Waters of Conflict or Waters of Cooperation?: Geopolitics of Sino-Indian transboundary water management in the Yarlung Tsangpo and the Brahmaputra

Thesis submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

by

MIRZA ZULFIQUR RAHMAN

Roll No. 126141004

Department of Humanities and Social Sciences

Indian Institute of Technology Guwahati

Guwahati, Assam, INDIA. PIN-781039

August 2017

DECLARATION

I, Mirza Zulfiqur Rahman, hereby declare that the matter embodied in this thesis is the result of investigations carried out by me in the Department of Humanities and Social Sciences, Indian Institute of Technology Guwahati, under the supervision and guidance of Dr. Anamika Barua, Associate Professor, Department of Humanities and Social Sciences, Indian Institute of Technology Guwahati (IITG), Guwahati, Assam, India.

In keeping with the general practice of reporting observations, due acknowledgements have been made wherever the work described is based on the findings of other investigators and researchers. The sources of secondary data utilized in this thesis are duly acknowledged.

Mirza Zulfiqur Rahman

Research Scholar

Department of Humanities and Social Sciences

Indian Institute of Technology Guwahati (IITG)

Guwahati, Assam, INDIA. PIN-781039.

Indian Institute of Technology Guwahati
Department of Humanities & Social Sciences
Guwahati 781039
Assam, India

CERTIFICATE

This is to certify that the thesis entitled "**Waters of Conflict or Waters of Cooperation?: Geopolitics of Sino-Indian transboundary water management in the Yarlung Tsangpo and the Brahmaputra**" submitted by Mirza Zulfiqur Rahman, Roll No. 126141004, for the award of degree of Doctor of Philosophy in the Department of Humanities and Social Sciences of Indian Institute of Technology Guwahati, embodies bonafide record of research work carried out under my supervision and guidance. Mirza Zulfiqur Rahman himself has duly done the collection of materials from secondary sources. All assistance received by the researcher has been duly acknowledged.

The present thesis or any part thereof has not been submitted to any other University in India or abroad for the award of any degree or diploma.

Dr. Anamika Barua
(Thesis Supervisor)
Associate Professor
Department of Humanities and Social Sciences
Indian Institute of Technology Guwahati (IITG)
Guwahati, Assam, INDIA. PIN- 781039.

DEDICATION

'To my parents and family, with love and gratitude'

ACKNOWLEDGEMENT

I acknowledge the contributions made by several people who have been associated in the long journey towards completion of this PhD research thesis. I am thankful to my thesis supervisor, Dr. Anamika Barua, who has guided my research work over the past five years, cultivating a well-balanced mix of methodical rigour and policy-based exposures. She has been a source of encouragement and support, allowing the expression of ideas. I am thankful to the members of my doctoral committee, Professor Chandan Mahanta, Dr. Rajshree Bedamatta, Dr. Sawmya Ray, Professor Krishna Barua and Dr. Jabin Jacob, who have helped enrich the research through their comments and constant support. This research thesis will not have been possible without their guidance at critical junctures. The sharing of ideas and academic input received thus has helped shape my research.

I will like to express my gratitude to the Department of Humanities and Social Sciences, IIT Guwahati, its interdisciplinary focus on research on social sciences helping my work. I will like to thank Professor Rohini Mokashi Punekar, Professor Arupjyoti Saikia and Professor Mrinal Kanti Dutta, who have led the department in the past five years, for their support and encouragement. I will like to thank the faculty members and my fellow research scholars in the department, and the valuable interactions that we have had over the past five years. I will like to thank the larger IIT Guwahati community, for making it a wonderful place to live in. I will like to thank SaciWaters, Hyderabad and the Institute of Chinese Studies, New Delhi for their valuable contribution to my research work and exposure. I will like to thank my parents, my siblings, my wife, family and friends who have supported me in many ways over time. I will like to thank Almighty God and pay my respects to the Brahmaputra River, a source of inspiration and motivation in my life.

