi Commission on Inter-State River Water Disputes<sup>109</sup>**

Considering the issues surrounding inter- state and international water conflicts, and a review of the working of the ISWD Act, the Punchhi Commission in its 2010 report, suggested the linking of water tribunals with the River Boards as a solution to deal with the complex issue of water sharing and making River Boards more stronger and authoritative body. Also, the tribunal shall be a multi-disciplinary body to be presided over by a judge and shall follow a participatory and a conciliatory approach. Furthermore, it suggested that the statute shall prescribe a time limit for issuance of clarificatory and supplementary orders.

Beside the above statutory instruments, the Indian Legal Framework on water law is backed by the existence of common law principles such as the Doctrine of Public Trust in respect of the principle of inter-generational equity<sup>110</sup> whereby natural resources held for the public benefit as *res communis* such as water are to be under the control of the state, which holds it as a trustee for public use. Furthermore, the Indian experience places a high reliance on international theories such as the *Doctrine of Apportionment* and other theories as discussed in the previous chapter. Apart from the

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<sup>108</sup> Set up in 2002 by a Government Resolution. <http://lawmin.nic.in/ncrwc/final-report/vich-ii.htm>

<sup>109</sup> Set up in April 2007 by the former Chief Justice of India, M.M Punchhi. <http://interstatecouncil.nic.in/report-of-the-commission-on-centre-state-relations/>

<sup>110</sup> The Public Trust Doctrine, as first laid in the case of *MC Mehta v. Kamal Nath* (1997)1 SCC 388

above doctrine, Indian framework is based on the ‘*Community of Interest Theory*’ which is an extension of the ‘*Doctrine of Limited Territorial Sovereignty*’. According to this theory, river water belongs to the entire population and therefore should be shared equitably among member states so as to achieve the utmost benefit as river is one unit that defies all boundaries. The concept provides for equal use of water sources by all the riparian states in the entire course of the river and excluding all the preferential privileges of any riparian state thereby excluding others. The Indian approach is further complemented and backed by the human rights approach, wherein water is treated as a fundamental right, thereby making it a part of right to clean environment under Article 21 of the Constitution, whereby the right to equal access to water evolved not through legislative action but mere judicial interpretation. Interpreting Article 21, the Indian Supreme Court recognized right to life includes right to equal access to water to all in order to sustain life.<sup>111</sup> Water is a basic need so as to ensure survival of humans and thus essentially forms a part of right to life.<sup>112</sup> In the landmark decision of *M.C Mehta v. Union of India*,<sup>113</sup> the judiciary recognized river water to be a public asset which can be utilized in the same manner as air. An extension to this is the case of *Networking of River, Re*<sup>114</sup> wherein it was upheld that the central government had a duty to preserve natural resources by adoption of necessary measures to augment water resources.

Some of the notable instances of water sharing disputes in India in the domestic regard include:

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<sup>111</sup> Francis Coralie Mullin v. Admr. Union Territory of Delhi [(1981) 2 SCR 516]

<sup>112</sup> Narmada Bachao Andolan v. Union of India (AIR 2000 SC 375)

<sup>113</sup> R v Tessler [(2004) 3 SCR 128]

<sup>114</sup> Networking of Rivers, In. Re. [(2012) 4 SCC 51]

### **III.1.vi. The Narmada Water Sharing Dispute, 1961<sup>115</sup>**

The construction of the Sardar Sarovar Dam and other related projects in the Narmada valley spurred tensions between Gujarat, Maharashtra and Madhya Pradesh. The predominant issue being between these states was the proper allocation of water. Therefore, with the orders of the Supreme Court, the central government constituted the Narmada Water Dispute Tribunal so as to adjudicate water sharing between the states and accordingly each riparian state was allocated its water share, thereby reducing the height of the dam.

### **III.1.vii. The Cauvery Water Conflict, 1974<sup>116</sup>**

One of the most controverted disputes and decade long, the dispute between Karnataka and Tamil Nadu sparked up rigidities in the entire nation. The dispute heightened with the failure of the upper riparian state i.e. Karnataka to adhere to the water allocation verdict of the *Cauvery Water Tribunal* set up in 1990 and thereby breaching its orders. The dispute paved way for the intervention of the Supreme Court in 2002 with series of arguments among the two states arguing for a greater million cubic share's considering the lives of the farmers and needs of their people. The conflict ended with the Supreme Court, increasing Karnataka share of water and allocating 14.75 TMC to Karnataka thus deciding water allocation from the Cauvery in 2018.

### **III.1.viii. The Krishna Water Dispute, 1969<sup>117</sup>**

The Krishna case before the Supreme Court involved water sharing allocations between Andhra Pradesh, Maharashtra and Karnataka by the construction of the Alamatti Dam. Two Krishna Water Tribunals were set up to resolve the said conflict. But with the

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<sup>115</sup> Rakesh Kumar; R.D Singh.; K.D. Sharma. "Water Resources of India". Current Science. Bangalore: Current Science Association. 89 (5): 794–811.

<sup>116</sup> State of Karnataka v. State of Tamil Nadu [(1991) SCR (2) 502]

<sup>117</sup> State of Andhra Pradesh v. State of Karnataka (AIR 2001 SC 1560)

growing needs and with the bifurcation of Andhra Pradesh and Telengana the conflict remains unresolved.

### **III.1.ix. The Ravi-Beas Water Dispute, 1966<sup>118</sup>**

The case appeared before the Supreme Court with Haryana pleading to divest water from the Ravi- Beas Rivers over the Sutlej Yamuna Link Canal and the opposition to such water allocation by Punjab. The dispute is an important one, due to primary reason that Haryana being a non-riparian state claimed waters of the rivers and claimed it to be a 'national asset'. With the creation of the Punjab Water Tribunal by the central government, the Hon'ble Supreme Court denied the claim of Punjab to divest water to Haryana and other states and water allocation was done between the two claimants.

Another initiative by the Indian Government was the enactment of the National Water Policy, 2002 with a prospect to govern the management and arrangement of water resources and ensure their optimum utilization. An important feature of this scheme includes the arrangement for water allocation priorities. Therefore, in operation of every system, water allocation is done in the said arrangement:

- Hydro power
- Agro-industries
- Navigation
- Water Irrigation
- Drinking
- Ecology<sup>119</sup>

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<sup>118</sup> State of Haryana v. State of Punjab (AIR 2002 SC 685)

<sup>119</sup> New National Water Policy, 2000. <http://pib.nic.in/newsite/PrintRelease.aspx?relid=90775>

Further, as per the policy, water sharing among states should be done taking into consideration the national perspective with regard to the availability of water resources and the particular needs in the river basin so as to maintain and optimize the water use efficiency.

Thus, taking into account the above Domestic arrangement and framework on water sharing with specific reference to inter-state water disputes, the following observations can be made:

- The ISWD Act, 1956 is not a comprehensive mechanism to deal with water disputes occurring at the federal level. Though the 2002 Amendment, calls for the award of the water tribunal to be a final and a binding one, yet there still remain issues as either the states (under Art. 136 ) or private persons(under Art. 32) approach the judiciary claiming a violation of Art. 21.
- Secondly, the composition of the tribunal under Sec. 5 is not multi-disciplinary, thus consisting of persons only from the judiciary. In order to effectively consider water allocation claims, it is pertinent that the tribunal is composed of members from all walks of life and having experience in their relevant field. This will in turn effectually help in considering water sharing rights and help resolve conflicts.
- Also, due to non- availability of sufficient data, the work of the tribunals so constituted experiences an inordinate delay.
- Though the Centre has intervened directly, such as in the case of Ravi-Beas water dispute such an intervention has not been a fruitful one. The cases of water conflicts testify to the fact of a weak Union, which is ineffective and mobilized.

- States are vested with political powers and little economic powers and responsibilities, and little democratic spaces for maneuver, where even other constitutional schemes such as the Finance Commissions are marginalized for addressing such inter-state allocation of water rights .Furthermore, Inter-state Councils are underdeveloped.<sup>120</sup>
- In totality, there is no unambiguous instrument in existence to deal with water conflicts.
- Nevertheless, to correct the ambiguity and vagueness in provisions, The Inter-Sate Water Dispute Amendment Bill, 2017 introduced by the government seeks to provide for a speedy settlement of inter-state water disputes. In approach to this, the Union seeks to establish a Dispute Resolution Committee to settle disputes within a year. Apart from this, a Single Permanent Tribunal will be constituted so as to have multiple benches.

### **III.2. LEGAL FRAMEWORK ON TRANSBOUNDARY WATER SHARING**

Conflicts over waters can either be inter-state (as discussed in the previous Sec.) or between neighbouring countries sharing a transboundary river water basin.<sup>121</sup> Such transboundary water clashes have been dominant in the South Asian region. South Asia's water coverage is an enormous one. Rivers in South Asia, Indus, Brahmaputra, Meghana and Ganges and their sharing among Bangladesh, Nepal, Pakistan and India have generated tensions and apprehensions in the region. India is a lower riparian state, except in case of Bangladesh where it is an upper riparian. The allotment of water resources and their allocation amongst the countries of India, Nepal, Pakistan and Bangladesh has

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<sup>120</sup> Supra note 27.

<sup>121</sup> A transboundary water basin is one where the river crosses at least one political border, either within the nation or an international boundary.

always been a matter of contentious issue emanating from factors such as scarcity, bad governance and ill-faith. The primary reason for such transboundary water conflicts to stem is the increase in the demand which serves as a catalyst for such conflicts. Other reasons being decolonization, regionalization and politicization which creates division of the river water basin thereby creating conflicts between states. Moreover, what are of fundamental importance are the historic relationships shared by the two states or countries and the tremendous importance of the river which tends to create a strenuous situation in the basin. India has been a victim of such transboundary water conflicts that have arisen due to the river sharing both in the upstream and downstream areas specifically with the Ganges and Indus Rivers. Such transboundary water conflicts have been resolved through the legal framework which includes treaties entered into by the Indian Government with the neighbouring government so as to mutually arrive at a common consensus and work out efficient solutions for optimum water allocation among the parties sharing the river basin. Hence, such conflicts due to their nature are resolved on the basis of their mutuality, implying that river waters are to be utilized on the principle of evenhanded sharing. An individual examination of such water conflicts and the treaties entered into by the Indian government is fundamental to the study as constituting the legal framework for transboundary sharing.

### **III.2.i. The Indus Water Treaty, 1960 (IWT)<sup>122</sup>**

One of the landmark water conflicts in history concerning the controvertor India and Pakistan is of fundamental importance. Indus, originating in China and flows through Kashmir where it is joined by several of its tributaries (Jhelum, Chenab, Ravi etc.). The Indus river system is of particular importance for agriculture and irrigation. The 1947 partition of India created an independent India and West Pakistan resulting in the bifurcation of the canals and the water systems. This partition, however, did not take into consideration the ecology, topography and the infrastructure of the Indus River Basin.

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<sup>122</sup> Treaty between the Government of India and the Government of Pakistan concerning the most complete and satisfactory utilization of the waters of the Indus system of Rivers.

The expiration of the Standstill Agreement of 1948; saw India withholding water from canals that flowed in Pakistan. This aggravated tensions between the two governments. Water allocation in the initial years of partition was sought to be governed by the Inter Dominion Accord of 1948 as per which India was required to release sufficient amount of water to Pakistan in return of annual payments. However, this was of a temporary duration and failed to get the two states in negotiations. Further, waters from this system are of undeniable importance for both India and Pakistan.

While Pakistan was primarily interested in the agricultural and irrigational uses of the Indus Water, thereby needing the bulk of the water, India needed it for hydro-electric projects. The issue of water allocation witnessed three major armed conflicts, hostilities, repeated spikes and tensions.<sup>123</sup> Henceforth, to bring an end to the aggravating political circumstances, the heads of both the governments arrived at a peaceful solution through the signing of the '*Indus Water Treaty*' which was negotiated by the World Bank. This treaty was based on customary international legal practices and seeks at protecting the right of the downstream state to water use and administers on the manner of utilization of the Indus River System. Accordingly, Beas, Ravi and Sutlej are to be governed by India, while Indus, Jhelum and Chenab are to be taken care by Pakistan,<sup>124</sup> thus creating a geo-physical partition of the river. Though Pakistan has an 80% share of the water, yet since Indus flows from India, 20% of the water is allocated to India for the purposes of transport and irrigation. Also, it advocates for the creation of a bilateral '*Permanent Indus Commission*' to execute the water treaty and solve disputes pertaining to water sharing and sharing of data. In event of a disagreement, such disputes are taken to the *Permanent Court of Arbitration* for an amicable settlement.<sup>125</sup> Unlike treaties in alternative basins that divided rivers on the idea of their flow or quality, the aforesaid Indus Water Treaty wanted to separate the system into three Eastern Rivers whereby India has 'unrestricted use' and therefore the three Western Rivers to that Pakistan has 'unrestricted use'. More importantly, the agreed water allocations between the two states are not absolute and thus

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<sup>123</sup> Armin Rosencranz, Abhimanyu George Jain and Raessa Vakil, "Transboundary Waters on the Subcontinent" 40, EPL 331 (2010)

<sup>124</sup> The Indus Water Treaty, (IWT), 1960, Art. V

<sup>125</sup> Id, Art. IX

attract exceptions i.e. Pakistan agreed to a policy of non-interference with the Eastern Rivers and India too retained the right to construct dams on the Western Rivers. Looking at the IWT, one can say that the said treaty is not a purely functional and an operative one. This is because, one, the distribution of water under the two treaties fails to abide by the Helsinki Rules<sup>126</sup> or the UN Water Courses Convention<sup>127</sup> that lay down that sharing of water resources between states shall undoubtedly be in accordance with the '*principle of equitable utilization of water*', i.e., water allocation shall be equitable, sustainable and reasonable. By means of the IWT, Pakistan is allocated the lion's share (80%), while India managed to get only a 20% of the share, thereby clearly violating the Helsinki Rules or the UN Convention.

Nevertheless, the Indus Water Treaty is a unique one as it demonstrates a water partition treaty rather than being water sharing one. Even though it is in violation of established customary norms, yet it chalked out a unique solution to handle the needs of both the enemy countries and given the existent political hostilities, partition and the deep-rooted mistrust back then. Thus turning it into a chief strength of the Treaty, it illustrates a peaceful sharing of water resources, through a legal framework that has survived for a considerable time period despite the hostile relations between the two state parties. To avoid future conflicts given the constant friction that exists between the two parties, constant efforts should be hitched in order to draw up a more equitable and viable water sharing arrangement which respects the established customary norms of International water law.

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<sup>126</sup> The Helsinki Rules on the Uses of the Waters of International Rivers were adopted by the International Law Association in 1966.

<sup>127</sup>United Nations Convention on the law of the Non-navigational Uses of International Watercourses, 1997

### **III.2.ii. The Mahakali River Treaty, 1996:<sup>128</sup>**

Sharing the water of a transboundary river can be quite a challenging task especially when it is an open border as that between India and Nepal. The two states share certain common rivers, and Nepal, being an upper riparian state enjoys additional privileges with respect to the water flowing into India. The Mahakali River originates in Nepal and forms the boundary between Nepal and India. The main cause of tension between the two countries was the construction of hydro-electric projects over the water of the Mahakali River. The situation became worse by the mistrust of the Nepalese Government in the belief that India was trying to exploit the hydro- energy potential of Nepal for its own benefit. To spur it even more, was the prior experience of these countries with reference to the Kosi (1954) and the Gandak River (1959). The Mahakali Treaty entered into is a set of agreements. It enunciates for the development and use of a multi-purpose project, i.e. the Pancheswar Project on the Mahakali River, between Nepal and India.

Additionally, the water sharing arrangement entered into between the two government's aims at ensuring an developmental projects of the water resources including the Tanakpur Barrage, the Pancheswar Project and the Sarada Barrage,. Further, the Nepalese government has allowed India to construct a damn on the Nepalese territory so as to make the Tanakpur Plan operational and receive water. Moreover, the Pancheswar project was to be implemented with the joint execution of both Nepal and India, hence allowing for joint utilization. Another striking feature of the said treaty is the formation of the Mahakali River Commission<sup>129</sup> entrusted with the task of taking care of the construction of projects and water allocation per cubic meter. As per the Treaty, the costs both the parties shall bear the costs in proportion to the benefits that accrue to each of them.<sup>130</sup> Further, the treaty ensures a minimum flow of water maintained by India in the Sarada Barrage so that the ecosystem of the river can be preserved. It is also provided based on the Harmon Doctrine, that neither party causes obstruction of the waters of the

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<sup>128</sup> Entered into force in February 1996 between His Majesty's Government of Nepal and the Government of India concerning the Integrated Development of the Mahakali River.

<sup>129</sup> The Mahakali River Treaty, 1996, Art. IX

<sup>130</sup> Id, Article III

river of Mahakali for their own benefit. Thus, the provisions of the treaty call for joint partnership of both states in executing energy projects for harnessing water from this river. The treaty advocates for an equivalent use after the subtraction of the existing consumptive use by both the state parties.<sup>131</sup> Implying that, each state party to the treaty has a right to use the waters of the Mahakali Treaty so long as it does not preclude the co-riparian state and cause a prejudice to its interests. Importantly, this Treaty endorses the principle of equitable utilization of water, equal distribution of benefits and the duty not to inflict damage as supported by the Helsinki Rules and the UN Convention. The treaty further provides for a detailed dispute and arbitration mechanism i.e. the establishment of an arbitration tribunal, in case of disputes.<sup>132</sup>

Therefore, the treaty discourages unilateral development of the Mahakali River hence encouraging joint cooperation and mutual benefit, hence producing and allocating maximum total net benefit of the Mahakali River to both the claimant parties, i.e. Nepal and India. Hence, the treaty is an example of symbolic relationship and cooperation in sharing water resources of the transboundary.

### **III.2.iii. Mahakali River: The Indo-Bangladesh Water Treaty, 1996<sup>133</sup>**

For over 35 years, the allocation of the waters of river Ganges and the sharing of its waters have remained an issue of conflict. The Ganges, Meghana and the Brahmaputra River systems flow to the Bay of Bengal in Bangladesh. The political dynamics between the two states in the past have further heightened the estrangement over water sharing. The treaty entered into by the two nations India and Bangladesh in the year 1996 aiming at resolving the on-going conflict primarily centered on the allocation of the waters of River Ganges, that originated in 1951, because of the construction of the Farakka barrage and the allocation and use of the river Ganga, flowing from Northern India into Bangladesh.

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<sup>131</sup> Supra note 129, Article III

<sup>132</sup> Id, Article XI (2)

<sup>133</sup> Treaty between the Government of the Republic of India and the Government of the Republic of Bangladesh on the Sharing of the Ganges Waters at Farakka , 1996

### **III.3. A COMPARISON OF THE LEGAL FRAMEWORK ON WATER SHARING IN AUSTRALIA AND US WITH INDIA**

#### **III.3.i. India**

The Indian legal framework advocates water-sharing between neighbouring states to be regulated by the necessities of the Indian constitution that divides power with respect to adjudication on water between the Union and the States. This is supplemented by the *Inter-State Water Disputes Act, 1956* that calls for the formation of Water Tribunals to comprehend and resolve water disputes occurring between nation-states, posing a threat to the integrity and peace between nations. This water-sharing Indian legal framework is further strengthened by the customary norms and doctrines of International Water Law such as the Helsinki Rules.

In contrast to this Indian system, the legal framework with respect to water allocation differs in Australia and the United States which is discussed below.

#### **III.3.ii. Australia**

Water-sharing in Australia is controlled by state jurisdictions. Unlike the Indian context, there is no direct constitutional power over State power and hence the Commonwealth Constitution has the power to regulate state water. Section 98 and 100 of the Australian Constitution highlights the issues pertaining to river water and such water resources. The power of the Commonwealth to regulate the usage of water resources is restricted through Sec. 100. As the Constitution is silent on the issue of water management, water resources and their sharing is hence left to the States to manage water resources.<sup>134</sup> The power of the Commonwealth was asserted through the enactment of the Water Act, 2007, which paved way for the Commonwealth to decide on matters of water resources, which were in the exclusive domain of the States. This position was subsequently affirmed in

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<sup>134</sup> P. Ishwara Bhat, *Inter State & International Water Disputes*, 75 (Eastern Book Company, 2013).

the Tasmanian Dam Case<sup>135</sup> that upheld the power of the Commonwealth. The active role played by the federalism was strengthened by the ‘*Murray Darling Basin Ministerial Council*’ imposing a limit on water extractions from the river basin by states. Hence, this represents the role played by the federal government inter-state water disputes.

### **III.3.iii. The United States of America**

The Mississippi river in the United States is one of the largest river basins in the world. Water resources and the infrastructure on the Transboundary Rivers are dominantly in the hands of the government. The water rights, i.e. the allocation of water remain largely a State matter. Though the US Constitution makes no express mention of water sharing yet, the federal constitution addresses the role of the states and grants power to the Congress to regulate inter-state sharing of water and its allocation.

Further, the US Supreme Courts and the Inter-State Compacts i.e. agreements between concerned states to resolve their water disputes are generally binding and are important means to resolve the Inter-state water disputes between states.

Thus, in comparison to the water sharing arrangements existing in the United States and Australia, the Indian legal framework on water sharing is quite a flexible one and easy to comprehend. Unlike other countries, India has stringent power sharing between the federal and the Union that distributes power on water allocation matters.