ABBREVIATIONS

BBIN: Bangladesh Bhutan India Nepal Sub-regional Cooperation

BCIM: Bangladesh China India Myanmar Sub-Regional Cooperation

CASS: Chinese Academy of Social Sciences

CGIAR: Consultative Group for International Agricultural Research

CPPCC: Chinese People's Political Consultative Conference

CWC: Central Water Commission, India

ELM: Expert-Level Mechanism

ISRO: Indian Space Research Organization

JEG: Joint Economic Group

JRC: Joint River Commission (Bangladesh and India)

JWG: Joint Working Group

LAC: Line of Actual Control

LBA: Land Boundary Agreement

LDC: Least Developed Country

LMC: Lower Mekong Countries

LMCM: Lancang-Mekong Cooperation Mechanism

MC: Mekong Committee

MEA: Ministry of External Affairs, Government of India

MoD: Ministry of Defence, Government of India

MoFA: Ministry of Foreign Affairs, Government of China

MoU: Memorandum of Understanding

MoWR China: Ministry of Water Resources, China

MoWR India: Ministry of Water Resources, India

MRC: Mekong River Commission

NEEPCO: North Eastern Electric Power Corporation

NERIWALM: North Eastern Regional Institute of Water and Land Management

NGO: Non-Governmental Organization

NHPC: National Hydro Power Corporation

NMC: National Mekong Committee

NPC: National People's Congress, People's Republic of China

NRLP: National River Linking Project, India

OBOR: One-Belt One Road Project, China

PMO: Prime Minister's Office, Government of India

RBO: River Basin Organization

SAARC: South Asian Association of Regional Cooperation

SNWDP/SNWTP: South North Water Diversion/Transfer Project, China

TAR: Tibetan Autonomous Region, People's Republic of China

THDC: Tehri Hydro Development Corporation, India

TWINS: Transboundary Waters Interaction Nexus

UN: United Nations

UNDP: United Nations Development Programme

USA: United States of America

WAPCOS: Water and Power Consultancy Services India Limited

LIST OF FIGURES

TABLE OF CONTENTS

PUBLICATIONS, CONFERENCES AND ARTICLES

Peer reviewed journal articles:

- Mirza Zulfiqur Rahman, 'Territory, Roads and Trans-boundary Rivers: An Analysis of Indian Infrastructure Building along the Sino-Indian Border in Arunachal Pradesh', Eurasia Border Review, Vol.5, No. 1, Spring 2014
- Anamika Barua, Sumit Vij and Mirza Zulfiqur Rahman (accepted), "Powering or sharing water on the Brahmaputra River Basin", International Journal of Water Resources Development
- Anamika Barua and Mirza Zulfiqur Rahman (in progress), "A TWINS Analysis of the Sino-Indian interaction on the Brahmaputra River Basin", Journal of Hydrology

Other publications/conferences:

- Anamika Barua and Mirza Zulfiqur Rahman, 'We need to talk about the Brahmaputra', The Hindu, 27 October 2015
- Mirza Zulfiqur Rahman, "China, India must stop using rivers as taps to make political statements", Hindustan Times, 4 October 2016
- Mirza Zulfiqur Rahman, "China and India's race to dam the Brahmaputra river puts the Himalayas at risk", The Conversation, 26 September 2016
- Territory, Tribes, Turbines: Local Community Perceptions and Responses to Infrastructure Development along the Sino-Indian Border in Arunachal Pradesh, Institute of Chinese Studies Occasional Paper Series, No. 7, June 2014, Institute of Chinese Studies, Delhi, India
- Swedish South Asian Studies Network (SASNET) Conference, Lund University, Sweden, Panel on Migration, Environment and Social Sustainability, May 2015.

Major rivers originating in Tibetan Autonomous Region of China, including the Yarlung Tsangpo-Brahmaputra, the Mekong and the Ganges. Source: www.meltdownintibet.com

Map showing the course of the Yarlung Tsangpo-Brahmaputra River. Source: http://tibetanplateau.blogspot.com/2009_03_01_archive.html

Abstract

The thesis aims to analyze the Sino-Indian bilateral interaction and dynamics on management of shared transboundary rivers, specifically focusing on the Yarlung Tsangpo-Brahmaputra river. The emphasis of this research study is on cooperation between China and India on the shared transboundary river, going beyond the prevailing aspersions of conflict over management of transboundary water resources. The thesis uses a three-fold approach to answer its research questions concerning the factors determining conflict and cooperation between China and India on shared transboundary rivers, the linkage of the Brahmaputra river to the unresolved territorial dispute between China and India, and the past behaviour of China and India on other transboundary rivers in the region, focusing on the Mekong and the Ganges rivers.

The first approach involves analyzing the Sino-Indian bilateral dynamic of conflict and cooperation over the past on the Yarlung Tsangpo-Brahmaputra through the lens of International Relations theories, which helps frame the geopolitical reference, the factors influencing riparian behaviour, and linking it with the territorial question. The second approach involves employing the Transboundary Waters Interaction Nexus (TWINS) framework, which furthers the understanding of the factors determining conflict and cooperation in the Sino-Indian riparian engagement, and helps underline the layered nature and the varying intensities of past conflict and cooperation events.