To conclude, Transboundary River water conflicts are an important area which affects the livelihood of people and trespass upon the social, economic and political welfare of the nation. Water disputes are a global phenomenon and India is no exception to it. As water sharing and allocation of water rights is a critical challenge faced by the governments today, it thus becomes imperative for the Indian government to reconsider and revise its legal framework and mechanisms for dealing with such disputes in an efficient manner.

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<sup>135</sup> Commonwealth v. Tasmania [(1983) 158 CLR I]

The existing IWD Act, 1965 is assuredly an insufficient mechanism to deal with water conflicts as discussed previously. Further, the power sharing in the constitution needs to be worked at. It is essential that both the Centre and the states and the political class play a fruitful role in an amicable and speedy settlement of transboundary issues. To achieve this, it is suggested that:

- Alternative Dispute Resolution Mechanisms though employed need reconsideration and practical implementation. Further, state parties to the dispute can work out Inter-State Compacts based on the US model, which will be a legal and a binding document.
- An award delivered by the tribunals or Commission must necessarily consider the prescriptive rights of the parties.
- A National Water board or an authority can be constituted that has the sole authority to regulate and influence the usage of waters of a river basin. Further, such a body can issue guidelines with respect to water sharing between transboundary states. In order to ensure, the strict enforcement of these guidelines, water boards shall have the power to initiate penal action against offenders
- Further, the Centre and the States shall arrive at an understanding as to confer specific rights on the States with respect to water sharing and the Centre playing an impartial role.
- Most importantly, it is imperative for the neighbouring States to realize that water sharing need a planned usage and that water is a paramount asset.

Therefore, incorporation of the above will go a long way in strengthening India's legal framework with respect to transboundary water sharing that is in consonance with international norms and in conformity with environmental norms.

## CHAPTER IV

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### **INDO- BANGLADESH WATER SHARING: AN OVERVIEW OF TERMS AND CONDITIONS**

This chapter attempts at considering the ambit of transboundary water sharing with definite reference to the India- Bangladesh water treaty. Further, the chapter attempts at reviewing the said treaty in light of its terms and conditions and its implementation and moreover, answer the research question as to whether the said institutional mechanism has lived upto its expectations.

Water knows no political boundaries and this vast transboundary character of water has made it an issue of engagements and spurred tensions at the international, regional as well as the domestic level. This is further aggravated by the fact that water is a threatened resource, which makes it prone to frictions and hostilities between states. The India Bangladesh water conflict is one among the various disputes revolving around the use of water resources on a trans-boundary river and the allocation of water rights.

India and Bangladesh carry historic and cultural overtones, thus leading to the creation of a unique bond and a distinctive relationship which is rooted in shared principles, common aspirations and sacrifices of their citizens. Both countries share around 54 Transboundary Rivers, which lays the foundation for the evolution of water conflicts among both parties. Among these rivers, the GBM<sup>136</sup> is a predominant one where both the countries are stake

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<sup>136</sup> The Ganges-Brahmaputra-Meghna (GBM) river basin is a transboundary river basin with a total area of just over 1.7 million km<sup>2</sup>, distributed between India (64 percent), China (18 percent), Nepal (9 percent), Bangladesh (7 percent) and Bhutan (3 percent).

holders, thus occupying a majority of the total expanse of the two regions. Unlike in other rivers, where Bangladesh is an upper riparian state, it is a lower riparian in this case concerning the GBM.

Historically, Bangladesh emerged as a political power and an independent sovereign in 1971 with the moral help of the Indian government. Geographically, the People's Republic of Bangladesh is surrounded by the Indian Territory and shares its boundary with the Indian Territory on three sides and the fourth side is open to the Bay of Bengal. The three major rivers, the GBM, enter the territory of Bangladesh flowing through India which entitles both the states to an equal and a reasonable usage of waters of the three rivers. While other parts of the world witnessed developments pertaining to the conservation and use of rivers, these two states have not been able to reach a common ground and reach on an agreement for devising an equitable method of water allocation and distribution of the holy waters of the Ganges and undoubtedly for promotion of management and reasonable utilization of the water resources. The water relations between the two states remained estranged due to the distribution of Ganges waters and the Teesta and the inter-linking project until a common consensus was reached through the means of a treaty entered into by the Indian Prime Minister H.D Deva Gowda and the Bangladeshi Prime Minister Sheikh Hasina Wajed.<sup>137</sup> An appreciation of the said treaty requires an overview of the historic water dispute discussed in the following section.

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<sup>137</sup> Treaty between the Government of the Republic of India and the Government of People's Republic of Bangladesh on the Sharing of the Ganges Waters at Farakka, 1996.

## **IV.1. ORIGIN OF THE DISPUTE**

The India-Bangladesh Treaty revolves primarily around the Ganges River and recently around the Teesta issue.

### **IV.1.i.The Ganges Water Dispute**

The Ganges originates in the Himalayas in Nepal, flows southeast through India and then subsequently flows towards Bangladesh, which makes the Ganges-Brahmaputra River basin as the third largest discharge in the world.<sup>138</sup> Before the Ganges forms a transboundary between the two states; it experiences a divide into two channels, the first flowing into Bangladesh, known as the Padma and the other entering south in India, known as the Bhagirathi. Water conflict regarding the Ganges is heightened because of the historical background, geographical location and the political picture of the two countries. The said dispute is premised on the fact that Bangladesh being a downstream, lower riparian state does not have an equal water allocation and it thus dependent on the upper riparian. India. The quantum of water that Bangladesh gets is reliant on the quantum of water that is diverted by the Indian flow of water into Bangladesh.<sup>139</sup> Thus, the highlight of the conflict being the contention of Bangladesh regarding the unilateral division and diversion of the Ganges water, which poses a threat to the water flow in Bangladesh. Failure to resolve this tension for decades, negotiations by the diplomats resulted in settlement of the dispute by the signing of the 1996 Treaty.<sup>140</sup>

Bangladesh being a densely populated country is heavily reliant on the waters of the Padma (Ganges). Factors such as environmental and natural degradation, the increasing need for water due to population expansion and more importantly, the reduction of the quantum of water due to the man-made Farakka Dam with the sole intention of diverting the water of Ganges have escalated the problem of water scarcity for Bangladesh. The

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<sup>138</sup> Brianna Besch, "Sharing the Ganges: Water Conflict between India and Bangladesh."

<sup>139</sup> Ramaswamy R.Iyer, Conflict – Resolution: Three River Treaties, 34 Economic and Political Weekly, 1512

<sup>140</sup> Id.

genesis of the dispute traces back to the year 1951, where the aftermath of the partition saw Bangladesh forming a part of East Pakistan. Taking advantage of this situation, India then planned on constructing a barrage at Farakka, just above the area where Ganges becomes a transboundary river for both India and Bangladesh. The idea of the construction was first suggested by a group of Indian experts and hydrologist under the recommendations of Mr. Shriman Singh whose recommendation was to construct the Ganges Barrages<sup>141</sup> for the preservation and maintenance of the Hoogly River so as to make the Calcutta port a functional one. The construction of the Farakka barrage around 10 kilometers upstream from the Bangladesh border was to safeguard and ensure access to the ships at the Calcutta port as the port was economically significant and a trade mechanism for the British. Hence, the construction of the barrage would prevent scarcity of waters in the riverbed and thereby promote navigational activities by increasing the lean period flow of the Bhagirathi-Hoogly river branch of the Ganges for irrigational purposes. Further, back in Bangladesh as the irrigation withdrawals increased during the lean season (i.e. March-May), the demands heightened and the inadequacy of available water to meet the demands in both the states for the said purpose led to the tensions urging. Hence, this led Bangladesh (erstwhile Pakistan in 1960's) to oppose the said construction of the Farakka Barrage due to reasons such as:

- One, the said construction by India would cause a decrease of water flow in the dry season damaging irrigation, agriculture and ecology of the river basin in Bangladesh, thereby having fragile implications for the Bangladesh economy.
- Second, as Farakka is a strategic position for India, the construction of the barrage is a part of irrigational development thereby leading to national development for India.
- Third, the real purpose of the barrage rather than the promotion of irrigation activities were to control the Hoogly River for supplying

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<sup>141</sup> Supra note 84.

Ganges water to the Indian states of Bihar and Uttar Pradesh.

- Fourth, through the construction of the said project, India was trying to assert its giant hegemonic intent and neighbour power on acting in ways favorable to it at the expense of her neighbours and hence failed to take into account their needs.

This initiated mistrust between the two states. Hence, taking a divergent view, Pakistan opposed the project in 1951. Contrary to the Pakistan belief, India believed that Farakka was a feasible project this was because East Pakistan had no scarcity of water. An attempt aiming at the resolution of the conflict was followed by a series a negotiations and exchange of correspondences among the two countries.

#### **IV.1.ii. Stages of Negotiations**

The basis for the water crisis began with the construction of the Farakka Barrage, located on the Indo-Bangladesh border. The waters of the Ganges and its tributaries were not in enough quantity to adequately satisfy the demands of the population of both countries. The dispute became a pivotal one in influencing both states to arrive at negotiations for peaceful resolutions. The said phase of negotiations can be demarcated into the following:

##### **IV.1.i.a. 1950-1970 (Pre- Independence phase):<sup>142</sup>**

The 1947 partition caused diverging interests among the two states over the control over the Ganges waters. A series of correspondences between India and Pakistan saw the emergence of proposals sought by Pakistan which were interference of the UN so as to facilitate the development of the river and the expert examination of the projects of the two states, to which India expressed its dissatisfaction. After a series of technical and

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<sup>142</sup> Chapter IV, Conflict and Co-operation over Indo-Bangladesh Transboundary Water Resources.

joint meetings and exchanges of relevant data, the two states reached a common ground with the July 1970 agreement which is a significant one as India for the first time recognized and accepted the Ganges to be an international river in the basin, thereby consenting to its transboundary sharing,<sup>143</sup> thus agreeing to Farakka being the point of allocation of supply of quantity of water. The pre-independence phase turned out to be futile with respect to co-operation concerning trans-boundary sharing.

#### **IV.1.i.b. 1971-1975 (Post-independence phase):**

The independence of Bangladesh from Pakistan and its emergence as a sovereign in 1971, resulted in Bangladesh forming an active association with India and the development of friendly ties between the two states. A step towards this co-operation was the signing of the 1972 Treaty of Friendship, Co-operation and Peace<sup>144</sup> which was a step for the initiation of goodwill between the two states. Apart from matters of irrigation, agriculture which called for cooperation from both member states, an important provision of this treaty was the establishment of the Joint River Commission (JRC) which required joint action towards common interests such as devising methods for equitable distribution of waters.<sup>145</sup> Pursuant to this provision in the treaty, the JRC was required to conduct a complete and a detailed survey of the river systems, which were shared mutually by both the states and subsequently monitor all successive agreements entered into by both the states.

As the Farakka Barrage neared its completion and became functional in 1975 it continued to dominate the tensions and the relations between both states. As a temporary solution, both states signed a temporary water allocation agreement, where both sides agreed on the basic principles for the allocation and distribution of the Ganges water and to test run the barrage. The agreement focused on the augmentation of The Ganges water and the

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<sup>143</sup> Ahmad Ishtiaq, "Bangladesh India Relations: The Ganges Water Sharing Treaty and Beyond" (1998) 25

<sup>144</sup> Treaty of Peace and Friendship between the Government of India and the Government of People's Republic of Bangladesh, March 19, 1972.

<sup>145</sup> Id, Article. VI.

allocation of waters between the two countries. However, the ad hoc agreement failed consequently leading to the deterioration of relations between India and Bangladesh. Subsequently, Bangladesh resorted to seeking UN intervention and hence, the UN Special Political Committee was molded, wherein Bangladesh contested unilateral withdrawal of the Ganges and its water by India from Farakka, thereby violating customary international norms of water law as provided by the Helsinki Rules. The said Committee suggested a bilateral negotiations and talks to solve the problem in an effort to avoid internalization of the conflict.

#### **IV.1.i.c. 1977-1990 (Bilateral negotiations):**

This period saw both states exchanging their particular proposals for water sharing augmentation, in an effort towards the resolution of the conflict. Series of exchanges and negotiations witnessed the development of a water sharing agreement in 1977<sup>146</sup> for five year duration aiming at enabling both countries at ascertainment and determination of finding long term solutions for water flow and its allocation in the dry season. A striking feature of the said Treaty was the minimum guarantee clause for Bangladesh affirming an 80% share to the state during the lean period, which cannot be reduced in any case.<sup>147</sup> Further, subsequent to the lapse of the agreement and to elude an agreement vacuum, both states entered into a Memorandum of Understanding (MOU) in 1982 extending the arrangement for three years<sup>148</sup> The MOU was a significant withdrawal from the 1977 agreement and excluding the guarantee clause. The expiry of the MOU in 1985 led to a treaty vacuum and reflecting a plummet in the political relations of the two states. The 1980 floods in Bangladesh made the water sharing scenario of both countries worse thereby inviting long term and comprehensive arrangements for transboundary water sharing. Furthermore, the newly elected Prime Ministers of both the states led to the returning of political stability in 1991 where both countries mutually agreed on

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<sup>146</sup> Agreement between the Government of India and Government Bangladesh on the Sharing of the Ganges Waters at Farakka and Augmenting its Flows, 5-1-1977. 128 Id, Article VIII and XII

<sup>147</sup> Id, Article VIII and XII

<sup>148</sup> Supra note 45.

development of fresh initiatives leading to an inclusive arrangement for water sharing and allocation of the Transboundary River.

The aftermath years saw both India and Bangladesh contending and justifying their respective claims over the construction of Farakka Barrage and the water allocation with respect to their respective needs. Bangladesh contended that the construction was a precarious one as it posed a risk to the ecology, fisheries navigation, and irrigation and more evidently on the livelihood of the population thus leading to water salinity and scarcity. On the other hand, taking a defensive approach, India argued the claim of the Bangladesh government to be a highly unrealistic and an overestimated one lacking the support of any scientific methodology. Moreover, the recurring nature of the adverse effects caused by Farakka, and the unilateral action of India had spurred up the anti-Indian sentiment wherein India being an upper riparian was at the liberty to withdraw water, when necessary at the expense of the socio-economic interests of Bangladesh. This scenario thus necessitated the need for the stalemate to be broken.

## **IV.2. THE 1996 GANGES WATER TREATY**

The political uncertainties coupled with the realization of the urgency of the matter by both states facilitated the signing of the historic treaty in 1996.<sup>149</sup> Being a product of endless bilateral negotiations, the said treaty endeavours in stimulating and reinforcing India-Bangladesh relations, thereby upholding the spirit of friendship and cooperation among the two neighbours.<sup>150</sup> This Treaty is an endeavor to afford permanency to augment the water flows of the Ganges between the two states thereby ensuring optimum and sustainable utilization of the Ganges for the mutual benefit of member states for a period of 30 years.<sup>151</sup> Establishing a formula for water sharing, the Ganges water treaty stipulates at putting an end to long running differences over the allocation of water flow.

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<sup>149</sup> Agreement between the Government of India and Government Bangladesh on the Sharing of the Ganges Waters of Farakka, 1996.

<sup>150</sup> Id.

<sup>151</sup> Id.

At the base level, the 1996 treaty seeks at achieving water allocation in an equitable and a reasonable manner in the following manner:

1. With a focus on the sharing of the water of the Ganges, the treaty entitles both states to be a recipient of the 50 per cent of the water flow and calls upon Farakka to be the point of release of water by India to Bangladesh.
2. Deciding the mode of allocation of water, each state would receive 35,000 cusecs of water from Farakka during the lean period (March-May) in an alternating sequence of 10-day period in the said months.<sup>152</sup>
3. Accordingly, in a situation where in the water flow drops lower than 50,000 cusecs in the 10-day period,<sup>153</sup> then the governments of both the countries would make efforts of entering into consultations and negotiations for making arrangements for water sharing in consonance with equity, fair play and no harm principle.<sup>154</sup>
4. Establishing an institutional mechanism, a Joint Committee<sup>155</sup> constituent of equal number of representative members of both states was constituted for the purpose of collection of data pertaining to water allocation and with the additional responsibility of the implementation of the said water treaty in both states.
5. Furthermore, the Joint committee was responsible for dispute resolution and settlement of difficulties arising out of the said implementation. In a scenario where the Committee was unable to settle such disputes, they were to be referred to the Indo-Bangladesh Joint River Commissions<sup>156</sup> constituted under the treaty to be a neutral party, and in case, the disputes still persisted, it was to be then

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<sup>152</sup> The Ganges Water Treaty, 1996, Annexure I and II

<sup>153</sup> Id.

<sup>154</sup> Id, Article II

<sup>155</sup> Id, Article. IV

<sup>156</sup> Supra note 152, Article VII

referred to the respective governments of both states for an effective resolution.

6. Water sharing between the respective states is to be determined by the natural justice principles and the no-harm principle,<sup>157</sup> thereby ensuring the long term use of the river waters by the states.
7. In order to ensure successful implementation and revision of the treaty, the provisions of the treaty and its problems shall be considered after a five year interval at the initiation of a request by either party.<sup>158</sup>
8. In consideration to the other provisions, upon the expiration of the said treaty, India was obliged to let water flow downstream of the Farakka,<sup>159</sup> until a new treaty was negotiated determining water allocation based on the principle of equity and goodwill. With the terms being mutually agreed by both India and Bangladesh, the treaty governed the water allocation between two counties for duration of significant thirty years and laid the brick of cooperation among the two states.

### **IV.3. THE INTERNATIONAL LAW REGIME VIS-À-VIS THE 1996 TREATY**

What is pertinent to note is the application of international law principles of water law and customary norms to the said treaty. It is worthwhile to mention that the 1996 water treaty seeks to incorporate a reasonable and fair solution and formula for water allocation and utilization by India and Bangladesh which is in consonance with the Human Rights and the UN Watercourses Convention which advocate for the principle of 'no-harm rule' through Art. IX, is a step aimed at accommodating and treating both parties at an equal footing. Further, following the principle of equitable utilization, the treaty calls for both member states to enter into water sharing agreements with respect to the sharing of the

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<sup>157</sup> Supra note, Article IX

<sup>158</sup> Id, Article X

<sup>159</sup> Id, Article, XI.

other common transboundary rivers, apart from the Ganges. Reinforced by Art. X, the principle further gains its strength in the Ganges conflict. Hence, implying that the principle of equitable utilization of water forms a notable part of the 1996 Treaty and is an efficient solution for the allocation of river waters between India and Bangladesh as it imposes necessary restrictions on the assertion of the rights by the riparian states.

Further, the treaty is not only in compliance with international water law principles but also submits to international instruments.

As discussed in the first chapter, international instruments such as the Helsinki Rules, the 1977 Watercourses Convention, and the Berlin Rules etc. constitute an essential international framework when the question on water sharing and allocation concerning a transboundary resource arises among states. Such international instruments stand true and are equally applicable in the context of sharing of the waters of the River Ganges among the regions of India and Bangladesh. The applicability of international instruments to the 1996 water treaty is discussed below:

- ***The Madrid Declaration, 1911:***<sup>160</sup> the said Declaration prohibits unilateral alterations to the transboundary watercourse being detrimental to the co-riparian. Placing its reliance on the said convention, Farakka Barrage was opposed by Pakistan.
- ***The Barcelona Convention, 1921:***<sup>161</sup> Pakistan cited Article X of the said rules arguing that India's action to divert waters of the Farakka, thereby prejudicing the rights of the co-riparian was prohibited.

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<sup>160</sup> Institute of International Law. 1911. Madrid Declaration on International Regulations Regarding the Use of International Watercourses for Purposes other than Navigation. First resolution of IIL relating to non-navigational uses of international watercourses sets down absolute obligation not to cause harm to other riparian states.”

<sup>161</sup> The Barcelona Convention and Statute on the Regime of Navigable Waterways of International Concern is a multilateral treaty that was concluded at Barcelona on 20 April 1921. Its purpose is to ensure freedom of navigation in waterways (i.e. ports, rivers and artificial canals) which bear international significance. It was registered in League of Nations Treaty Series on 8 October 1921.[1] It went into effect on 31 October 1922.”

- ***The UN Convention, 1977:***<sup>162</sup> The landmark Convention calls for riparian states to exchange information about the state of the water resource, as articulated by Art. IV of the 1996 Treaty. The Convention imposes an obligation on states to enter into negotiations disputes in an emergency situation and peaceful settlement of disputes to resolve the conflict as provided in Article VII of the Treaty. More importantly, the 1977 Regulation obligates the states to prevent causing harm to other states during the course of sharing of the Transboundary River and in utilization of its waters. Reflecting on the said provision, the 1996 treaty draws heavily from the 1977 Convention and hence includes the no-harm principle through Article IX.
- ***The Helsinki Rules, 1996***<sup>163</sup> **and the *Berlin Rules on Water Resources:***<sup>164</sup> 1996 Ganges Treaty is in conformity to the Helsinki rules, the most important international instrument advocating reasonable consumption of waters of the drainage basin by each riparian state. This treaty drawing from the said rules, takes into account the geography, the hydrology and the societal needs of the people of both India and Bangladesh dependent on the Ganges River, and thus advocates for 35,000 cusecs of water flow to both the states on a rotational 10-day period during the lean period. Further, the institution of Art. IX (no-harm rule) provides conformity to the equitable allocation theory.

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<sup>162</sup> In 1977, the UN Conference on Water was held in Mar del Plata, Argentina. Its goals were to assess the status of water resources; to ensure that an adequate supply of quality water was available to meet the planet's socio-economic needs; to increase water use efficiency; and to promote preparedness, nationally and internationally, so as to avoid a water crisis of global dimensions before the end of twentieth century."

<sup>163</sup> The Helsinki Rules on the Uses of the Waters of International Rivers is an international guideline regulating how rivers and their connected ground waters that cross national boundaries may be used, 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. Notwithstanding the guideline's lack of formal status, its work on rules governing international rivers was pioneering. It led to the creation of the United Nations' Convention on the Law of Non-Navigational Uses of International Watercourses. In 2004, it was superseded by the Berlin Rules on Water Resources."

<sup>164</sup> The Berlin Rules on Water Resources is a document adopted by the International Law Association (ILA) to summarize international law customarily applied in modern times to freshwater resources, whether within a nation or crossing international boundaries. Adopted on August 21, 2004, in Berlin, the document supersedes the ILA's earlier The Helsinki Rules on the Uses of the Waters of International Rivers, which was limited in its scope to international drainage basins and aquifers connected to them."

Furthermore, the Ganges Water Treaty also abides by the Berlin Rules, which replaced the earlier Helsinki rules. Enacted with the aim of far-sightedness, the 1996 treaty seeks to appreciate and symbolizes the sustainable use of water and this it does though ensuring that both member states enter into water sharing arrangements for the sharing of other common transboundary rivers.

Therefore, the said treaty incorporating principles of landmark international instruments embarks on achieving integrated transboundary water management through sustainability and fair utilization of the transboundary river, the Ganges.

#### **IV.4. ANALYSIS OF THE GANGES WATER TREATY: THE HITS AND THE FALL-OUTS AND ITS IMPLEMENTATION**

This is the second and an important water sharing agreement between India and Bangladesh subsequent to the 1977 arrangement. It was implemented at a tough time when both countries faced a water allocation crisis coupled with the lack of political stability owing to newly elected political government under the leadership of Gowda and Sheikh. The treaty had its own achievements and deficiencies.

The treaty should be commended for being close to international law principles and customary norms of transboundary watercourse sharing. As discussed in the previous Sec., the 1996 water treaty conforms to the established principles of water sharing of a transboundary river. Articles II, IX and X provide for the concept of equity, fairness and no-harm principle, reiterating the Helsinki Rules. The inclusion of the above principles is significant of a major breakthrough in the Treaty. Secondly, the Treaty's main strength lies in its effort to replace Bangladesh claim of unilateral withdrawals of Farakka by India by a definite fixed amount of water which India is now entitled to withdraw. This is also important as it tends to establish a peaceful relationship between both states that was previously eroded by mistrust due to lack of any water arrangement

determining water sharing and rights. Thirdly, the allocation of 35,000 cusecs of water to Bangladesh ensures the maintenance of accurate water levels in Bangladesh in terms of irrigation, agriculture and livelihood. Furthermore, the Preamble of the treaty ensures and entitles both India and Bangladesh to a 50 per cent equal share of water thereby making it sure that the social needs of both the populations are met as articulated by the Helsinki Rules and more prominently ruling out the probability of water scarcity in the two states. Next, considering the implications of the water treaty, the treaty has largely contributed to the qualitatively changing the scope of economic and political relations between the countries. Implying that, with the implementation of the agreement in place, the countries are now in a better position to build and create advantageous relations both politically and economically. Further, the existence of water sharing arrangement between both the countries accords the existence of friendly relations in the South Asian region at large.

While the Treaty had its own merits which adequately justified the implementation of the Treaty, yet the Treaty failed to reach out in a number of areas and aspects. Firstly, unlike the 1977 Agreement that contained the '*Minimum Guarantee Clause*'<sup>165</sup> ensuring 80% of the quantity of water allocation to Bangladesh, the 1996 treaty lacked the said striking guarantee clause. Although Annexure I<sup>166</sup> of the Treaty, accords a guarantee of 35,000 cusecs of water flow<sup>167</sup> on a 10-day rotational basis in the lean season, yet the guarantee clause becomes operational only when the water flow level at Farakka falls below the level of 50,000 cusecs. Further, in a hypothetical scenario of the reduction in water flow at Farakka, the guarantee does not stand to be valid as the quantum and amount of water which is to be released will depend on persons monitoring the Farakka outflow, unless an arrangement in this regard is arrived at by the two governments, implying the dependency of Bangladesh on the will of the upstream riparian, India. Secondly, one of the major areas where the treaty lacks is non-availability of water in other periods in other parts of the year and non-specification of the entitlement in terms of quantum of water on a day-day basis. The treaty only advocates for water allocation among the two states for three months (March- May), hence ignoring the remaining months hence

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<sup>165</sup> Supra note 152.

<sup>166</sup> Annexure I to Article II of the Treaty on Ganges

<sup>167</sup> Id.

making it difficult to predict the water received on each side during other months in advance due to lack of knowledge, as the quantum of water notably is dependent on the water level flow of Farakka. Next, interpreting the terms of the treaty, Art. XI makes an arrangement for India augmenting and releasing adequate quantum of water to the downstream riparian in good faith and goodwill in an event of expiration of thirty years. However, the said Art. lacks feasibility, primarily because in such an event India, being the upstream riparian would release water on its own sole discretion, hence meeting its own minimum needs in the first instance, therefore according a preference to the hydro-hegemonic state, India in the said case.

Another significant loophole in the said treaty is its failure to provide for a de facto effective dispute resolution mechanism. The 1996 treaty provides a political means, and not a proper dispute resolution mechanism such as arbitration, for the settlement of any dispute pertaining to the execution of the treaty.<sup>168</sup> Article VII of the said treaty stipulates the formation of a '*Joint Committee*' or the '*Indo- Bangladesh Joint Rivers Commission*,' for the settlement of the conflict. The said dispute can be subsequently referred to the respective governments in case of the persistence of the conflict. Yet, this being the case the treaty provisions fail to specify the level of the government for such reference of the dispute and the time period for such dispute settlement. Unlike the 1977 Agreement,<sup>169</sup> which provided for an arbitration mechanism between the said member states, the new treaty fails to do so and hence impedes an effective resolution of disputes between the states. More importantly, though the water treaty articulates the formation of the JRC, as the only medium for handling transboundary water conflicts through the portal of Article VII, yet it fails to lay any authority to the River Commission for the implementation of the treaty. As a consequence, the JRC is hence weakened. Further, what is interesting to note is the lack of any mechanism for consultation from other co-riparian states of the river basin in an effort to resolve the said water allocation and sharing crisis.

Due to the above lacunas, the implementation of the water- sharing treaty stands

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<sup>168</sup> Salman M.A. Salman and Kishor Uprety, Hydro -Politics in South Asia: A Comparative Analysis of the Mahakali and the Ganges Treaties, 39 Nat Resources 337 (1999)

<sup>169</sup> Supra note 152, Article 33.

significantly at a risk. Firstly, even though the water treaty is an arrangement to divide and the surface waters of the Ganges at the mutual border, the water allocation arrived at lacks value and does not consider the uses of the river between the two countries. As the Ganges- Brahmaputra Rivers are shared among India, Bangladesh and Nepal, the water sharing arrived at by the 1996 treaty does not take into account the needs of the uppermost riparian, Nepal, hence implying its failure to adopt an integrated approach to transboundary sharing of water resource in the river system.

The major reason for the failure of the implementation is the lack of a long term solution for water scarcity faced by both states in the dry season. The proposal to allocate 35,000 cusecs of water for a three month interval is a major defect in the treaty and lacks a practical view. Water scarcity due to Farakka is not a temporary cause of concern, but a permanent and a challenging one in both states. Allocation of water for a certain period does not purport to solve the said deep-rooted problem at the base level. What this requires is a much more logical and a far-sighted approach that can eradicate water scarcity and maintain a sufficient water flow at the Farakka. Moreover, though the treaty manages to reach close to international principles, yet it fails at implementation level, despite having such international backing. This is premised on the fact that the treaty argues for allocation of 35,000 cusecs of water flow to Bangladesh, and further entitles it to an additional flow in an instance of water level decreasing below 50,000 cusecs at the Farakka. This additional extraction privilege is unavailable to India which clarifies the contention that an equitable utilization of rivers is not the same as the equitable allocation of water as provided in the international law. Another obstacle to the implementation is the lack of minimum infrastructure required. Finally, the non binding nature of the decision of the disputes referred to the respective governments as raised speculations about the treaty.

Hence, a more feasible and an integrated approach is needed to effectively implement the 1996 water treaty and make it workable for both riparian states.

#### IV.4.i. The Teesta Sharing

Another issue that dominates the conflict between India and Bangladesh relates to the sharing of the Teesta River. Article IX of the Ganges water treaty advocates for arrangements to be entered into between both states for sharing of waters of common rivers. One of such transboundary common rivers is the River Teesta which, being one of the tributaries of Brahmaputra originates from the Teesta glacier and flows through Sikkim, West Bengal and towards Bangladesh.<sup>170</sup> Like River Ganges, the flow of the River Teesta is insufficient to accommodate the needs of both states during the lean season, thereby creating a conflict similar to that of the Ganges conflict. The dispute arose by the act of the Indian government in West Bengal constructing dams and barrages on the Teesta River in the year 1979<sup>171</sup> for purposes of irrigation consequently leading to the opposition from the Bangladesh government due to the threat posed by the said construction to rice irrigation and thus, leading to the scarcity of water for irrigation . A series of bilateral dialogues among the diplomats of both states, led to the enactment of an ad-hoc agreement in 1983.<sup>172</sup>

The treaty allocates the Teesta water in 39% and 36% to India and Bangladesh respectively, leaving the remaining 25% to be with Bangladesh so as to ensure an equal distribution of the said waters.<sup>173</sup> However, the said allocation arrangement was disputed by both states, owing to the risk of water scarcity in both states. An attempt to resolve the said allocation was made by the creation and the setting up of the '*Joint River Water Commission*'<sup>174</sup> which further took up the task of collection of hydrological data like the Indo- Bangladesh River Committee in case of Ganges water dispute. Based on the analysis of the dispute, the said Commission sought to suggest the increase in the water allocation share of Bangladesh, Bangladesh border being close to the construction of dam

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<sup>170</sup> Dr. Aruna R. Mittal, "Indo-Bangladesh Water Issues", International Journal of Humanities and Social Sciences Research, Vol.2, Issue 11, 2016

<sup>171</sup> Id.

<sup>172</sup> Agreement between the Government of the Republic of India and the Government of the People's Republic of Bangladesh on the access and use of the Teesta River, 1983

<sup>173</sup> Id.

<sup>174</sup> Id.

in West Bengal, which would allow equal water penetration, thereby mutually benefiting the two countries. A series of bilateral attempts witnessed the development of a Joint Technical Group<sup>175</sup> with the purpose of assessment of the Teesta allocation during the lean period. Subsequently, the water allocation formula arrived was 42% for India and 37% for Bangladesh with the remaining to be allotted to the Bangladesh.

The major fallout of the treaty has been its implementation and failed efforts of consensus. The power-sharing agreement envisaged by the Indian Constitution allocates the subject of water to the state, hence implying the need for the state consensus on matters of water sharing, more importantly concerning a transboundary River, such as the Teesta or the Ganges. This gives authority to West Bengal to frustrate the said water sharing arrangement as bearing adverse implications on the State. The implementation of the Teesta deal faced opposition by the West Bengal Chief Minister resulting in the withdrawal of the treaty. Since then several attempts have been called for aiming at the joint resolution of the treaty. One such example was the 2011 negotiations, which included a proposal arguing for the equal 50% sharing of water by both sides, the proposal was rejected by Mamta Banerjee, fearing that the said sharing would result in the drying up of the northern West Bengal and cause a detriment to irrigation. Despite repeated attempts the treaty displayed a slow progress hence being non- successful in diffusing tensions between the two sides. The treaty has recently witnessed efforts being made by Prime Minister Mr. Narendra Modi in assuring and expressing confidence to the Bangladesh government for reaching a far-fetched solution to the Teesta conflict that holds tremendous importance for Bangladesh, particularly in the lean period where reduction of water flow leaves an adverse impact on irrigation.

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<sup>175</sup> Supra note 172.

#### **Iv.4.ii. The Tipaimukh Dam**

Apart from the contentious Ganges and the Teesta issue, the construction of the Tipaimukh Dam by India on the Barak River, for the purposes of hydro-electric power, resulting in the unilateral diversion of water leads another transboundary river water conflict. The said dam being located on the River Barak concerns the two riparian nations, contesting over the issue of construction of the said dam.

The construction of the said dam is justified by India to control incessant floods and to generate electricity, as India in this case is an upper riparian country. While, on the other hand, the lower riparian, Bangladesh, claims this move of the Indian Government to be one planned diverting the dam waters for the purposes of irrigation, henceforth amounting to the ‘unilateral diversion of water.’ Also, the said construction interferes with seasonal activities, such as fisheries, irrigation and agriculture and more importantly disturbs the rhythmic flow of the water, thus adversely impacting Bangladesh as the said construction of the dam would dry the other rivers flowing through Bangladesh, resulting in choking of the entire area of Bangladesh.

This issue has entered the sphere of bilateral negotiations under the JRC, and is currently under deliberations among the two nations.

#### **IV.4.iii. The Indian River Linking Project**

Another contentious water sharing issue among the two riparian regions is India’s River Linking Project. The said project aims at channeling the waters of rivers and its diversion to the drought prone and arid regions. The project revolves around re-routing waters of the Himalayan Rivers, particularly the Ganges and the Teesta, which are shared by the two riparian States with the primary objective of diverting waters to the South Indian states. The said move hence faced opposition from Bangladesh, arguing to diversion of water. Moreover, the said move by India, considerably impacts agriculture and water

availability for the purposes of drinking and resulting in diminishing of water flow of the Ganges and Teesta and adversely having significant implications for the ecology.

However, as both riparian nations continue to contest over the said water sharing, they significantly tend to ignore the regional and international implications ignored by the said river linking project.

To conclude, water sharing allocation has been a crucial aspect in the history of Indo-Bangladesh relations. It is estimated that in the coming years wars will be fought over water, thus, causing a detriment to the water security of states in the global scenario. The Ganges Treaty, drawing from customary principles tends to define the problem of water sharing between nations and attempts at arriving at a long term solution, yet heavily failing this attempt. This is because of the narrow nature of the treaty which tends to focus only on the dimension of sharing of available waters between the two states. Further, the deficiencies in both the Teesta and the Ganges water agreements will be discussed in the next chapter, hence highlighting the reforms and suggestions needed.

The success of the treaty in the functional sense is dependent on the bilateral relationship of the two states in the future. That is to say, both states need to restore confidence with the purpose of rebuilding the requirements of the treaty. Nevertheless, both the Teesta and the Ganges treaty are an efficacious step for water sharing and allocation, thereby ensuring cooperative relations between the two states and marking footsteps for other states in the South-Asian region to follow, thus reiterating goodwill between both the states.

## CHAPTER V

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# ISSUES IN THE IMPLEMENTATION OF WATER SHARING TREATIES BETWEEN INDIA AND BANGLADESH

### V.1. INTRODUCTION

Indian landmass spreads across from east to west covering the distance of approximately 3,217 Km at stretch, covering east, north and west by land and mountains. The geographical location of India is placed in such a way that it provides a wide range of nature and habitat to different species of animals. One such factors in supporting this environment and the habitat is the natural resources, including the water sources the most. There are seven major rivers flowing in various tributaries throughout India, providing water for various irrigation and household purposes. Brahmaputra River, Ganges River and Godavari River are the largest river system in India covering east to west and north to south. India shares borders with Bangladesh, including 54 rivers<sup>176</sup> at eastern front, and five rivers with Pakistan at western front. Water as natural resource is important for the nature and nurture of large population, especially in case of country like India. The economic and population growth of India has brought in the question of policy formulation and regulating water source. Water being a natural resource there are possibility of depletion of drinking water. And thus, there is a need of some regulations

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<sup>176</sup> <http://www.dnaindia.com/india/report-bangladesh-a-country-that-shares-54-rivers-with-india-1584128>

which govern and protect the water resources.<sup>177</sup> But the situation arises when it comes to sharing the same resources with other countries in a situation where there is no sufficient water to distribute within the country. Thus, India has entered into various treaties Bangladesh and Pakistan in terms of sharing water resources and distributes them.

Water rights in India are closely linked to property right in land. And the implication of the same is one of the reasons for over exploitation. There is a dramatic fall of water in some of the Indian agriculture states, resulting in poor agriculture conditions and reduction in the production. This chapter deals with the established legislations created to settle the disputes between India and Bangladesh over Ganges water sharing and Teesta water sharing and how the implementation of these legislations is still in question and why there is delay in resolving the dispute over water sharing.

India and Bangladesh share vast culture and heritage along with sharing the natural resource such as land and water. Prior to 1947, there was no such dispute regarding the sharing of water resources. But after 1947, when India got independence and partition happened between India and Pakistan, Bangladesh (East Pakistan) remained under the control of Pakistan. The situation of conflict arose in 1950-51 when the water sharing of Ganges River was in questioned. The government of India on several occasions has tried to settle the dispute of water sharing until 1971 when Bangladesh got independence and in 1977 both the neighboring countries signed an agreement over Ganges water sharing dispute. And in the year 1996 both the countries entered into a treaty to share water on proportion basis as per the available data for a period of 30 years agreeing to the terms and conditions of both the nations. Initially the conflict of Teesta River was of a social nature but now it has turned to a political and diplomatic issue, where the Indian government has not shown any concern regarding the problems of Bangladesh, but also not following the accord of 1996 treaty, which talks about equitable and fair distribution of resources. The Chief Minister of West Bengal claims higher proportion of water for the states which is against the principle of equal distribution and the central government,

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<sup>177</sup> Stephen Bradnock and Robert Bradnock, "Geopolitics, water and development in South Asia: cooperative development in the Ganges-Brahmaputra delta," 169(1) GJ 43-64 (2003)

even after promising the neighboring country to find a suitable solution to settle the dispute remained silent after 2015, thought the government wants to settle the dispute by introducing certain agreements and treaties the state government of West Bengal is rejecting the proposal every time.

It is a fact that, the provisions of this treaty seems to be unambiguous and also that there have been many committees and commissions created and working under the governments of India and Bangladesh for the proper implementation, evaluation and monitoring of the data available through filed surveys, it has been found that there have been many discrepancies and inadequacies in the treaty's functioning and implementation, which calls for a further investigation into the matter of water sharing between the two countries.<sup>178</sup>

This chapter in brief thus focuses on the problems and inadequacies in the treaty's implementation so that measures can be taken for the rectification of these issues at hand.

## **V.2. THE DISPUTE BETWEEN INDIA AND BANGLADESH**

### **V.2.i. Ganges River**

Almost all the rivers that flow from India through Bangladesh to reach the Bay of Bengal originate in the Himalayas. India being the upper riparian country has an added advantage as to the amounts of water distribution to neighboring nations on rivers originating in it, India has historically staked a previous claim to rivers flowing through its territory, and in doing so, has even managed the quantum of water flowing into People's Republic of Bangladesh. Because of its distinctive topography, Bangladesh is liable to seasonal differences in stream flows, and insufficiency of water within the season.<sup>179</sup>

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<sup>178</sup> Status and Implementation of Transboundary River Agreements on the Ganges in Bangladesh, Issue Brief, BCAS, Issue Brief No. 1, April 2015.”

<sup>179</sup> Daene C. McKinney, “Transboundary Water Challenges: Case Study”, University of Texas at Austin Center for Research in water resources.

India shares a rich cultural and heritage history with Bangladesh along with the water sources. Both the countries are the member of “SAARC (*South Asian Association for Regional Co-Operation*), BIMSTEC (*Bay of Bengal Initiative for Multi-sectoral, Technical and Economic Co-operation*), IOR (*Indian Ocean Rim Association*) and *commonwealth*.”

One of the distinctive features of river Ganga is that, after originating from Gangotri on the Southern slope of the Himalayas, it moves towards Bangladesh and covers a distance of 2500 kms, after which, covering a distance of about 120 km, river Padma moves towards the south-east and merges with the Brahmaputra in Bangladesh which then flow into the Bay of Bengal.<sup>180</sup>

The Ganges Basin being one of the most fertile areas is also the most densely populated regions of the world also has great economic potentials for industries, fisheries, power generation and irrigation. But even after such potentialities this region is also the least developed regions of the world. India diverts large volume of Ganges water to the Hugli canal to avoid water scarcity at Calcutta port and also diverts fresh water to the Bhagirathi River. The establishment of Farraka Barrage and its water flow management is the major dispute and Bangladesh claims that the Barrage deprives them from the fresh water availability in the region. The major issue which Bangladesh tends to face is the salinity of water at Bangladesh-Ganges delta region.

## **V.2.ii. Background**

The country being rich in water resources, owing this advantage to the great Himalayas benefitting from the windward side which perennially feeds these rivers, is facing management problems and the seasonal unavailability of adequate water to share. This problem of management has increased after the partition of India and Bangladesh, the dispute over water sharing has also grown during the time of partition.