The third approach involves a comparative analysis of past Chinese and Indian behaviour and engagement on regional transboundary rivers, the Mekong and the Ganges, which helps inform the Yarlung-Tsangpo-Brahmaputra case study, as there is no ready

reference of past Sino-Indian formal and institutionalized negotiations on shared transboundary rivers. The Mekong and the Ganges are examples where both China and India have been involved separately, and they provide a regional reference. The primary data used for the analysis are joint statements and Memorandums of Understanding (MoUs) between China and India, past water treaties, joint statements and declarations on the Mekong and the Ganges. This three-fold approach, analyzing the water related events during the time period of 1990-2015, brings substantive direction to Sino-Indian cooperation, identifies the drivers of conflict and cooperation, the power contexts in the riparian engagement, underlines the overarching reliance on bilateralism by both China and India, while showing some signs of multilateral intent.

Chapter 1

Introduction

1.1 Setting the Context of the Research Study

The incidence of conflict and cooperation among sovereign nation states in international relations based under conditions of anarchy and inadequate communication, have underpinned the nature of interaction in the international system in contemporary history (Mearsheimer 1995). There are evidences of conditions of conflict towards achieving cooperation between nation states, especially manifested in the two great World Wars of the twentieth century, which has shaped world politics. Conflict or conditions of competition is described as goal-seeking behaviour by certain actor/s that strives to reduce the gains available to other actor/s or by impeding their want-satisfaction, in the larger international relations framework (Milner 1992).

Cooperation, on the contrary, is described as conditions when actors adjust their behaviour to the actual or the anticipated preferences of others. Cooperation can occur through a process of policy coordination on a given issue area, and/or on the basis of pre-existing complementary interests among nation states involved (Keohane 1984). The dynamics of interplay of conflict and cooperation between nations basically defines the content of international relations, and therefore the understanding of specific events and conditions in this conflict-cooperation backdrop is necessary, and to emphasize that this essentially can happen in an iterated manner and can co-exist.

There is worldwide public awareness of the fact that the world's fresh water supplies have become a scarce and limited resource, and which is extremely vulnerable and

dependent on human activities (Falkenmark 1989, Biswas 1993, Gleick 1993, Delli Priscoli 1998). This awareness is coupled with the growing realization that it is becoming increasingly difficult and expensive to provide sufficient supplies of wholesome fresh water to meet the ever-growing needs of various communities and countries, thereby leading to the creation of a variety of tensions. These tensions are further accentuated by widespread population growth, as well as increased rates of agriculture, urbanization and industrialization (van Wyk 1998). There is a dramatic increase in the level of competition for access to water across sectors, within and between countries, which is seen in the context of China and India (Economy 2007).

Though the basic reasons for increasing water shortages in many regions of the world are well understood by the various stakeholders involved, much of the existing debate is coloured by strong national concerns over sovereignty and territorial integrity issues, which have come to be closely linked with water sharing issues (Ashton 2000). It is understandable that the potential for conflict over water is likely to be acute in those regions where water is scarcest, and therefore it is where conditions of water scarcity coincide with economic, ideological, strategic or other differences between countries, one can anticipate that such tensions can rapidly reach crisis levels (ibid).

At the same time, there is public awareness that water interdependence is already, or soon will become, a fact of life in and among many countries in the world (Delli Priscoli 1998), and this is true in the case of China and India. This has led to a drive towards cooperative development of water resources in certain areas. Situations where one or more countries share river basins can provide incentives for riparian countries to jointly develop collaborative actions to safeguard and mutually share scarce water supplies,

while such situations can easily become sites for escalating tensions between riparian countries (Wolf 1998, Wolf 2002). Countries have had conflicts over water, and also have found mutual cooperative spirit, and this is the scope of the research study on evaluating conditions and intensities of conflict and cooperation, and highlighting the avenues of cooperation in the Sino-Indian riparian relationship. The comparative framing of Chinese and Indian riparian engagement on the Mekong and the Ganges, supplements analysis of the Yarlung Tsangpo-Brahmaputra case study.

The United Nations (UN) Human Development Report of 1994 brought into focus the need of the state to move beyond traditional security and military based approaches, to an understanding of security based on sustainable development. A limited territorial security approach was gradually replaced by an approach seeking to build consensus on important human security elements of environment, food, water, economics and social growth. Therefore, it became pertinent for the discipline of International Relations to engage with the non-traditional security issues, which included environment, climate change and water issues. At the basic level, as rivers are transboundary in nature, often traversing more than two countries, the disciplinary boundaries of International Relations cannot remain closed to understanding the bilateral, multilateral political interactions and dynamics over transboundary rivers.