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<sup>180</sup> <http://udayindia.in/2015/05/02/policy-on-sharing-river-water-between-india-and-bangladesh/>

The official plan for the establishment of Farraka Barrage over the Ganges River, 17 km from the border was questioned by the Pakistan in 1951, and has also questioned the supply of water in seasonal and non-seasonal i.e. 40,000 cusec and 50,000cusecs respectively, to continue the trade in Calcutta bay and to avoid the salinity level in city water. The government of India in 1952 rejected all the claims and declared the project as hypothetical scenario.

There were several reports made by India regarding the establishment of Farraka Barrage in 1957-1958, during this time Pakistan for the development of the eastern river system, proposed India to avail the technical and advisory services of the UN.<sup>181</sup> However, in the 1960's India rejected the proposal but accepted to exchange data of the project on mutual consent in developing water system.

This conflict of sharing of water between the two countries dates back to 1950s, when a proposal was made to construct Farraka Barrage over the Ganges River in West Bengal. In 1975 the Barrage became operational and since then the two countries are under negotiation of for the sharing of water of river Ganga. Even the *Joint River Commission (JRC)* which was established to protect the common interest of water sharing failed after 1974. As the increase in population and agriculture the two countries signed an agreement for a period of 5 years in the year 1977, but this agreement failed in 1982 and the dispute remained the same. In the year 1996 the then *Prime Minister H.D. Deve Gowda and Sheikh Hasina* signed another agreement for the tenure of 30 years with minimum water supply demands.

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<sup>181</sup> Aaron T. Wolf and Joshua T. Newton, Case Study of Transboundary Dispute Resolution: The Ganges River Controversy

### **V.2.iii. Reason for Conflict**

The conflict of interest has arisen because of the topography of both India and Bangladesh. India being upper riparian nation is using the flow of the river for its own welfare, agriculture and navigation purpose and diverting it to support the nearby land, while Bangladesh being the lower riparian county is trying to protect its settled water in the river and support the economic development. Thus, both the nation needs water resources to support their economic and agriculture growth. Hence, both the nations are in conflict to settle this issue of resource sharing.

### **V.2.iv. Attempts to Settle the Dispute**

The constitutional mechanism in India deriving its provisions from the Government of India Act, 1935, makes water law a State based law and gives power to the States to make laws on this matter. Even after the terms and conditions of the accord which appear to be clear and unambiguous, and many commissions and committees which have been created by Bangladesh and India to make sure correct implementation, observance and analysis of the project, the information gathered from field surveys have unconcealed claims of in depth inadequacies and discrepancies within the Treaty's functioning which will warrant more investigation into the matter of water sharing between India and Bangladesh.<sup>182</sup>

The first attempt of bringing parity was a ministerial meeting held in July 1960 between India and East Pakistan, in New Delhi. The series of meetings continued till 1962, however, India started the construction of the barrage at Farraka in January 1961, informing Pakistan about the development and its report. In return Pakistan repeatedly requested India to conduct another ministerial level meeting but India refused on the grounds of unavailability of full data of the project. There were total of five meetings were conducted at ministerial level from 1968 to 1970 and both the countries agreed that

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<sup>182</sup> “Status and Implementation of Transboundary River Agreements on the Ganges in Bangladesh”, BCAS , 2015.

there is no enough date to carry on such meeting. There was fundamental difference between the needs of both the nations. Bangladesh proposed a substantial approach for equitable sharing of Ganges water for both the nations. And in 1970 the construction of Farraka Barrage was complete and in 1971<sup>183</sup> Bangladesh got independence. India and Bangladesh on later terms agreed to enter into agreement over the settlement of trans-boundary water dispute through Joint River Commissions except in Ganges. For sharing of Ganges water both the countries agreed to setup ministerial level meeting with the Prime Minister of both the nations and agreed to reach to conformity of settlement before the operating of the Barrage in 1973 and in 1974 the agreement was confirmed by the foreign ministers. In 1974, Prime Ministers of both the nations came to a declaration regarding the flow of the river in non-seasonal period, and the issue was so serious that joint commission was given the task to allocate available water during non-seasonal period before the commission of the project.

The commission took into consideration both the countries and decided on two grounds i.e.

- Changing the flow of water from the Brahmaputra to the Ganges through Farraka, proposed by India, and
- Storage facility contained in the Ganges basin, proposed by Bangladesh.

These two issues were however, discussed in five meetings held between 197 and 1975 and one ministerial level meeting in 1975. The commission brought two nations together under these positions,<sup>184</sup>

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<sup>183</sup> Muhammad Mizanur Rahaman, “The Ganges Water conflict: A Comparative analysis of 1977 Agreement and 1996 treaty”, *Ast.* 195-208 (2006)

<sup>184</sup> *Id.*

**Position of India:**

1. The so called additional storage possibilities are limited in India and are not sufficient to meet the developmental needs of India;
2. The most feasible option for supplementing the flow of Ganga and for the development of the region is building the canal that links the rivers and building storage facilities on river Brahmaputra;
3. The Commission does not warrant approaching any third countries and is considering the pattern of diversion into the Bhagirathi-Hooghly;
4. A separate navigation canal and its construction is not the matter of question for the optimum development of water resources in the region.

**Position of Bangladesh**

1. For the storage potential of monsoon flow of the Ganges Basin there are enough storage potentials for Indian needs;
2. Nepal could be approached for additional storage as there is enough space available along the head waters of the Ganga;
3. The construction of a feeder canal from the Brahmaputra to river Ganga would have drastic consequences as it might lead to resettlement of massive population;
4. The needs of India could be better met by altering the pattern of diversion of water from Ganges into the Bhagirathi-Hooghly, and thus, construction

of a navigation link from Calcutta to the sea via Sundarbans would be more feasible.

After the construction of the barrage India in agreement with Bangladesh test run the flow of water during 1975-1976, diverting water between 11,000 to 16,000 cusecs to Bangladesh. India continued to divert water throughout the dry season in 1975-76 to Bangladesh resulting in severe consequences to the disorientation of tributaries, salination of water and failure of agriculture and fisheries. Whilst, Bangladesh was facing drastic consequences, the issue of conflict still remains the same among the nations. In 1976, Bangladesh lodged a formal protest against India in United Nations General Assembly to settle the dispute, as a result of which negotiations between both the nations started in December 1976 with an objective to come to conclusion on consensus basis. The negotiations continued till April 1977 at ministerial level and both the countries understood the significance of the issue resulting in signing of Ganges Water Agreement on November 5, 1977.<sup>185</sup>

The agreement came into force and has emphasized on the functioning of the barrage at Farraka and also on the dispute settlement mechanism through Joint Commission. The agreement provides that the water will be divided equally if the level of water falls below 70,000 cusecs in Farakka, however maintaining that during an alternate 10 days period between 11 March and 10 May,<sup>186</sup> each country shall receive a minimum of 35,000 cusecs of water. The agreement empowered the commission to supervise over the distribution of water in seasonal and non- seasonal period so that the dispute remains settled. The agreement was signed for the period of five years and it can be continued with mutual agreement. The distribution of water should be done through the record flow of Ganges from the year 1948-1973. The commission was vested with the task of identifying long term solutions of the problem.

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<sup>185</sup> Supra note 183.

<sup>186</sup> Treaty Between the Government Of The People's Republic Of Bangladesh And The Government Of The Republic Of India On Sharing Of The Ganges/Ganges Waters At Farakka, 1996.

In 1982 both the countries announced a joint consent over not to extend the 1977 agreement, rather, to start with a fresh agreement over the dispute settlement within the period of 18 month, but failed to accomplish it. Later on, in 1985, India- Bangladesh entered into a Memorandum of Understanding over the sharing of Ganges during the dry season flow. A Joint Committee of experts was established to resolve the issue and give some concrete solutions to solve the problem of water shortage during dry season. The joint committee of experts and joint commission regularly tried to resolve the dispute throughout 1986, but no effective solution achieved.

Another attempt of resolving the dispute and entering into new agreement was discussed by the Prime Ministers of both the countries in the year 1992 to achieve a long-term agreement on water sharing. The last agreement expired in the year 1988 and since then there were no agreement between the two till 1996, when a new water sharing treaty was signed by the two nations on the basis of 1985 MoU. The most notable changes in 1996 treaty were the establishment of a new pattern for the water distribution during dry season.

The dry season was scheduled from 1<sup>st</sup> January to 31<sup>st</sup> May over Farraka Barrage. This treaty of 1996, mandates the water flow at 50,000 cusec and if the water flow reduces both the government shall come together to take certain actions on the basis of “*pinciple of equality, fair play and no harm to either party.*” The exclusive clauses under the treaty abide both the governments to discuss and review the water sharing agreement at five year of interval. And if there is no settlement between the countries over the treaty, India has to release 90 percentage of the flow to Bangladesh at Farraka as per the treaty until some solutions can be mutually agreed upon. This 1996 treaty was based on the data of the discharge of water at Farraka Barrage between the years 1948-1988, however there was significant decline of flow in the upstream and increased usage of water upstream resulted in the reduction of discharge downstream.<sup>187</sup>

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<sup>187</sup> M. Mirza, The Ganges water-sharing treaty: risk analysis of the negotiated discharge, 2(1) IJW57-74 (2003)

The first dispute over cross-boundary flow between India and Bangladesh arose because the water that passed through the Farakka dam fell below the minimum level provided for in the Treaty in April 1997, that forced Bangladesh to request for a review of the watershed' state.<sup>188</sup>

India's decision to come up with the *Mega River Linking Project*, linking several rivers throughout India by utilizing the waters from river Ganges towards southern and eastern states of India which are prone to water problems, escalated the ongoing conflicts between Bangladesh and India as it created problems for Bangladesh for its survival.<sup>189</sup>

The status of the Ganga as an international river was accepted by India only in the year 1970, and that the Ganges Water Treaty was an outcome of negotiations of 25 years that finally recognized the rights of Bangladesh as a lower riparian country and helped in the setting up of a course of action that could manage Ganges waters to make it sure that Bangladesh got an reasonable share during the dry season. And the treaty signed in 1996 by India and Bangladesh is up for renewal in 2026.

### **V.3. TEESTA RIVER**

Since 1952, there has been a dispute between India and the then East Pakistan over the sharing of waters of river Teesta. Both the countries went for a series of negotiations when Bangladesh became an independent nation in 1971 and revived certain modalities for distribution and sharing of waters of river Teesta during 1980's. However, in the mid 1980's, a temporary agreement was reached upon but has not been implemented since its inception.

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<sup>188</sup> S. Tanzeema, and I. M Faisal, "Sharing the Ganges: a critical analysis of the water sharing treaties", 3(1) WP 13-28 (2001).

<sup>189</sup> F. Pearce, Conflict Looms over India's Colossal River Plan. (2003).

On January 10, 2010, after a two day ministerial level meeting of the Joint River Commission, the Sheikh Hasina led Bangladesh delegation exchanged a draft agreement on the issue of water sharing of river Teesta with India, in which Bangladesh presented a draft on an interim agreement, whereas India presented a Statement of Principles on the sharing of water during dry season. The instant outcome of the meeting was that both the countries would come to an agreement within a period of one year and that it would provide an important boost to the agricultural produce in the northwestern Bangladesh. However, the matter which remained unanswered was the quantity of water to be shared between the two countries.<sup>190</sup>

### **V.3.i. Background**

Teesta River is one of the 54 rivers shared between Bangladesh and India which takes birth in Sikkim and enters Bangladesh via West Bengal and merges with Brahmaputra Rivers. Almost 85% of the flow of water of river Teesta is diverted India as India has built a barrage at Gazaldoba without Bangladesh's consent. The conflict between the two countries arose in 1970 when West Bengal Government started the construction of a dam over the river for irrigation purposes which were opposed by Bangladesh claiming that establishment of the dam will hamper the agriculture of the agriculture land surrounding Teesta River. In 1983 an ad-hoc agreement was signed by the two nations for water sharing that is 39 percentage for India, 36 percentage for Bangladesh and 25 percentage un-allocated. However, Bangladesh also claimed for equitable water distribution. As there is already one treaty that exists over the distribution of waters of Ganges River between Bangladesh and India, the situation of the farmers is still hostile because of the un-availability of resources and other factors such as lack of rain during monsoon, drought and famine.<sup>191</sup>

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<sup>190</sup><https://timesofindia.indiatimes.com/india/the-teesta-river-dispute-explained-in-10-points/articleshow/58091320>.

<sup>191</sup> Maya Mirchandani, "The Teesta Water Dispute: Geopolitics, Myth and Economics", Issue Briefs and Special Reports, (2016).

Water sharing has become more of a political, diplomatic and environmental issue at present where the Indian stance is that if we share more of the water than present, the farmers in the eastern states will face draught and the northern West Bengal will dry out by 2025. The then Chief Minister, Ms. Mamata Banerjee called off the ad-hoc agreement with Bangladesh and refused to sign any treaty keeping in mind the situation of West Bengal during drier season. The Government of India tried to enter into an agreement through a treaty for the sharing of water in 2011 with Bangladesh, but the state government did not approve the bilateral agreement over water sharing as the political situation was in coalition affecting the internal politics of states. The agreement which failed to come into existence in 2011 between the two countries was based on the guidelines of 1996 Ganges Treaty, where both the countries will be sharing 50 percentage of water resources each. Both the countries reached on consensus regarding the 2011 agreement for a period of 15 years sharing water that is. 42.5 percent to India and 37.5 percent to Bangladesh during dry season.

The 2011 agreement was not taken into consideration for next four years until in June, 2015, on a visit to Bangladesh Indian Prime Minister has given confidence to find a fair solution to settle this long-term pending dispute between the two countries.

### **V.3.ii. Reason for Conflict**

River Teesta contributes to be the fourth largest transboundary river of Bangladesh that is used for irrigation and navigation and the dispute arose between the two nations because of disparate distribution of water resources. India being the upper riparian country has the availability of resources prior to neighboring nation. India, on several occasions tried to settle the conflict by entering into various agreements until 2011, where West Bengal Government completely denied sharing water with Bangladesh. Another reason for conflict came into existence when Sikkim builds 26 dams over Teesta River as hydropower projects which will generate 50,000MW electricity for eastern states of India, resulting in hampering the agriculture in Bangladesh.

### **V.3.iii. Attempts to settle the dispute**

Both the countries are on the consensus to settle the dispute but the applicability of the agreements is not proficient to satisfy the need of both the countries at once. However, an agreement was reached after some negotiations and as per the terms of the agreement 36 percent of the water of Teesta was allocated to Bangladesh; 39 percent to India and the remaining 25 percent was left unallocated. It has almost been twenty years since this allocation has been implemented and even after many attempts, an interim agreement was to be signed in 2011, but it was objected by the then Chief Minister of West Bengal; who even opposed the draft agreement of 2013 for 50:50 allocation of the Teesta waters and called for 75:25 allocation. After this, Bangladesh offered for the settlement of the dispute by establishing a Joint Basin Management Project but to no avail as the Indian Government did not pay heed to it. The question of conflict over the hydropower plant in Sikkim remains un-answered. There are no further developments achieved on Teesta River as the government of India is not focusing on the aspect of survival rather than being diplomatic in nature. This conflict between the two countries is also creating the problems in trade between the two especially in West Bengal.

The reason for conflict between the two nations is an issue of political paradigm where there is no conclusion until the two nations comes to a common understanding regarding the dispute which is creating both socio-political and environmental problems among the two countries in dry season and causing the situation of flood in Bangladesh. This conflict over water sharing has now become a political issue rather than being a social issue. Both the countries should need to understand the situation that when there is shortage of water for agriculture and navigation. There should be a pattern of constant flow of water which the lower riparian countries should enjoy throughout the year, not only during dry season.

#### **V.4. THE EXISTING BILATERAL TREATIES AND NEGOTIATIONS: A GENERAL OVERVIEW**

Altogether there have been Four agreements, Two Treaties and Two MoU's signed between Bangladesh and India for the distribution and allocation of water from River Ganga. In 1977 and 1996, the first and the second treaties were signed respectively and in 1982 and 1985 the two MoU's were signed. One of the key clauses of the 1977 Treaty provided for "*no less than 80 per cent of the Ganges water flow during each period (dry or monsoon) no matter how low the flow of the Ganges during that period might be.*" And one of the key provisions of the 1996 water sharing treaty was that "*India and Bangladesh should each receive a guaranteed 35,000 cusecs of water in alternating 10 day periods during the dates of March 11 to May 10.*"

For the purpose of monitoring the process of water sharing and for the submission of a yearly report, the two nations agreed for the establishment of a Joint Committee, comprising of an equal number of members and if this Committee failed to resolve a dispute, the matter would be referred to the Indo-Bangladesh Joint Rivers Commission, established in 1972. The main function of this Commission was to observe the daily flow of water below the Farakka Barrage on the Indian side and Hardinge Bridge on the Bangladesh side from January 1 to May 31 every year, and to actively release the information on its website and in the mainstream print and electronic media.

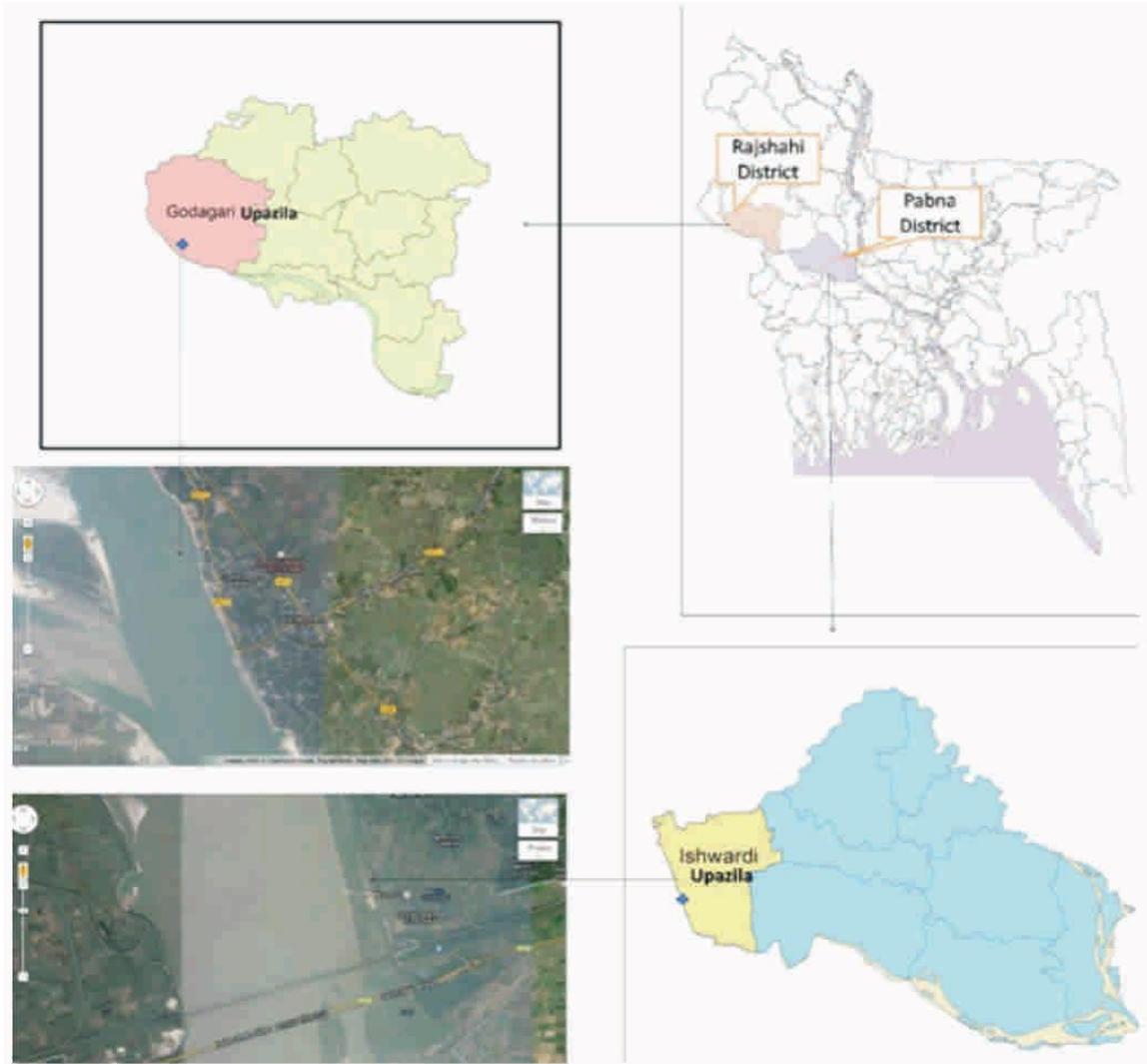
A Joint Rivers Commission Bangladesh (JRCB) was also established by Bangladesh to look after the water governance having the power to negotiate with other co-riparian states for the development of management, development and distribution of trans-boundary waters. Almost 37 meetings have been held since the inception of the Indo-Bangladesh Joint Rivers Commission at different governmental, secretarial and ministerial levels.

## **V.5. THE TREATIES AND AGREEMENTS AND THEIR IMPLEMENTATION**

With the validity of 30 years until 2026, the Ganges Water Sharing Treaty of 1996 is the only on-going treaty between the two nations and the Joint Rivers Commission (JRC), established under the treaty has held around 48 meeting till 7 May, 2011. With the task of publishing its report in its website and media, the Commission is under no obligation to report how many times it has met. However, according to a former member, the JRC meets every year and has almost met 15 times since its inception. The JRC had proactively disclosed the discharge information and all the key decisions taken by the Commission since 2008 and includes Ganges water sharing data between January to May every year and it also disclosed the summary of the meeting on the Tipaimukh Hydroelectric Project through a press release.

The most important matter for Bangladesh is to ensure that it receives the rightful share of water from India as per the provisions of the treaties signed as the availability of water is the most important matter of concern for its local communities and all its stakeholders.

Figure 1.<sup>192</sup>



<sup>192</sup> Field work conducted by BCAS in Godagari sub-district of Rajshahi district and Ishwardi sub-district of Pabna district which revealed that there is a divergence between the perspectives of local stakeholders and government officials regarding the volume of water in the river. Farmers from the Matikata Union of Godagari sub-district, Rajshahi district, claimed that the flow of the Ganges used to be around 100 feet deep (60-70 hands in the local language) during peak periods, and approximately 60 feet (40 hands) during lean periods, before the commission of the Farakka Barrage. However, now the picture is quite different with the peak period flow not more than 15 feet (10 hands) and virtually no water in the lean or dry season.”

## **V.6. INFORMATION OF BILATERAL TREATIES AND NEGOTIATIONS: ACCESS AND TRANSPARENCY**

As per the terms of the Water Sharing Treaty, of 1996 between India and Bangladesh, both the countries are to receive Ganges water as per the following distribution policy:

- Equal distribution of water, if water availability is 70,000 cusecs or less at Farakka;
- Bangladesh gets 35,000 cusecs of water and India gets the rest of it, if the water availability is 70,000 to 75,000 cusecs at Farakka;
- India gets 40,000 cusecs and Bangladesh gets the rest of water, if water availability is more than 75,000 cusecs at Farakka.

However, besides this there also exists another provision that provides that both India and Bangladesh shall receive a guaranteed 35,000 cusecs of water in alternating 10 day period between March 11 and May 10 and the task of the JRC is to disclose the information about the availability of water at Farraka; India and Bangladesh's rightful share and the actual share at Farakka.

Uncertainty looms over this information asymmetry but it is evident that larger communication between government departments and native stakeholders on the bottom is very crucial. Moreover, there are not only gaps between the views of state and native stakeholders, however additionally between completely different layers of state. Native individuals living within the Ganges Basin rely intensively on the river water for their livelihoods, and that they suffer the results of reduced water flows. Consequently, any new pact or agreement ought to be preceded by neutral consultations and desires and impact assessments and that, any call taken by the government ought to be democratic in

nature, and involve the native individuals at a grassroots level. It is additionally necessary to undertake a comprehensive scientific analysis of whether or not the present flow within River Ganges throughout Jan to May every year is equal to make sure the flow and health of the river.

## **V.7. IMPLEMENTATION OF WATER SHARING TREATIES AND THEIR OPERATIONAL DIFFICULTIES**

The idea of sharing a river water from a specific point of a common river is deemed to be water sharing and in this process several social, hydrological and infrastructural externalities may emerge which many at times even include, rising population; low flow of water in the river; increasing demand for fresh water; more power requirement; uneven upstream withdrawals; effect on climate on precipitation variability; water control structures; low efficiencies and poor maintenance and operation of infrastructure and institutional arrangement. Such externalities are the intrinsic aspects of international water sharing and the treaty between India and Bangladesh has made provisions for sharing waters by highlighting the above mentioned externalities. The source of tension between the two nations is the dam built in 1974 at Farakka, controlled by India and Bangladesh asserting that India held too much of water during the dry seasons and releasing too much water during the monsoons, which is always denied by India. In order to come to a specific conclusion a Treaty was signed in December 1996 which assured Bangladesh a fair share of water during the dry season and there is a need for such other agreements for trans-boundary Rivers.

Unlike the above mentioned Treaty the agreement between India and Pakistan besides providing for mechanism for sharing of water, provides for sharing the rivers as a whole. Thus, after examining the water sharing agreement between India and Pakistan, it can be found that, it is not an agreement for sharing of water but more likely an agreement for partition of rivers and the actual disposition of water delivery is not applicable for the Indo-Pak Treaty. The Indus Water Treaty (IWT) is an unusual treaty because of the fact that the water allocation is based on the tributary locations and that water is neither

distributed on a quantitative basis nor managed by any of the operating rule available in the Treaty itself. This treaty specifies as to which tributary shall be used by which country and fails to create any mechanism to address issues which are not mentioned in the treaty per se, for example; changes in the flow because of the climate change; rainfall variability; ground water use and changing industrial and domestic demand due to population increase.

### **V.7.i. Political Issues**

Apart from the aforementioned conflict emerging areas, there have been other findings in this arena amounting to the same, mostly being international such as impact on the environment, the tribal and the social, economic and political advancements out of this. One of the foremost and important issues that arise is the jurisdiction of the cases arising out of the negative implementation of the treaties and the applicability of the domestic laws into the agreements. This in turn has a huge amount of political backing to it, leading to drastic social and economic implications and repercussions. The stance remains that in which nation's court must a case fall and how the exercise of law, which must be unbiased towards both the nations must be implemented to satisfy both the nations equitably without affinity towards one especially in terms of political bias. However, this must always be dependent on a numerous external factor as well prominent being environment. First, the impact of global annual melting of glaciers and the degree alterations in the ocean temperatures must be thoroughly looked into. Second, the annual average run-off of the riparian water from an upper altitude landmass to a low altitude landmass must be analyzed. Thirdly, the rates of evaporation and transpiration accounting on the gallons of water to be shared between both the nations must be debated upon.

The funding coming from the central government is most often seen and misappropriated in a very unjust, unaccountable and an opaque manner which serves as a ground for the lack in sufficient funds while the process of the making of such huge projects is going on. To compensate and fill the gap for this, the materials provided for the building of such

projects used are very low quality and cannot, with time, stand the quality and the longevity that they are expected to. Apart from this, such initiatives are seen as an opportunity by the politicians to include their names in their political agenda to earn name and show contribution to the people to earn their vote in the next election. Such projects like the Farakka Barrage have become easy military targets to be focused upon and hence are misappropriated for the purposes of terrorizing and directing military action against civilians to meet their unfruitful demands. Even this in a much hidden form has a political backing to it, thus lacking sanctions by the legislature.

### **V.7.ii. Geographical Issues**

The major area of concern will be if due to unforeseen circumstances, there occurs a situation like famine or a drought or an acute water shortage in India due to force majeure, will India still be bound by the terms of the Ganga Treaty of 1996 and under what all circumstances or situations can it decide to break away from the same. Under such conditions of possibilities which might arise further, will India try to secure a living for its citizens or think over the impact that the consequences of its actions will have on the nationals of Bangladesh, the country's economy and adverse effect on the natural habitat due to a basic necessity deprivation that being of water.

Hence all such issues that must be very minutely and individually looked into and deliberated upon individually pose a very narrow, bleak and limited scope for resolution or mediation arising out of the lack in the implementation. Both the committees and the commissions which may be set up to resolve such matters are equally answerable to resolve and suggest for overcoming the lacunae. To turn the tables round, not only can the situations for shortage of water arise but also a problem for excess of water which may pose a threat to flooding in the neighboring areas, also endangering the exclusive wildlife that thrives here due to the unique topographical and geographical positioning of this area. There is this one lacuna in the treaty that if the levels reach 2,000,000 cusecs which is also the upper limit for floods alleviation, there has been no mention of the

recourse or immediate relief cum rescue plan to save the affected people and on which country the onus of the relief payment must lie – India because the affected victims are the citizens of India or Bangladesh for actions to flood a few parts of India have been taken for the benefit of neighboring one. This may lead to what in common terms is called the big brother effect. It is defined in common parlance as the advantage that a nation has for being at an upper hand to the disadvantaged nation in a particular arena or a resource which the latter derives from the former.

Leaving aside the issues on the jurisdiction, the settlements of the time immemorial, the thriving tribes in these areas, near to the banks of the river Brahmaputra due to the structure of the barrage, the environment and the human inhabitation, suffer a huge loss in terms of displacement. Tribes are forced to turn out of their natural habitat. Due to this, their natural homeland is deprived of them, their talent and age acquired skill of turning the naturally available resources into the most useful way and using other such supplements for the betterment of themselves and provisions to individuals in the mainstream. This is done in veil of providing them with better livelihood and progressive status which is majorly done to increase the vote bank and in turn become a politicized figure in public eye, in veil of showing them to progress and therefore, bringing them to the so-called mainstream. The impact on the tribal life and the debate to include them into the mainstream still hence continues. While deciding whether or not a project is established or should be established, the permitting authorities must keep into mind the situation and conditions of the tribal, the impact on their lives and endangering aspects of their culture especially in the areas of eastern and north eastern part of India. Hence, the permissions and the debates on whether to start the implementation and the functioning of such a huge project, still remains a huge question.

### **V.7.iii. Environmental Issue**

The most common implementation issue pertaining to the environment is the misuse of natural resources, in this case that of being water, cannot be completely regulated, giving a platform for the jurisdictional issues and litigation problems to occur. The two states in hand are in search of privatizing the resource for their own commercial and tradability purposes, incurring for them, financial benefits. In the monsoon season these areas are highly prone to flooding and in the summer, to droughts and famines, concurring losses to human life, cattle and plants in huge numbers. The bank erosion of the Ganga ever since the Farakka barrage has been constructed, has increased tremendously, leading to less costing of the land, uncertainty in the expected life span of buildings and industries constructed on these banks and attracting fewer human settlements. The last reason has impacted the agrarian economy very hardly in this area. There exist no human settlements as the fertility of the soil as a result of erosion has depleted, giving very poor returns to these farmers who in turn are forced out of this occupation of agriculture. Not only this, as a result, they are forced into activities like bonded labor and migrate in search of work to sustain themselves and their families. They are forced to sell off their ancestral property in these areas in lieu of money requirement caused due to crop failure and hence become landless. This furthermore connects to them entering into feudal system similar to that of zamindari system and peasants. An example of such a district is Barguna, apart from this, the increasing salinity of water due deforestation and non availability of resources for the reduction of the salinity of the river; tons of marine aquatic life is driven ashore dead, putting these species on the verge of extinction. The socio-economic condition of the above mentioned regions have become vulnerable along with the degradation of the environment, because of the closure of navigation facilities and the industries, drop in fish yields, dormant agriculture, the loss of land because of river bank erosion, and the death of valuable forest resources.<sup>193</sup>

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<sup>193</sup> Hossain, I. 1998. Bangladesh–India relations: the Ganga Water Sharing Treaty and Beyond. *Asian Affairs* 25(3): 131–150

The over exploitation of fishery and forest resources especially in the tribal area are much debated about. Industries due to overexploitation in the earlier years, which has extensively depleted the resources, have lost interest in investing in these areas. This had caused a lot of problem in post 1996 period. Even the groundwater reduces to a great extent in the dry season due to their overuse as a result of lower amounts of precipitation especially during winters. This in turn causes reduced water levels in the inland tributaries, canals and streams which primarily act as navigation facilities in the basin. This issue cannot be individually sorted out except for integrated unit solutions, through extensive government support and help.

#### **V.7.iv. Issue of Forum**

Implementation issues on whether if any natural calamity or any case of action or unforeseen litigation arises then when and where should the litigation process of the same occur especially when the contract is silent. Should the decision be rendered by the judicial system of country one or country two, both of which are party to the agreement and as to what extent and how can the judiciary justify the stance taken in the judgement rendered. The promise of water flow from the India to Bangladesh has never been implemented in its truest sense. There has been a provision of revealing and proactively disseminating information on the website, hard print media and also on every form of electronic media regarding the monitor and access and successful water flow to Bangladesh of whose duty has been assigned to the Joint Rivers Commission separately of both the nations, annually. However, the findings of the committees reveal that just after the Water Treaty of 1996 was signed, the share promised to Bangladesh was 40,000 cusecs of water but ever since the water released has found to be lesser than expected.

Hence, due to such prevailing issues and arenas of disputes the implementation of the treaty is facing numerous hurdles and preventing India from operation of the treaty to which India has ratified and is a signatory even though it is willing to do so in the strictest sense.

The dispute between the two countries on a notable reason was not only to settle the long un-settled dispute, but also to support and protect the heritage and culture altogether. Both the countries being rich in culture and agriculture need the resources to sustain. The question of dispute was not merely over the water but also to support the economy of the country as well as to support the farmers, fisheries and navigations. Thus, there was always the need of an agreement or a treaty that can protect the interest of both the nations. But the problem still remains where there is an existing treaty over water sharing between the two nations and still the availability of resource and flow of the same in question. But the scenario cannot be changed as a growing country and growth in the population and scarcity of resources will always create a situation of conflict between the nations.

# CHAPTER VI

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## CONCLUSION AND SUGGESTIONS

### VI.1.CONCLUSION

Indian landmass spreads across from east to west covering the distance of approximately 3,217 km at stretch, covering east, north and west by land and mountains. The geographical location of India is placed in such a way that it provides a wide range of nature and habitat to different species of animals. One such factors in supporting this environment and the habitat is the natural resources, including the water sources the most. There are seven major rivers flowing in various tributaries throughout India, providing water for various irrigation and household purposes. Brahmaputra River, Ganges River and Godavari River are the largest river system in India covering east to west and north to south. India shares boarders with Bangladesh, including 54 rivers<sup>194</sup> at eastern front, and five rivers with Pakistan at western front. Water as natural resource is important for the nature and nurture of large population, especially in case of country like India. The economic and population growth of India has brought in the question of policy formulation and regulating water source. Water being a natural resources there are possibility of depletion of drinking water. And thus, there is a need of some regulations which govern and protect the water resources.<sup>195</sup> But the situation arises when it comes to sharing the same resources with other countries in a situation where there is no sufficient water to distribute within the country. Thus, India has entered into various treaties

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<sup>194</sup> <http://www.dnaindia.com/india/report-bangladesh-a-country-that-shares-54-rivers-with-india-158412>

<sup>195</sup> Stephen Bradnock and Robert Bradnock, "Geopolitics, water and development in South Asia: cooperative development in the Ganges-Brahmaputra delta," 169(1) GJ 43-64 (2003)

between Pakistan and Bangladesh for distribution and allocation of water resources.

Transboundary water sharing is a significant issue that dominates global water polity in the 21<sup>st</sup> century. From the historic civilizations till the current scenario, states continue to face water scarcity due to the challenges posed by the sharing of transboundary waters, thus witnessing water conflicts as a consequence.

The work began with the explanation of the transboundary water sharing and management in the global context. It then established the Indian legal regime governing and mandating cooperation of both Centre and the State in the use of shared transboundary Indian rivers. Finally, it progressed on to examine the contours of issues and provide for cooperation on the Indo-Bangladesh water conflict in the South-Asian region. This was done for the advancement of the study of trans-boundary water disputes, particularly with specific regard to the Indo-Bangladesh water dispute. On this pretext, one can very well establish the important role played by the availability of water in furtherance of social change and additionally, constitutes an important parameter for development relating to the Human Development Index. Being the most important natural resource, its insufficiency becomes a cause of numerous social aberrations and frictions that are detrimental and antithetical to the national interest and the peace of states and nations. Inter- State conflicts over the sharing of Transboundary Rivers is a serious and a sensitive issue as it widely impacts the livelihood of millions of people associated with its various uses , and in a narrow picture affects the political well- being and relations of the two nations. Considering these transboundary conflicts which surround the world today and the availability of freshwater, it is with all possibility that future wars are fought over water. Hence, cooperation and management of transboundary water resources becomes even more imperative. With the advent of globalization, and population expansion, the demands over water will not experience a reduction and with a view to fulfillment of such demands, states rely on their assets, being water. Such water resources, being rivers, lakes etc., are not solely in control of the states, thus being subjected to sharing of other riparian user states. Here, is where the actual problem hence arises. As Riparian states advocate for a greater share and quantum of water flow of the

transboundary river resource in their respective territories, tensions escalate thus leading to the improper management of the river basin. This alleged transboundary river water sharing, puts an indiscriminate pressure on the river, hence leading to improper augmentation of its water flow and degradation in water quality, hence consequently resulting in the cropping up of environmental issues.

One of the significant attempts at resolving the transboundary water sharing disputes was the codification of international law instruments as discussed in Chapter III. The Helsinki Rules and the UN Convention of 1997, well known as the pillars of transboundary water sharing and hence lay the foundation for water sharing. Although widely acknowledged and accepted by stakeholders, the said rules fail in reflecting the existing state practice and majorly lack in illustrating a situation where states fail to abide by the provisions of the said rules and principles provided by conventions, thus failing to provide for a penalty clause for the defaulting states in such a scenario. Further, as a matter of fact that the UN Convention has still not been made enforceable, it lacks an authoritative character and thus remains an informal international instrument. The lack of binding nature of its provisions fails in according a status of formality. In this connection, the importance of bilateral negotiations and legal arrangements between states cannot be ignored. Moreover, the political unwillingness of states in adoption of principles of transboundary water sharing lead to confusion on arriving at common terms with regard to water allocation. Nevertheless, the inclusion of these internationally acclaimed principles in transboundary bilateral arrangements between the states provides a frame of opportunity for coordination on sustainable water allocation and water rights of the transboundary river waters. So as to make them functional in the true spirit despite their flaws, what is needed is having a common consensus among transboundary states wherein the riparian states will necessarily have to give up their self-interests and therefore embrace the fundamental water sharing principles in their true spirit. Taking a cue from the past experience, though transboundary states have adopted legal systems to create a framework for addressing water sharing and water rights and promotion of cooperation, yet such arrangements are deficit in nature . This is mainly because unlike other areas, water governance is highly contextual, being dependent on the transboundary water river

shared by the two states, therefore leading to its dynamic nature. Hence, such legal arrangements prove to be inefficient in a majority of the cases because their implementations are not tailored to the contexts and circumstances for which they were endorsed. Such arrangements primarily are not centered on keeping in mind the importance of the river basin, which leads to a concrete failure of such cooperative mechanisms entered into by the states.

One such example is the Indo- Bangladesh Water Treaty, 1996.<sup>196</sup>As previously discussed in Chapter V; the treaty was an arrangement to govern the sharing of water allocation between the two states. Though, being a collaborated effort to resolve the long-standing Ganges conflict, the treaty is fraught with problems leading to the failure of arriving at a long- standing solution.

As articulated by Article VIII of the Treaty, the two states shall cooperate on reaching a durable solution for the intensification of the flow of the water of river Ganges, hence implying that the complete resolution of the dispute is still distant.

## **VI.2. SUMMATION OF CHAPTERS**

The present research work examined the issues of allocation of waters between India and Bangladesh. Taking into account the international norms and principles of sharing of water between two different countries, the research has tried to dwell into different bilateral and multilateral treaties to find out a solution to the growing problems of water wars. In order to establish uniformity among nations especially between India and Bangladesh, a clear understanding of the aspects, related to water sharing has been dealt with for which a summary of the findings at each stage of study is briefly summarized below:

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<sup>196</sup> Supra Note at 15

The introduction to this research work traces the genesis and the evolution of the problem. It also specifies the research problem with the questions that bring out the scope of the research, it also details out the hypothesis, objective and significance of the research work.

In **Chapter I** the research work has been conceptually and theoretically discussed to understand the contours of the existing laws and theories developed till date. It is important for any research to begin with the conceptual analysis of the subject matter to be discussed. In this chapter the underpinnings of the concept of water laws has been discussed.

Water as a conflict has been arising at numerous levels viz. between countries, states, regions, and sub-regions among states, districts, political parties, castes and teams, and even individual farmers. These cause a major threat to the economic process, social stability, security, and health scheme. The conflicts, thus, indicate the absence of correct democratic, administrative and legal mechanisms to handle problems that bring about to such disputes. Water has always been a complicated resource and is was made so through material and philosophical means, which suggests that, it was created by uninflected and imposing an economic and personal property framework on a complicated part of the scheme. However, the specificities of water as a resource still break through and build issues.

The ecosystem has made water a mediated resource and it is accessible in common however is employed individually; in contrast to different public utilities viz. (roads, parks, etc.) it cannot be utilized in common. Water is partible and amenable to sharing and has non-public edges. It is however, hard to exclude people who receive it within the natural course because the prices of such exclusion are terribly high. Water has completely different scales of convenience and usage like water at the homestead, small watershed, watershed, sub-basin, basin, inter-basin and also at inter-country level that need other ways of handling it. Moreover, the means by which water naturally flows and the means, in which it is planned, used and managed causes unidirectional and uneven

externalities. For instance, upstream use affects the downstream users, however not contrariwise.

One of the most politically debated and charged matter between India, Bangladesh, Nepal and Pakistan has been the distribution of water which has mounted tensions between these countries over the control and management of supply of water arising from mistrust, shortage and mal governance. Increasing demand and the scarcity of water has acted as an catalyst to the ongoing conflict and also the demarcation of boundaries due to decolonization and division of the river basin due to political changes have created more friction amongst these countries including their inner states and provinces.

The insufficiency of the present watercourse agreements and negotiations and also the need for agreements for varied international watercourses area unit ominous legal weaknesses in today's international legal structure governing trans-boundary waters. Such weaknesses build it so much too simple for a few countries to manage their rivers, capriciously, unilaterally and while not sharing relevant data their neighbours may require. This result in a conflict over progressively scarce and contaminated provides, deteriorating variety, and heavy threats to human health, economic development, and sustainability.

This chapter thus attempts at bringing an overview of the importance of water as a life sustaining resource and its scarcity which creates a water crisis due to indiscriminate stress on shared water resources. Further, this chapter attempts to answer the research question as to how do transboundary water sharing impact nations and the role played by principles of international law that governs the same.

This chapter further provides for the evolution of the water sharing disputes which after being analyzed focuses on the different dimensions of water sharing, the first one being physical in nature. The second dimension being the economic one, which stresses on the linear correlation between economic development and water resources which escalate into water conflicts. Lastly, the important dimension being the institutional one, which

highlights the limitations of institutions in dealing with water resource allocation and management of water so as to avoid conflicts.

The Chapter further discusses about the international water law and their rules and practices which are governed by prescribed international legal rules. Further it discusses the rule of law and its role in mitigating trans-boundary conflicts which helps in the building of international cooperation. The doctrines and theories of international water law are also dealt in this chapter giving an overview of underpinnings of the theories that lay the foundation of the principles of the laws relating to trans-boundary water resources and their management. The various theories discussed are as under:

- The Absolute Territorial Sovereignty Theory
- The Absolute Territorial Integrity Theory
- The Limited Territorial Sovereignty Theory
- The Principle of Equitable and Reasonable utilization
- Obligations not to cause harm
- The Doctrine of Prior Appropriation
- The Colorado Doctrine
- Principle of Notification, Consultation and Negotiation and
- The Peaceful Settlement of Disputes.

This chapter after dealing with the international instruments highlights the water conflicts between India and Bangladesh; its origins and the historical development of water conflicts and negotiations between India and Bangladesh has also been represented in a tabular format. The chapter finally concludes by analyzing that seriousness of water crisis which is centered on transnational water sharing and now confronts the world. The issue of transboundary water sharing is essentially a significant one which crucially affects the aspect of water quality and it's sharing, thereby generating enormity between nations at large. The international principles relating to the same though help in co-ordination among nations relating to the same and management of water yet are insufficient as a whole and need work in enforcement and ensuring its implementation. The so called

water wars have always been waged between countries in a diplomatic, economic and political sense inflicting a series of bitter accusation, infuriating water challenges, and nurturing mistrust that impedes broader regional cooperation and integration. Thus, to mitigate the challenge of transboundary water sharing, the only way forward is to build stable and entrenched cooperation among the participating parties for a mutual benefit.

**Chapter II** of the present work deals with the issues in water allocation and the principles in international law. International law is crucial for allocation of water resources and it offers a procedure and an additional protection to countries facing the problems of water scarcity. Various international instruments including at the regional level have provisions for the distribution of water.

This chapter is at first introduced with an analysis of the UN Report which states that approximately there are 300-transboundary water resources, which fulfill the demand of 2 billion people for water consumption. Transboundary water resources not only fulfill and support the needs of human being but also maintain ecosystem, essentially required for other living creatures as well. Transboundary Rivers, Aquifers and international lake helps in making an ecosystem to reduce the flood impact. Transboundary water resources economically support the region through irrigation, hydroelectricity and reducing the economical backwardness of the region. Almost half of the planet's land surface is covered by 263 trans-boundary lakes and river basins. Fresh water resources are continuously degraded either in the quantity or the quality. The shortage of water resources and its huge demand made these resources very valuable. This part of the chapter also reflects upon the fact that international agreement on water sharing will be insignificant if several other principles other than protection are not brought up in it such as cooperation, exchange of information and data.

The Chapter furthers the principles of international water law in which the various principles such as Absolute Territorial Integrity and Limited Territorial Sovereignty are discussed along with their analysis with the Ganga Treaty. The factors that determine the international water conflict are also recognized in this part of the research work giving an

idea of the problems of water conflicts. These factors can be attributed to:

- Sovereignty
- Economics
- Water Scarcity

The dispute between riparian countries India and Bangladesh is also discussed which is being influenced and supported by the geographical location, nation state formation and political development for the region. The basin's total area of drainage is approximately 1.75 million square kms where the density of the population is the highest in the plains particularly in Bangladesh that is, 740 /km. India has most important strategic point, as it is upper stream as well as downstream country sharing 54 International River.

The background of creation of Bangladesh to signing of Ganga Treaty is also discussed, wherein it is provided that in 1971, the Ganges water dispute took a new dimension as creation of new nation Bangladesh. The new born nation made a strong demand for the Ganga water as resources, the river water was very important to agrarian dependent country. This time unlike Pakistan, which put forward Indus water dispute more strongly neglecting the demand of eastern Pakistan later Bangladesh for Ganga water, the government of Bangladesh put their concern more sturdily. Therefore, one can conclude that the Indian strategy of prolonging was in force until till 1971 and the reason for such a strategy was the assumption of the Indian leaders of the hostility between India and Pakistan.

After highlighting the background the research in this chapter further dwells upon the overview of India Bangladesh agreement on the distribution of the Ganges waters, signed on 5<sup>th</sup>, November 1977 at Dacca. This agreement was a major step to promote the relations between both the nation and for the welfare of the people living both sides of the border, the main objective of the agreement was to find out a durable solution for sharing of water from river Ganges. The agreement is supported by fifteen Articles, which were effective for five years from the date of 5th November.

Before concluding, the chapter draws a comparative analysis between the Ganga Treaty and International watercourse law in which it is identified that the principle of equality is one of the most essential characteristics of international instrument to settle the dispute between various countries. This principle is also one which has the potential to dispose of the dispute between India-Bangladesh regarding water sharing, both the nation share almost equal quantity of water in the dry season to the downstream country Bangladesh is protected with the guarantee clause. Also it is the responsibility of each agrarian country to resolve the dispute as soon as possible for the overall economic development of different regions of both the nation. However there are various principles which make an international instrument, which widely helps in resolving dispute of international watercourse, although there is various kind of International law which is not ratified by both the nation and therefore it is not binding. It is necessary for us to apply the various principles, which taken from this international treaty helps one to look into the possibility and capability of this instrument to resolve current dispute of India and Bangladesh.

The chapter at the end discusses the current development in agreements between India and Bangladesh drawing the principles from the Constitution of India and then discusses the needs and elements of conflict resolution which endorses upon the need of alternatives that is applied in economics. These alternatives are the options available to a party that has the option of walking away with something worse than the best available alternative to that of a negotiation. The interests of the parties are important, under interest lay position which are demand; the needs, the desires, hopes and fears therefore it is best when in the negotiation interest of the parties are satisfied.

**Chapter III** focuses on Indian legal framework on water sharing. This chapter attempts at studying the Indian legal framework that regulates the trans-boundary water sharing between India and her neighbours and the even discusses the inter-state water regime. Further, the chapter attempts to answer the research question as to whether the prevailing legal framework is sufficient in dealing with such trans-boundary disputes.

This chapter takes into consideration the analysis of the previous chapter wherein it was discussed that conflicts over shared water resources among various stakeholders arise

particularly due to the depletion of water flow that is caused by factors such as:

- Quantum of the population
- The economic needs of the population.
- The need for social development
- The use of water by one stakeholder and its effect on the other.

Though sharing of water resources across political boundaries is a matter of concern, India in this context, experiences a major challenge, as it faces both trans-national and intra- state conflicts on common and pooled rivers. Almost all states in India face inter-state water disputes, and international water disputes with Pakistan, Nepal and China to name a few. The Indian experience of water conflicts differs in regard of water sharing from the global one , due to the sole reason , that India, being a country not only shares water resources with other countries, but water sharing occurs between the domestic states at large. India has a federal structure and there might be differences and contentions between the federal states through which these rivers flows, as each state may want a fairly large allocation of the river water on its side. Further, most water disputes among countries and states occur predominantly due to the sole reason and lucidity that rivers do not follow any specific political limits which poses a problem among nations. Second, the uneven distribution of resources of water affects the hydrological cycle and also the water availability, thereby directly affecting water quality. Third, the regionalization of national polity is another cause for the Indian experience of water conflicts among states. Therefore, it became pertinent to resolve such water conflicts through constitutional and legislative means. The existing water law regime in India is largely a product of principles, rules and policies that were adopted over many decades. Various statutes came to be enacted under the British reign, wherein irrigation was a prime consideration. One of the legislations to standardize the aspect of drainage, irrigation and navigation, predominantly in the northern part of the country was the *Northern India Canal and Drainage Act, 1873*. Besides this *The Madhya Pradesh Irrigation Act, 1935* also provided for the state ownership of water. *The Government of India Act, 1935*, for strengthening the provision hence, transferred the subject of

irrigation from the centre's control to the state's control, thus vesting the power to legislate on the said subject with the states. Hence, deriving from the same, the Indian Constitution is what is known as 'supreme lex loci', and is termed as the 'law of land', lays down discrete provisions for water sharing and it seeks to achieve reasonable allocation by way of power-sharing arrangements between the Union and the States, and hence gives the power to states to legislate as water is largely state based. Hence, by virtue of the same, states have the power to regulate on matters such as fisheries, canals, drainage, irrigation, embankments and hydropower. Article 262 of the Constitution of India, empowers the Union Parliament to adjudicate on matters which relate to the usage, distribution and the issue of control over waters or an transboundary river, these also include shipping and navigation on national waterways and the power to regulate the usage of territorial waters, thus excluding the jurisdiction of the Supreme Court from entertainment of such disputes, which would ordinarily would vest with the apex court under Article 131. Thus, the division of water across different heads between the legislature and the executive lays a clear demarcation of adjudication of water conflicts. Even after all the efforts of the makers of the constitution to allocate the powers of water amongst the Centre and the State, the concern for the same still persists and the reason for this was the *States Reorganization Act, 1956* which gave the power to the Centre to redraw the State's boundaries for consolidating similar language speaking population, and the creation of such boundaries also created problems for sharing of inter-state rivers. This as a whole fragmented the states who had waters in their territory and their own laws were implemented posing a threat and making it difficult to reach to a consensus.

The chapter individually discusses different enactments in India that deals with inter-state and transboundary water sharing, which are as follows:

- The Inter-State River Water Disputes Act, 1956
- Creation of the Sarkaria Commission
- The River Boards Act, 1956
- Punchhi Commission on Inter-State River Water Disputes
- The Narmada Water Sharing Dispute, 1961

- The Cauvery Water Conflict, 1974
- The Krishna Water Dispute, 1969
- The Ravi-Beas Water Dispute, 1966
- National Commission to Review the Working of the Constitution, 2002

Another initiative by the Indian Government was the enactment of the National Water Policy, 2002 with an objective of governing the management and arrangement of water resources and ensure their optimum utilization. An important feature of this scheme includes the arrangement for water allocation priorities. Therefore, in operation of every system, water allocation is done in the said arrangement:

- Navigation.
- Hydro-power
- Ecology
- Drinking
- Water Irrigation and
- Agro-industries

Further, as per the policy, water sharing among states should be done considering the availability of water, national interests and the peculiar needs in the river basin so as to maintain and optimize the use of water efficiently.

The chapter further highlights the legal framework on transboundary water sharing wherein, it tries to define what is transboundary water sharing conflict and then looks into Indian framework on transboundary water sharing. India is a lower riparian state, except in case of Bangladesh where it is an upper riparian. The distribution and allocation of water resources between India, Nepal, Pakistan and Bangladesh has always been a matter of contention emanating from factors such as scarcity, bad governance and ill-faith. The primary reason for such transboundary water conflicts to stem is the increase in the demand which serves as a catalyst for such conflicts. Another reason being regionalization and politicization and decolonization which creates divisions of the river

water basin thereby creating deep friction between states and countries. Moreover, what are of fundamental importance are the historic relationships shared by the two states or countries and the tremendous importance of the river which tends to create a strenuous situation in the basin.

India being both the upstream and a downstream country has been a victim of water disputes over the sharing of waters from rivers like Indus and Ganga. Such transboundary water conflicts have been resolved through the legal framework which includes treaties entered into by the Indian Government with the neighbouring government so as to mutually arrive at a common consensus and work out efficient solutions for optimum water allocation among the parties sharing the river basin. Hence, such conflicts due to their nature are resolved on the basis of their mutuality, implying that river waters are to be used on the principle of equitable sharing of water. An individual examination of such conflicts and such treaties entered into by the Indian government is fundamental to the study as constituting the legal framework for transboundary sharing.

This chapter then deals with all those treaties which are in force for the implementation of water sharing between India and its neighbouring countries. These treaties are:

- The Indus Water Treaty, 1960
- The Mahakali River Treaty, 1996
- Mahakali River: The Indo-Bangladesh Water Treaty, 1996

The chapter moves further with a comparative analysis of the legal framework on water sharing between India, Australia and The United States. At last the chapter concludes by drawing a parallel between the need of conflict resolution and the present available laws for the settlement of water disputes.

**Chapter IV** deals with the overview of the terms and conditions that provide for the treaties dealing with water sharing between India and Bangladesh. This chapter attempts

at considering the ambit of transboundary water sharing with definite reference to the India- Bangladesh water treaty. Further, the chapter attempts at reviewing the said treaty in light of its terms and conditions and its implementation and moreover, answer the research question as to whether the said institutional mechanism has lived upto its expectations. India and Bangladesh carry historic and cultural overtones, thus leading to the creation of a unique bond and a distinctive relationship which is rooted in shared principles, common aspirations and sacrifices of their citizens. Both countries share around 54 Transboundary Rivers, which lays the foundation for the evolution of water conflicts among both parties. Among these rivers, the GBM is a predominant one where both the countries are stake holders, thus occupying a majority of the total expanse of the two regions. Unlike in other rivers, where Bangladesh is an upper riparian state, it is a lower riparian in this case concerning the GBM.

It is pertinent to study here the nature and characteristic of the water flowing into Bangladesh as it is surrounded from three sides by India and is open to Bay of Bengal from the fourth side. For proper management and allocation of water resources different treaties were formulated which are discussed in earlier chapters. Therefore, this chapter provides for the origin of disputes that arose between the two countries and the different stages of their negotiations ranging from pre Bangladesh independence to post Bangladesh independence, the prominent one being the Ganges Water Dispute and its negotiations thereof.

This chapter further deals with a comparison between the 1996 Ganga Treaty and the international norms and the conformity of the said treaty with the international principles. It is important to note that the 1996 Treaty seeks to incorporate a reasonable and fair solution and formula for water allocation and utilization by India and Bangladesh which is in consonance with the Human Rights and the *UN Watercourses Convention* that advocates for the concept of 'no-harm rule' through Article IX., following the principle of equitable utilization, the treaty provides for both member states to enter into water agreements for the distribution of other common trans-boundary rivers, besides the Ganges. Reinforced by Article X, the principle further gains its strength in the Ganges

conflict, hence, implying that the principle of equitable utilization of water forms a notable part of the 1996 Treaty and is an efficient solution for the allocation of river waters between India and Bangladesh as it imposes necessary restrictions on the assertion of the rights by the riparian states. This part of the chapter after thorough research concludes that the 1996 treaty is not only in compliance with international water law principles but also submits to international instruments.

The chapter further sets out on more detailed analysis of the Ganges Treaty being in consonance with each of the international principles dealing with water sharing between countries and also analyses the hits and fall outs of the 1996 Ganga Treaty along with its implementation issues.

This chapter also focuses on other treaties other than the Ganga Treaty like the Teesta water sharing arrangements and construction of Tipaimukh Dam on Barak river and the Indian river linking project to give any reader an all round overview of the working of different situations between the two riparian countries.

This chapter thus concludes with the analysis that, both states need to restore confidence with the purpose of rebuilding the aspects of the Treaty. Nevertheless, both the Teesta and the Ganges Treaty are an efficacious step for water sharing and allocation, thereby ensuring cooperative relations between the two states and marking footsteps for other states in the South-Asian region to follow, thus reiterating goodwill between both the states.

**Chapter V** deals with the issues in the implementation of sharing of water treaties between Bangladesh and India. In this chapter emphasis is laid on the two major contributors to the present conflict of water sharing between India and Bangladesh i.e. Ganga and Teesta rivers.

The chapter highlights the issues in each of the rivers sharing with their background, reason for conflict and attempts to settle the disputes. In order to find out a tentative

solution it has been found after the research that both the countries had initiated some level of negotiations but failure on the part of either of the country has resulted in the failure of the implementation of the treaties.

Many attempts were made to settle the dispute even before Bangladesh became an independent nation. The first such attempt was made between India and Pakistan in July 1960, in New Delhi. The series of meetings continued till 1962. India started building the dam at Farraka in January 1961, informing Pakistan about the development and its report. In return Pakistan repeatedly requested India to conduct another ministerial level meeting but India refused on the grounds of unavailability of full data of the project. There were total of five meetings which were conducted at ministerial level from 1968 to 1970 and both the countries agreed that there is no enough data to carry on such meeting. There were fundamental differences between the needs of both the nations. Bangladesh proposed a substantial approach for equitable sharing of Ganges water for both the nations and in 1970 the construction of Farraka Barrage was complete and in 1971<sup>197</sup> Bangladesh got independence. India and Bangladesh on later terms agreed to enter into agreement over the settlement of trans-boundary water dispute through Joint River Commissions except in Ganges. For sharing of Ganges water both the countries agreed to setup ministerial level meeting with the Prime Minister of both the nations. In 1973, both India and Bangladesh came to a settlement of the functioning of the Barrage and in 1974 the agreement was confirmed by the foreign ministers. In 1974, Prime Ministers of both the nations came to a declaration regarding the flow of the river in non-seasonal period, and the issue was so serious that joint commission was given the task to allocate available water during non-seasonal period before the commission of the project.

After the construction of the barrage India in agreement with Bangladesh test run the flow of water during 1975-1976, diverting water between 11,000 to 16,000 cusecs to Bangladesh. India continued to divert water throughout the dry season in 1975-76 to Bangladesh resulting in severe consequences to the disorientation of tributaries, salination of water and failure of agriculture and fisheries. Whilst, Bangladesh was facing

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<sup>197</sup> Supra note 183.

drastic consequences, the issue of conflict still remains the same among the nations. However, in the year 1976, a formal complaint was lodged by Bangladesh to protest against India in United Nations General Assembly to settle the dispute, as a result of which negotiations between both the nations started in December 1976 with an objective to come to conclusion on consensus basis. The negotiations continued till April 1977 at ministerial level and both the countries realizing the implication of the conflict signed on 5<sup>th</sup> November, 1977, the Ganges Water Agreement.<sup>198</sup>

This agreement came into force and has emphasized on the functioning of the barrage at Farraka and also on the dispute settlement mechanism through Joint Commission and provides that the water between the two countries shall be divided equally if the level of water falls below 70,000 cusecs at Farakka, also making it sure that over an alternative of 10 day period between March 11 to May 10 annually,<sup>199</sup> both the countries shall receive a minimum of 35,000 cusecs of water. The agreement which was signed for a period of 5 years empowered the commission to supervise over the distribution of water in seasonal and non- seasonal period so that the dispute remains settled. The distribution of water should be done through the record flow of Ganges from the year 1948-1973. The commission was vested with the task of identifying long term solutions of the problem.

In 1982 both the countries announced a joint consent over not to extend the 1977 agreement, rather, to start with a fresh agreement over the dispute settlement within the period of 18 month, but failed to accomplish it. Later, in 1985, India and Bangladesh entered into a MoU for the distribution of Ganges during the dry season and to resolve the issues and provide with solutions, a Joint Committee of experts was established. Throughout 1986, the joint committee and the commission tried to resolve the dispute but no effective solution achieved.

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<sup>198</sup> Supra note 183.

<sup>199</sup> Treaty Between the Government Of The People's Republic Of Bangladesh And The Government Of The Republic Of India On Sharing Of The Ganges/Ganges Waters At Farakka, 1996.

Another attempt of resolving the dispute and entering into new agreement was discussed by the Prime Ministers of both the countries in 1992 for achieving durable solution on the problems of water sharing. The last agreement expired in the year 1988 and since then there were no agreement between the two till 1996, when a new water sharing treaty was signed by the nations on the basis of 1985 MoU. The most notable changes in 1996 treaty were the provisions for distribution of water during dry season in a new pattern.

The dry season was scheduled from 1<sup>st</sup> January to 31<sup>st</sup> May over Farraka Barrage. This treaty of 1996, mandates the water flow at 50,000 cusec and if the water flow reduces both the government shall come together to take certain actions on the basis of '*principle of equality, fair play and no harm to either party.*' The exclusive clauses under the treaty abide both the governments to discuss and review the water sharing agreement at five year of interval. And if there is no settlement between the countries over the treaty, India has to release 90 percentage of the flow to Bangladesh at Farraka as per the treaty until some solutions can be mutually agreed upon. This 1996 treaty was based on the data of the discharge of water at Farraka Barrage between the years 1948-1988, however there was significant decline of flow in the upstream and increased usage of water upstream resulted in the reduction of discharge downstream.<sup>200</sup>

In April 1997, India and Bangladesh got engaged in their first dispute when the river that passed through Farakka fell below the minimum required for in the Treaty, persuading Bangladesh to request for a review of the water available at Farakka.<sup>201</sup> This issue was further escalated when India declared its plan to link major rivers to provide for waters to Southern and Eastern states of India, which created problems for the very survival of Bangladesh.<sup>202</sup>

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<sup>200</sup> M. Mirza, The Ganges water-sharing treaty: risk analysis of the negotiated discharge, 2(1) IJW57-74 (2003)

<sup>201</sup> S. Tanzeema, and I. M Faisal, "Sharing the Ganges: a critical analysis of the water sharing treaties", 3(1) WP 13-28 (2001).

<sup>202</sup> F. Pearce, Conflict Looms over India's Colossal River Plan. (2003).

It was only in the year 1970, that India accepted the international river status of river Ganga and the Ganga Water Treaty after 25 years of negotiations was signed in 1996 for a period of 30 years, for the first time recognized the rights of the lower riparian Bangladesh to manage the Ganga waters and ensure that Bangladesh received an equitable share of water during the dry seasons.

After a detailed analysis of the attempts made to resolve the Ganga River water sharing problem, the chapter focuses on the attempts made to resolve the Teesta river problem in which it is found that both the countries are on the consensus to settle the dispute but the applicability of the agreements is not proficient to satisfy the need of both the countries at once. However, an agreement was reached after some negotiations and as per the terms of the agreement 36 percent of the water of Teesta was allocated to Bangladesh; 39 percent to India and the remaining 25 percent was left unallocated. It has almost been twenty years since this allocation has been implemented and even after many attempts, an interim agreement was to be signed in 2011, but it was objected by the then Chief Minister of West Bengal; who even opposed the draft agreement of 2013 for 50:50 allocation of the Teesta waters and called for 75:25 allocation. After this, Bangladesh offered for the settlement of the dispute by establishing a Joint Basin Management Project but to no avail as the Indian Government did not pay heed to it. The question of conflict over the hydropower plant in Sikkim remains un-answered. There are no further developments achieved on Teesta River as the government of India is not focusing on the aspect of survival rather than being diplomatic in nature. This conflict between the two countries is also creating the problems in trade between the two especially in West Bengal.

The reason for conflict between the two nations is an issue of political paradigm where there is no conclusion until the two nations come to a common understanding regarding the dispute which is creating both socio-political and environmental problems among the two countries in dry season and causing the situation of flood in Bangladesh. This conflict over water sharing has now become a political issue rather than being a social issue. Both the countries should need to understand the situation that when there is

shortage of water for agriculture and navigation. There should be a pattern of constant flow of water which the lower riparian countries should enjoy throughout the year, not only during dry season.

After this the chapter highlights the implementation of the bilateral treaties and obligations and for providing a detailed understanding of the issues the chapter then focuses on the accessibility and precision of the information available through these negotiations and agreements and according to the Water Sharing Treaty of 1996, both the countries will receive the Ganges water according to the following policy:

- If the water level drops below 70,000 cusecs at Farakka, both the nations have to share equal amount of water.
- If the water level is between 70,000 and 75,000 cusecs at Farakka, Bangladesh will get 35,000 cusecs and the rest will go to India, and
- If the water level rises above 75,000 cusecs, then India will receive 40,000 cusecs and remaining water will go to Bangladesh.

At the end of the chapter the researcher has tried to conclude by finding the core operational difficulties and issues in implementation of these water sharing treaties. These difficulties are thus summed up in four points which are:

- Political issues
- Geographical issues
- Environmental issues
- Issue of Forum

## **VI.3. SUGGESTIONS**

### **VI.3.i. The Need for a New Model: A Call for a New Treaty**

Therefore, in order to overcome the lacunas of the treaty as previously discussed and ensuring that water sharing and allocation among the two states is a sustainable one an integrated water sharing between India and Bangladesh can be embraced and implemented which advocates for the following:

1. To regulate any issues that arise out of the treaty and the future conduct of both states, the cardinal international law principles would continue to be applicable. Furthermore, to remedy the defect of the treaty, an inclusive basin-wide approach would be adopted, which includes meeting the concerns of all water course states in the Ganga- Brahmaputra River basin. Hence, as Nepal is the uppermost riparian in this respect, it is essential that the concerns of Nepal are voiced and taken into consideration, so as to ensure the true management of the waters of the River Ganges as envisaged by transboundary principles. Additionally, this will ensure that the treaty arrangement not only meets the need of the conflicting states but also takes into account the needs of interested riparian states, which though not being a party to the conflict, still have a vested interest in the water sharing and are entitled to an equal water allocation by virtue of their location.
2. Second, revising the Annexure II of Art. II of the treaty, which entitles states to receive 35,000 cusecs of water. The said clause should be re-considered so as to share water at a 75% rate of the Farakka water flow rather than sharing it on the basis of average flow.
3. Addition of a Minimum Guarantee Clause for Bangladesh similar to the 1977 treaty. The insertion of this clause would ensure that the lower riparian state gets minimum quantity of water from Farakka in a scenario where there is a

considerable reduction and diversion of the Ganges waters by the upper riparian state, India.

4. As a step for dispute resolution, the Indo- Bangladesh Joint River Commission, as articulated through Art. VII should be reviewed by both governments at large at regular intervals at large so as to ensure its true functioning. The mere task of data collection by the Committee would not suffice in ensuring the success of the treaty and resolution of disputes. Thus, what is needed is the review of the JRC and monitoring compliances.
5. Next, as Nepal is the uppermost riparian, a water transfer arrangement can be made where Nepal would augment the water flow at Farakka during the month of March-May, i.e. the lean period. Such a water transfer arrangement can essentially resolve the water crisis and reduce the problematic water scarcity in the two states. Additionally, Nepal can charge for a price for such water release based on the terms of the water-augmentation arrangement. This will prevent India being considered a threat to Bangladesh and further India, can decide the extent of the water it wishes to withdraw unilaterally from the Farakka flow.

Thus, negotiations by Nepal and water augmentation treaty will not just merely increase the quantum of water available to both Bangladesh and Nepal but also prevent the problem of chronic water scarcity and also deter both Bangladesh and India from violating the terms of the 1996 treaty. Hence, in this context this water augmentation treaty would act as mechanism to reinforce the 1996 water treaty and strengthen co-operation, provided it has Nepal's co-operation. Moreover, such an arrangement would benefit all three parties; Nepal, India and most importantly, Bangladesh.

6. Another reason for the failure in implementation of the 1996 treaty was absence of clear cut communication between the government and the local stakeholders. The divergence of views led to gaps in implementation and enforcement of the treaty.

Therefore, in order to resolve this, the treaty would be preceded by consultations with stakeholders considering their needs. This is essential because the locals living in the said area of the Ganges River Basin intensively rely on the Ganges water for furtherance of their needs. Further, such consultations can also be followed with impact assessments in order to ensure the systematic allocation.

7. Also, any decision taken by both the respective governments should necessarily involve participation of the local people, thus making the process a participatory one.
8. The next step towards ensuring a more fruitful and operational treaty could be the undertaking of various scientific exhaustive tests in order to ensure whether the existing water flow in the Ganges river is sufficient enough so as to suffice water flow in both states during the remaining months, except the lean period, i.e. January to May. Based on the test results, if the water flow is sufficient to meet the needs of both states in the period, other than the dry season, then in such a case, the problem of water scarcity would be resolved to a great level.
9. Further, the treaty lacks in excluding a provision regarding the pollution in the river, which makes it an insufficient one with respect to the transboundary water resource management. Since Ganges denotes purity, it is crucial that such a status quo is maintained. Hence, a clause needs to be inserted calling for management of the Ganges Waters by imposition of a penalty with respect a lesser water allocation share to the defaulter state. This will essentially go a long way in ensuring and safeguarding the Transboundary River, and maintaining its sanctity.
10. Lastly, both states would ensure that their actions are in consonance with the established legal norms and principles such as the Helsinki Rules.

Challenging situations among the neighbouring states perpetually produce crisis and play a significant role within the state's political instability. These tense relationships additionally challenge the regional stability. This can be the case in South Asian region wherever some states have boundary problems and a few have water problems. So as to keep up higher liaison between India and Bangladesh, following steps ought to be taken to confirm not solely regional stability however the inner strength of the state:

- An acceptance should be reached on the equitable share of the common rivers and ensuring that the lower riparian country should get common benefits.
- There is a need to strengthen international law enunciating the rights and duties of the riparian states.
- Joint river commissions ought to be established between states and only members having zeal to resolve disputes through political will should be nominated
- There should be establishment of an international forum for resolving water disputes and that the states should abide by these rules.
- For the purpose of free flow of strategic data and information, mechanisms should be developed for aiding such transmission of data and information and the governments should develop confidence enhancing procedures for avoiding any type of mistrust between them.
- It should be made obligatory that the states planning to build new projects in their waters should inform the other state which is directly or indirectly affected by such projects.
- Both the countries should make a detailed study of the issue and equal weightage should be given to each other's report.

- Regular meetings should be convened between the countries which are also attended by all the stake holders of each of the nations.

Hence, by now it can be well established that the signing of the 1996 treaty was a landmark measure of political goodwill demonstrating cooperation on the pending conflict between the two nations in the South Asian region. The so called Treaty was an effort aimed at harnessing the Ganges waters; being a transboundary resource, to gain optimum utilization of waters by both states. But such an allocation will depend on the functional implementation of the 1996 treaty, which would be achieved only when the above mode as suggested or the changes suggested can be made. Both India and Bangladesh should work on achieving greater involvement of both smaller and weaker neighbouring states so as to ensure a collaborative management of the Transboundary River.

Lastly, what is important for an efficacious resolution of the dispute is the understanding among the two transboundary states that issues borne out of water sharing and allocation such as water scarcity, lack of data and tensions in polity can be addressed only through a genuine principle of Community of interest and the mutual understanding for 'transboundary river sharing' so as to cause a positive result, rather than a zero one.

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**WATER SHARING BETWEEN INDIA AND BANGLADESH:  
IMPACT AND THE FUTURE**

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**I.1 INTRODUCTION**

Water knows no political boundaries and this vast transboundary character of water has made it an issue of engagements and spurred tensions at the international, regional as well as the domestic level. This is further aggravated by the fact that water is a threatened resource, which makes it prone to frictions and hostilities between states. The India Bangladesh water conflict is one among the various disputes revolving around the use of water resources on a transboundary river and the allocation of water rights.

India and Bangladesh carry historic and cultural overtones, thus leading to the creation of a unique bond and a distinctive relationship which is rooted in shared principles, common aspirations and sacrifices of their citizens. Both countries share around 54 Transboundary Rivers, which lays the foundation for the evolution of water conflicts among both parties. Among these rivers, the GBM is a predominant one where both the countries are stakeholders, thus occupying a majority of the total expanse of the two regions. Unlike in other rivers, where Bangladesh is an upper riparian state, it is a lower riparian in this case concerning the GBM.

Historically, Bangladesh emerged as a political power and an independent sovereign in 1971 with the moral help of the Indian government. Geographically, the People's Republic of Bangladesh is surrounded by the Indian Territory and shares its land border with India on three sides, the fourth one being open to the Bay of Bengal. The three major rivers, the

GBM, enter the territory of Bangladesh flowing through India which entitles both the states to an equal and a reasonable usage of waters of the three rivers. While other parts of the world witnessed developments pertaining to the conservation and use of rivers, these two states have not been able to reach a common ground and reach on an agreement for devising an equitable method of water allocation and distribution of the holy waters of the Ganges and undoubtedly for promotion of reasonable utilization and management of these water resources. The water relations between the two states remained estranged due to the distribution of Ganges waters and the Teesta and the inter-linking project until a common consensus was reached through the means of a treaty entered into by the Indian Prime Minister H.D Deve Gowda and the Bangladeshi Prime Minister Sheikh Hasina Wajed.<sup>1</sup> An appreciation of the said treaty requires an overview of the historic water dispute discussed in the following section.

## **I.2 ORIGIN OF THE DISPUTE**

The India-Bangladesh Treaty revolves primarily around the Ganges River and recently around the Teesta issue.

### **I.2.i. The Ganges Water Dispute**

The Ganges originates in the Himalayas in Nepal, flows southeast through India and then subsequently flows through Bangladesh. The Ganges-Brahmaputra River basin is the third largest discharge in the world.<sup>2</sup> Before the Ganges forms a transboundary between the two states; it experiences a divide into two channels, the first flowing into Bangladesh, where it is known as the Padma and the other entering and flowing south in India, notably known as the Bhagirathi. Water conflict regarding the Ganges is heightened considering the geographical location, the historical background and the

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<sup>1</sup> Treaty between the Government of the Republic of India and the Government of People's Republic on the Sharing of the Ganges Waters at Farakka, 1996.

<sup>2</sup> Brianna Besch, "Sharing the Ganges: Water Conflict between India and Bangladesh"



political picture of the two riparian transboundary countries. The said dispute is premised on the fact that Bangladesh being a downstream, lower riparian state does not have an equal water allocation and it thus dependent on the upper riparian. India. The quantum of water that Bangladesh gets is reliant on the quantum of water that is diverted by the Indian flow of water into Bangladesh.<sup>3</sup> Thus, the highlight of the conflict being the contention of Bangladesh regarding the “unilateral division and diversion” of the Ganges water, which poses a threat to the water flow in Bangladesh. Failure to resolve this tension for decades, negotiations by the diplomats resulted in settlement of the dispute by the signing of the 1996 Treaty.<sup>4</sup>

Bangladesh being a densely populated country is heavily reliant on the waters of the Padma (Ganges). Factors such as environmental and natural degradation, the increasing need for water due to population expansion and more importantly, the reduction of the quantum of water due to the man-made Farakka Dam with the sole intention of diverting the water of Ganges have escalated the problem of water scarcity for Bangladesh. The genesis of the dispute traces back to the year 1951, where the aftermath of the partition saw Bangladesh forming a part of East Pakistan. Taking advantage of this situation, India then planned on constructing a barrage at Farakka, just above the area where Ganges becomes a transboundary river for both India and Bangladesh. The idea of the construction was first suggested by a committee of eminent Indian experts and hydrologist under the recommendations of Mr. Shriman Singh that recommended the idea of Ganges Barrages project.<sup>5</sup> This action of the Indian government was justified on the grounds of preservation and maintenance of the Hoogly River so as to make the Calcutta port a

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<sup>3</sup> Ramaswamy R.Iyer, “Conflict – Resolution: Three River Treaties” 34 EPW 1512

<sup>4</sup> Supra note 2.

<sup>5</sup> Ben Crow, “Sharing the Ganges: The Politics and Technology of River Development”, p 29, University Press Ltd., Dhaka 1995.



Functional one. The construction of the Farakka barrage around 10 kilometers upstream from the Bangladesh border was to safeguard and ensure access to the ships at the Calcutta port as the port was economically significant and a trade mechanism for the British. Hence, the construction of the barrage would prevent scarcity of waters in the riverbed and thereby promote navigational activities by increasing the lean period flow of the Bhagirathi- Hoogly river branch of the Ganges for irrigational purposes. Further, back in Bangladesh as the irrigation withdrawals increased during the lean season (i.e. March-May), the demands heightened and the inadequacy of available water to meet the demands in both the states for the said purpose led to the tensions urging. Hence, this led Bangladesh (erstwhile Pakistan in 1960's) to oppose the said construction of the Farakka Barrage due to reasons such as: One, the said construction by India would cause a reduction of water flow in the dry season would damage irrigation, agriculture and ecology of the river basin in Bangladesh, thereby having fragile implications for the Bangladesh economy. Second, as Farakka is a strategic position for India, the construction of the barrage is a part of irrigational development thereby leading to national development for India. Third, the real purpose of the barrage rather than the promotion of irrigation activities were to control the Hoogly River for supplying Ganges water to the Indian states of Bihar and Uttar Pradesh. Fourth, through the construction of the said project, India was trying to assert its giant hegemonic intent and neighbour power on acting in ways favorable to it at the expense of her neighbours and hence failed to take into account their needs. This initiated mistrust between the two states. Hence, taking a divergent view, Pakistan opposed the project in 1951. Contrary to the Pakistan belief, India believed that Farakka was a feasible project this was because East Pakistan had no scarcity of water. An attempt aiming at the resolution of the conflict was followed by a series of negotiations and exchange of correspondences among the two countries.

## **I.2.ii. Stages of Negotiations**

The base for the real water crisis to begin was set up when due to the construction of the Farakka Dam, located on the Indo-Bangladesh border, the waters of the Ganges and its tributaries were not in enough quantity to adequately satisfy the demands of the population of both countries. The dispute became a pivotal one in influencing both states to arrive at negotiations for peaceful resolutions. The said phase of negotiations can be demarcated into the following:

**I.2.ii.a 1950-1970 (Pre- Independence phase)<sup>6</sup>:** The 1947 partition caused diverging interests among the two states over the control over the Ganges waters. A series of correspondences between India and Pakistan saw the emergence of proposals sought by Pakistan which were interference of the UN so as to facilitate the development of the river and the expert examination of the projects of the two states, to which India expressed its dissatisfaction. After a series of technical and joint meetings and exchanges of relevant data, the two states reached a common ground with the July 1970 agreement which is a significant one as India for the first time acknowledged and recognized the Ganges to be an international river in the basin, thereby consenting to its transboundary sharing.<sup>7</sup> This witnessed parties agreeing to Farakka being the point of delivery of supply of quantum of water. The pre-independence phase turned out to be futile with respect to co-operation concerning trans-boundary sharing.

**I.2.ii.b 1971-1975 (Post-independence phase):** The independence of Bangladesh from Pakistan and its emergence as a sovereign in 1971, resulted

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<sup>6</sup> Chapter IV, Conflict and Co-operation over Indo-Bangladesh Transboundary Water Resources,

<[http://shodhganga.inflibnet.ac.in/bitstream/10603/16725/12/12\\_chapter%204.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/16725/12/12_chapter%204.pdf)>

<sup>7</sup> Ishtiaq Ahmad, “Bangladesh India Relations: The Ganges Water Sharing Treaty and Beyond” (1998) 25



in Bangladesh forming an active association with India and the development of friendly ties between the two states. A step towards this co-operation was the signing of the 1972 Treaty of Friendship, Co-operation and Peace<sup>8</sup> which was a step for the initiation of goodwill between the two states. Apart from matters of irrigation, agriculture which called for cooperation from both member states, an important provision of this treaty was the establishment of the Joint River Commission (JRC) which required joint action towards common interests such as devising methods for equitable distribution of waters.<sup>9</sup>Pursuant to this provision in the treaty, the JRC was required to conduct a complete and a detailed survey of the river systems, which were shared mutually by both the states and subsequently monitor all successive agreements entered into by both the states.

As the Farakka Barrage neared its completion and became functional in 1975. It continued to dominate the tensions and the relations between both states. As a temporary solution, both states signed a temporary water allocation agreement<sup>10</sup>, where both sides agreed on basic principles for the future sharing of the Ganges water and to test run the feeder barrage. The agreement focused on the augmentation of The Ganges water and the allocation of waters between the two contracting parties. However, the ad hoc agreement failed consequently leading to the deterioration of relations between India and Bangladesh.

Subsequently, Bangladesh resorted to seeking UN intervention and hence, the UN Special Political Committee was molded<sup>11</sup>, wherein Bangladesh

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<sup>8</sup>Treaty of Peace and Friendship between the Government of India and the Government of People's Republic of Bangladesh, March 19, 1972.

<sup>9</sup>Id, Art. VI

<sup>10</sup>Partial accord between the Government of India and the Government of People's Republic of Bangladesh,

<sup>11</sup>Supra note 7.

contested unilateral withdrawal of the Ganges and its water by India from Farakka, thereby violating customary international norms of water law as provided by the Helsinki Rules. The said Committee suggested a bilateral negotiations and talks to solve the problem in an effort to avoid internalization of the conflict.

**I.2.ii.c.1977-1990 (Bilateral negotiations):** This period saw both states exchanging their particular proposals for water sharing augmentation, in an effort towards the resolution of the conflict. Series of exchanges and negotiations witnessed the development of a water sharing agreement in 1977<sup>12</sup> for five year duration aiming at enabling both countries at ascertainment and determination of finding long term solutions for water flow and its allocation in the dry season. A striking feature of the said Treaty was the “minimum guarantee clause” for Bangladesh affirming an 80% share to the state during the lean period, which cannot be reduced in any case.<sup>13</sup> Further, subsequent to the lapse of the agreement and to elude an agreement vacuum, both states entered into a Memorandum of Understanding (MOU) in 1982 extending the arrangement for three years<sup>14</sup> The MOU was a significant withdrawal from the 1977 agreement and excluding the guarantee clause. The expiry of the MOU in 1985 led to a treaty vacuum and reflecting a plummet in the political relations of the two states. The 1980 floods in Bangladesh made the water sharing scenario of both countries worse thereby inviting long term and comprehensive arrangements for transboundary water sharing. Furthermore, the newly elected Prime Ministers of both the states led to the returning of political

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<sup>12</sup> Agreement between the Government of India and Government Bangladesh on the Sharing of the Ganges Waters at Farakka and Augmenting its Flows, 5-1-1977. 128 Id, Art. VIII and XII

<sup>13</sup> Id, Art VIII and XII

<sup>14</sup> Mohammad Mizanur Rahaman, “ The Ganges Water Conflict: A Comparative Analysis of 1977 Agreement and 1996 Treaty”, 2002.

stability in 1991 where both countries mutually agreed on development of fresh initiatives leading to an inclusive arrangement for water sharing and allocation of the Transboundary River.

The aftermath years saw both India and Bangladesh contending and justifying their respective claims over the construction of the Farakka Barrage and the water allocation with respect to their respective needs. Bangladesh contended that the construction was a precarious one as it posed a risk to the ecology, fisheries navigation, and irrigation and more evidently on the livelihood of the population thus leading to water salinity and scarcity. On the other hand, taking a defensive approach, India argued the claim of the Bangladesh government to be a highly unrealistic and an overestimated one lacking the support of any scientific methodology. Moreover, the recurring nature of the adverse effects caused by Farakka, and the unilateral action of India had spurred up the anti-Indian sentiment wherein India being an upper riparian was at the liberty to withdraw water, when necessary at the expense of the socio-economic interests of Bangladesh. This scenario thus necessitated the need for the stalemate to be broken.

### **I.3. THE 1996 GANGES WATER TREATY**

The political uncertainties coupled with the realization of the urgency of the matter by both states facilitated the signing of the historic treaty in 1996.<sup>15</sup> Being a product of endless bilateral negotiations, the said treaty endeavours in stimulating and reinforcing India-Bangladesh relations, thereby upholding the spirit of friendship and cooperation among the two neighbours.<sup>16</sup> It is an effort to afford a permanent long term solution to augment the water flows of the Ganges between the two states thereby ensuring optimum and sustainable

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<sup>15</sup> Agreement between the Government of India and Government Bangladesh on the Sharing of the Ganges Waters of Farakka, 1996.

<sup>16</sup> Id , The Preamble

utilization of the Ganges for the mutual benefit of member states for a period of 30 years.<sup>17</sup> Establishing a formula for water sharing, the Ganges water treaty stipulates at putting an end to long running differences over the allocation of water flow.

At the base level, the 1996 treaty seeks at achieving water allocation in an equitable and a reasonable manner in the following manner:

1. With a focus on the water sharing of the Ganges, the treaty entitles both states to be a recipient of the 50 per cent of the water flow and calls upon Farakka to be the point of release of water by India to Bangladesh.
2. Deciding the mode of allocation of water, each state would receive 35,000 cusecs of water from Farakka during the lean period (March-May) in an alternating sequence of 10-day period in the said months.<sup>18</sup>
3. Accordingly, in a situation where in the water flow drops lower than 50,000 cusecs in the 10-day period<sup>19</sup>, then the governments of both the countries would make efforts of entering into consultations and negotiations for making arrangements for water sharing in consonance with equity, fair play and no harm principle.<sup>20</sup>
4. Establishing an institutional mechanism, a Joint Committee<sup>21</sup> constituent of equal number of representative members of both states was constituted for the purpose of collection of data pertaining to water allocation and with the additional responsibility of the implementation of the said water treaty in both

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<sup>17</sup> Id.

<sup>18</sup> Supra note 16, Annexure I and II

<sup>19</sup> Id.

<sup>20</sup> Supra note 16, Art. II

<sup>21</sup> Supra note 16, Art. IV

states.

5. Furthermore, the Joint committee was responsible for dispute resolution and settlement of difficulties arising out of the said implementation. In a scenario where the Committee was unable to settle such disputes, they were to be referred to the Indo-Bangladesh Joint River Commission<sup>22</sup> so constituted under the treaty to be a neutral party, and in case, the disputes still persisted, it was to be then referred to the respective governments of both states for an effective resolution.
6. Water sharing between the respective states is to be determined by the natural justice principles and the no-harm principle<sup>23</sup>, thereby ensuring the sustainable use of the river waters by the states.
7. In order to ensure successful implementation and revision of the treaty, the provisions of the treaty and its problems shall be considered after a five year interval at the initiation of a request by either party.<sup>24</sup>
8. With respect to the other provisions, upon the expiration of the said treaty, India was obliged water, downstream of the Farakka<sup>25</sup>, until a new treaty was negotiated determining water allocation based on the principle of equity and goodwill. With the terms being mutually agreed by both India and Bangladesh, the treaty governed the water allocation between two counties for duration of significant thirty years and laid the brick of cooperation among the two states.

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<sup>22</sup> Supra note 16, Art. VII

<sup>23</sup> Supra note 16, Art. IX

<sup>24</sup> Supra note 16, Art. X

<sup>25</sup> Supra note 16, Art. XI



#### **I.4. THE INTERNATIONAL LAW REGIME VIS-À-VIS THE 1996 TREATY**

What is pertinent to note is the application of international law principles of water law and customary norms to the said treaty. It is worthwhile to mention that the 1996 water treaty seeks to incorporate a reasonable and fair solution and formula for water allocation and utilization by India and Bangladesh which is in consonance with the Human Rights and the UN Watercourses Convention which advocate for the principle of 'no-harm rule' through Art. IX, is a step aimed at accommodating and treating both parties at an equal footing. Further, following the principle of equitable utilization, the treaty calls for both member states to enter into water sharing agreements with respect to the sharing of the other common transboundary rivers, apart from the Ganges. Reinforced by Art. X, the principle further gains its strength in the Ganges conflict. Hence, implying that the principle of equitable utilization of water forms a notable part of the 1996 Treaty and is an efficient solution for the allocation of river waters between India and Bangladesh as it imposes necessary restrictions on the assertion of the rights by the riparian states.

Further, the treaty is not only in compliance with international water law principles but also submits to international instruments.

As discussed in the first chapter, international instruments such as the Helsinki Rules, the 1977 Watercourses Convention, and the Berlin Rules etc. constitute an essential international framework when the question on water sharing and allocation concerning a transboundary resource arises among states. Such international instruments stand true and are equally applicable in the context of sharing of the waters of the River Ganges among the regions of India and Bangladesh. The applicability of international instruments to the

1996 water treaty is discussed below.

- ***The Madrid Declaration, 1911:*** the said Declaration prohibits unilateral alterations to the transboundary watercourse being detrimental to the co-riparian. Placing its reliance on the said convention, the construction of the Farakka Barrage was opposed by Pakistan.
- ***The Barcelona Convention, 1921:*** Pakistan cited Art. X of the said rules arguing that India's unilateral action to divert waters of the Farakka, thereby prejudicing the rights of the co-riparian was prohibited.
- ***The UN Convention, 1977:*** The landmark Convention calls for riparian states to exchange relevant data and information on the condition of the water resource, as articulated by Art. IV of the 1996 Treaty. The Convention imposes an obligation on states to enter into negotiations disputes in an emergency situation and peaceful settlement of disputes to resolve the conflict as provided in Art. VII of the Treaty. More importantly, the 1977 Regulation casts an obligation on the riparian states to prevent causing harm to other states during the course of sharing of the Transboundary River and in utilization of its waters. Reflecting on the said provision, the 1996 treaty draws heavily from the 1977 Convention and hence includes the no-harm principle through Art. IX.
- ***The Helsinki Rules, 1996*** and the Berlin Rules on Water Resources: The 1996 Ganges Treaty is in conformity to the Helsinki rules, the most important international instrument advocating "reasonable utilization of waters" of the drainage basin by each riparian state. The 1996 treaty drawing from the said rules, takes into account the geography, the hydrology and the social needs of the population of both India and Bangladesh dependent on the Ganges River,



and thus advocates for 35,000 cusecs of water flow to both the states on a rotational 10-day period during the lean period. Further, the institution of Art. IX (no-harm rule) provides conformity to the “equitable allocation theory.”

Furthermore, the Ganges Water Treaty also abides by the Berlin Rules, which replaced the earlier Helsinki rules. Enacted with the aim of far-sightedness, the 1996 treaty seeks to appreciate and symbolizes the priorities of today and seeks to map the priorities of tomorrow and this it does though ensuring that both member states enter into water sharing arrangements for the sharing of other common transboundary rivers.

Therefore, the said treaty incorporating principles of landmark international instruments embarks on achieving integrated transboundary water management through sustainability and fair utilization of the transboundary river, the Ganges.

#### **I.5. ANALYSIS OF THE GANGES WATER TREATY: THE HITS AND THE FALL-OUTS AND ITS IMPLEMENTATION**

The water treaty is the second water sharing agreement between India and Bangladesh subsequent to the 1977 arrangement. It was implemented at a tough time when both countries faced a water allocation crisis coupled with the lack of political stability owing to newly elected political government under the leadership of Gowda and Sheikh. The treaty had its own achievements and deficiencies.

The treaty should be commended for being close to international law principles and customary norms of transboundary watercourse sharing. As discussed in the previous Sec., the 1996 water treaty conforms to the established principles of water sharing of a transboundary river. Art.s II, IX

and X provide for the concept of equity, fairness and no-harm principle, reiterating the Helsinki Rules. The inclusion of the above principles is significant of a major breakthrough in the Treaty. Secondly, the Treaty's main strength lies in its effort to replace Bangladesh claim of unilateral withdrawals of Farakka by India by a definite fixed amount of water which India is now entitled to withdraw. This is also important as it tends to establish a peaceful relationship between both states that was previously eroded by mistrust due to lack of any water arrangement determining water sharing and rights. Thirdly, the allocation of 35,000 cusecs of water to Bangladesh ensures the maintenance of accurate water levels in Bangladesh in terms of irrigation, agriculture and livelihood. Furthermore, the Preamble of the treaty ensures and entitles both India and Bangladesh to a 50 per cent equal share of water thereby ensuring that the social needs of both the populations are met as articulated by the Helsinki Rules and more prominently ruling out the probability of water scarcity in the two states. Next, considering the long term implications of the water treaty, the treaty has largely contributed to the qualitatively changing the scope of political and economic relations between the two countries. Implying that, with the implementation of the agreement in place, the two countries are now in a better position to take steps to build and create mutually beneficial relations both politically and economically. Further, the existence of water sharing arrangement between both the countries accords the existence of friendly relations in the South Asian region at large.

While the Treaty had its own merits which adequately justified the implementation of the Treaty, yet the Treaty failed to reach out in a number of areas and aspects. Firstly, unlike the 1977 Agreement that contained the "Minimum Guarantee Clause"<sup>26</sup> ensuring 80% of the quantum of water

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<sup>26</sup> Supra note 14.



allocation to Bangladesh, the 1996 treaty lacked the said striking guarantee clause. Although Annexure I<sup>27</sup> of the Treaty, accords a guarantee of 35,000 cusecs of water flow<sup>28</sup> on a 10-day rotational basis in the lean season, yet the guarantee clause becomes operational only when the water flow level at Farakka falls below the level of 50,000 cusecs. Further, in a hypothetical scenario of the reduction in water flow at Farakka, the guarantee does not stand to be valid as the quantum and amount of water which is to be released will depend on persons monitoring the Farakka outflow, unless an arrangement in this regard is arrived at by the two governments, implying the dependency of Bangladesh on the will of the upstream riparian, India. Secondly, one of the major areas where the treaty lacks is non-availability of water in other periods in other parts of the year and non-specification of the entitlement in terms of quantum of water on a day-day basis. The treaty only advocates for water allocation among the two states for three months (March-May), hence ignoring the remaining months hence making it difficult to predict the water received on each side during other months in advance due to lack of knowledge, as the quantum of water notably is dependent on the water level flow of Farakka. Next, interpreting the terms of the treaty, Art. XI makes an arrangement for India augmenting and releasing adequate quantum of water to the downstream riparian in good faith and goodwill in an event of expiration of thirty years. However, the said Art. lacks feasibility, primarily because in such an event India, being the upstream riparian would release water on its own sole discretion, hence meeting its own minimum needs in the first instance, therefore according a preference to the hydro-hegemonic state, India in the said case.

Another significant loophole in the said treaty is its failure to provide for a de

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<sup>27</sup> Annexure I to Art. II of the Treaty on Ganges

<sup>28</sup> Id.

facto effective dispute resolution mechanism. The 1996 treaty provides a political means, and not a proper dispute resolution mechanism such as arbitration, for the settlement of any dispute pertaining to the implementation of the treaty.<sup>29</sup> Art. VII of the said treaty stipulates the formation of a Joint Committee or the Indo- Bangladesh Joint Rivers Commission, for the settlement of the conflict. The said dispute can be subsequently referred to the respective governments in case of the persistence of the conflict. Yet, this being the case the treaty provisions fail to specify the level of the government for such reference of the dispute and the time period for such dispute settlement. Unlike the 1977 Agreement,<sup>30</sup> which provided for an arbitration mechanism between the said member states, the new treaty fails to do so and hence impedes an effective resolution of disputes between the states. More importantly, though the water treaty articulates the formation of the JRC, as the only medium for dealing with transboundary water conflicts through the portal of Art. VII, yet it fails to lay any authority to the River Commission for the implementation of the treaty. As a consequence, the JRC is hence weakened. Further, what is interesting to note is the lack of any mechanism for consultation from other co-riparian states of the river basin in an effort to resolve the said water allocation and sharing crisis.

Due to the above lacunas, the implementation of the water- sharing treaty stands significantly at a risk. Firstly, even though the water treaty is an arrangement to divide and the surface waters of the Ganges at the mutual border, the water allocation arrived at lacks value and fails to take into account the uses of the river between two countries. As the Ganges- Brahmaputra river system is shared among India, Bangladesh and Nepal, the water sharing arrived at by the 1996 treaty does not take into consideration

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<sup>29</sup> Salman M.A. Salman and Kishor Uprety, "Hydro -Politics in South Asia: A Comparative Analysis of the Mahakali and the Ganges Treaties", (1999) 39 Nat Resources 337

<sup>30</sup> Supra note, Article 33



the needs of the uppermost riparian, Nepal, hence implying its failure to adopt an integrated approach to transboundary sharing of water resource in the river system.

The major reason for the failure of the implementation is the lack of a long term solution for water scarcity faced by both states in the dry season. The proposal to allocate 35,000 cusecs of water for a three month interval is a major defect in the treaty and lacks a practical view. Water scarcity due to Farakka is not a temporary cause of concern, but a permanent and a challenging one in both states. Allocation of water for a certain period does not purport to solve the said deep-rooted problem at the base level. What this requires is a much more logical and a far-sighted approach that can eradicate water scarcity and maintain a sufficient water flow at the Farakka. Moreover, though the treaty manages to reach close to international principles, yet it fails at implementation level, despite having such international backing. This is premised on the fact that the treaty argues for allocation of 35,000 cusecs of water flow to Bangladesh, and further entitles it to an additional flow in an instance of water level decreasing below 50,000 cusecs at the Farakka. This additional extraction privilege is unavailable to India. Therefore, this illustrates that equitable utilization of shared rivers is not the same as an equitable allocation of water as preached by international norms. Another obstacle to the implementation is the lack of minimum infrastructure required. Finally, the non binding nature of the decision of the disputes referred to the respective governments as raised speculations about the treaty.

Hence, a more feasible and an integrated approach is needed to effectively implement the 1996 water treaty and make it workable for both riparian states.

### **I.5.i. The Teesta Sharing**

Another issue that dominates the water sharing conflict between India and Bangladesh relates to the sharing of the Teesta River. Art. IX of the Ganges water treaty advocates for arrangements to be entered into between both states for sharing of waters of common rivers. One of such transboundary common rivers is the River Teesta. The Teesta, being one of the tributaries of Brahmaputra, originates from the Teesta glacier and flows through Sikkim, West Bengal and Bangladesh.<sup>31</sup> Likewise to the River Ganges, the water flow of the River Teesta is insufficient to accommodate the needs of both states during the lean season, thereby creating a conflict of interest as similar to the Ganges conflict. The dispute arose by the act of the Indian government in West Bengal constructing dams and barrages on the Teesta River in the year 1979<sup>32</sup> for purposes of irrigation, consequently leading to the opposition from the Bangladesh government due to the threat posed by the said construction to rice irrigation and thus, leading to the scarcity of water for irrigation. A series of bilateral dialogues among the diplomats of both states, led to the enactment of an ad-hoc agreement in 1983.<sup>33</sup>

The treaty allocates the Teesta water in 39% and 36% to India and Bangladesh respectively, leaving the remaining 25% to be with Bangladesh so as to ensure an equal distribution of the said waters.<sup>34</sup> However, the said allocation arrangement was disputed by both states, owing to the risk of water scarcity in both states. An attempt to resolve the said allocation was made by the creation and the setting up of the Joint River Water Commission<sup>35</sup> further entrusted with the task of collection of hydrological data like the Indo-

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<sup>31</sup> Dr. Aruna R. Mittal, "Indo-Bangladesh Water Issues", International Journal of Humanities and Social Sciences Research, Vol.2, Issue 11, 2016

<sup>32</sup> Id.

<sup>33</sup> Agreement between the Government of the Republic of India and the Government Republic on the access and use of the Teesta River, 1983

<sup>34</sup> Id.

<sup>35</sup> Id.

Bangladesh River Committee in case of Ganges water dispute. Based on the analysis of the dispute, the said Commission sought to suggest the increase in the water allocation share of Bangladesh, Bangladesh border being close to the construction of dam in West Bengal, which would allow equal water penetration, thereby mutually benefiting the two countries. A series of bilateral attempts witnessed the development of a Joint Technical Group<sup>36</sup> with the purpose of assessment of the Teesta allocation during the lean period. Subsequently, the water allocation formula arrived was 42% for India and 37% for Bangladesh with the remaining to be allotted to the Bangladesh.

The major fallout of the treaty has been its implementation and failed efforts of consensus. The power-sharing agreement envisaged by the Indian Constitution allocates the subject of water to the state, hence implying the need for the state consensus on matters of water sharing, more importantly concerning a transboundary River, such as the Teesta or the Ganges. This gives authority to West Bengal to frustrate the said water sharing arrangement as bearing adverse implications on the State. The implementation of the Teesta deal faced opposition by the West Bengal Chief Minister resulting in the withdrawal of the treaty. Since then several attempts have been called for aiming at the joint resolution of the treaty. One such example was the 2011 negotiations, which included a proposal arguing for the equal 50% sharing of water by both sides, the proposal was rejected by Mamta Banerjee, fearing that the said sharing would result in the drying up of the northern West Bengal and cause a detriment to irrigation. Despite repeated attempts the treaty displayed a slow progress hence being non- successful in diffusing tensions between the two sides. The treaty has recently witnessed efforts being made by Prime Minister Mr. Narendra Modi in assuring and expressing confidence to the Bangladesh government for reaching a far-fetched solution

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<sup>36</sup> Supra note 35.

to the Teesta conflict that holds tremendous importance for Bangladesh, particularly in the lean period where reduction of water flow leaves an adverse impact on irrigation.

### **I.5.ii. The Tipaimukh Dam**

Apart from the contentious Ganges and the Teesta issue, the construction of the Tipaimukh Dam by India on the Barak River, for the purposes of hydro-electric power, resulting in the unilateral diversion of water leads another transboundary River water conflict. The said dam being located on the River Barak concerns the two riparian nations, contesting over the issue of construction of the said dam.

India, being the upper riparian, proposes to construct the said dam for the purpose of controlling floods and generation of hydro-electric power. While, on the other hand, the lower riparian, Bangladesh, claims this move of the Indian Government to be one planned for diversion of the waters of the dam for the purposes of irrigation, henceforth amounting to the ‘unilateral diversion of water.’ Also, the said construction interferes with seasonal activities, such as fisheries, irrigation and agriculture and more importantly disturbs the rhythmic flow of the water, thus adversely impacting Bangladesh as the said construction of the dam would dry the other rivers flowing through Bangladesh, resulting in choking of the entire region of Bangladesh.

The issue of the Tipaimukh Dam, entered the sphere of bilateral negotiations under the JRC, and is currently under deliberations among the two nations.

### **I.5.iii. The Indian River Linking Project**

Another contentious water sharing issue among the two riparian regions is India's River Linking Project. The said project aims at channeling the waters of rivers and its diversion to the drought prone and arid regions. The project revolves around re-routing waters of the Himalayan Rivers, particularly the Ganges and the Teesta, which are shared by the two riparian States with the primary objective of diverting waters to the South Indian states. The said move hence faced opposition from Bangladesh, arguing to diversion of water. Moreover, the said move by India, considerably impacts agriculture and water availability for the purposes of drinking and resulting in diminishing of water flow of the Ganges and Teesta and adversely having significant implications for the ecology.

However, as both riparian nations continue to contest over the said water sharing, they significantly tend to ignore the regional and international implications ignored by the said river linking project.

### **I.6. CONCLUSION**

To conclude, water sharing allocation has been a crucial aspect in the history of Indo-Bangladesh relations. It is estimated that the next century water wars will be fought over water, thus, causing a detriment to the water security of states in the global scenario. The Ganges Treaty, drawing from customary principles tends to define the problem of water sharing between nations and attempts at arriving at a long term solution, yet heavily fail in this attempt. This is because of the narrow nature of the treaty which tends to focus only on the dimension of sharing of available waters between the two states. Further, the deficiencies in both the Teesta and the Ganges water agreements should be discussed for highlighting the reforms needed.



The success of the treaty in the functional sense is dependent on the bilateral relationship of the two states in the future. That is to say, both states need to restore confidence with the purpose of rebuilding the provisions of the treaty. Nevertheless, both the Teesta and the Ganges treaty are an efficacious step for water sharing and allocation, thereby ensuring cooperative relations between the two states and marking footsteps for other states in the South-Asian region to follow, thus reiterating goodwill between both the states.