The UN Human Development Report of 1994 was brought out in the backdrop of the end of the Cold War era in contemporary international relations. This larger shift in attention to non-traditional security issues was marked by the changes brought about in the state security literature, which linked the survival of the state beyond military centric control strategies. Confronting non-traditional security aspects such as environmental,

epidemiological and economic threats had become a major activity of the nation state system (Buzan et al. 1998). The employment of the 'security' language provided for effective ways to manage new issues, and the securitization opens up avenues for direct and successful resolution of threats, making the state stand up and take cognizance of non-traditional threats (ibid). The sharing, use and management of transboundary waters between states has been securitized over time.

The transnational nature of non-traditional security issues, and essentially following from that premise, the transboundary nature of water issues between two or more countries have been in the attention span of nation states in the international realm. Ikenberry and Moravcsik (2004) point out that the discipline of international relations does study such 'alternative' areas and politics, which are considered non-traditional in the 'narrow' security studies conversations. The analysis of the specific Sino-Indian interaction dynamics over the Yarlung Tsangpo-Brahmaputra, through the lens of international relations theories, add to the scalar and layered nature of the factors and drivers determining the conflict and cooperation cycles. The riparian relationship involving these cycles does not occur one after the other, but occurs simultaneously.

1.2 Research Methods/Research Timeline

The research is both analytical and descriptive in nature, and in order to meaningfully explain the knowledge gained, the research is required to be dealt with theoretical application and methodological rigour. To successfully identify the answers of the research problem/question related to the topic, the research has relied upon both available primary and secondary sources and rely on reviewing existing literature.

The research begins with an understanding of the research theme evolved from the help of secondary sources such as books, articles and news reports. However, given the contemporary and dynamic nature of the topic, the information gathered by the secondary sources needs to be substantiated with the help of the primary sources to make the study more authentic. The availability of primary sources from inside China becomes a bit difficult, as there is little flow of authentic and reliable information on such an evolving and sensitive topic of study; secondary sources has been relied upon.

The reports of concerned ministries in countries, press releases, joint statements published by the government of respective countries have been cited as primary sources. Moreover, given the empirical nature of some parts of the study like current status of various projects, agreements for sharing of hydrological data, rainfall pattern, water release information, and information of artificial lake formation in upper reaches etc. have be reviewed and incorporated. Media reports are analyzed.

The study uses a comparative and interpretivist qualitative methodological approach, and employs the available primary and secondary sources in context of the research framework, providing explanations of the negotiating behaviour of both China and India on transboundary rivers. The study uses the inductive approach, moving from the specific case studies to a general observation and patterns of negotiating behaviour of China and India on its shared transboundary rivers. The general transboundary water theories have been analyzed which then invokes the research framework towards answering the research questions in a historical, political, economic and ecological context, making issue linkages and general conclusions. The comparative dimension of negotiating behaviour forms the core basis of the analysis.

The thesis employs a specific time period of 25 years (1990-2015) for the application of the TWINS approach to the specific Sino-Indian case study, as well as its application to the comparative case studies of China's behaviour on the Mekong River concerning the four Mekong River Commission member countries on the one hand and India's behaviour on the Ganges River concerning Bangladesh on the other. The justification of having the said timeline is to have a focused historical perspective of riparian interactions amongst the riparian countries, and especially as this time period corresponds to the end of the Cold War, the beginning of the liberalization of the political economy structures of both China and India and a growing bilateral economic and strategic engagement, and other important events on its shared rivers. The Mekong Committee was reconstituted as the Mekong River Commission in 1995 and the India-Bangladesh Treaty on the Ganges was signed in 1996. The timeline of 25 years provides an insight to the contours of Chinese and Indian behaviour on its shared rivers.

1.3 Theoretical Base: International Relations Theory

The theoretical base of this research thesis is the application of the lens of international relations theories to the engagement on transboundary rivers by nation states, through the interplay of conflict and cooperation on riparian relations. The core theories of international relations are surveyed by this research study in this context.

Transboundary rivers, by its basic nature of crossing political boundaries, are in the realm of international relations engagement between two or more nation states. Various schools of thought in international relations - the realists, the liberal institutionalists and the constructivists - have theorizations on conflict and cooperation, and how they play

out in interactions between nation states in the international system. The realists concentrate on hard military power and explain why cooperation is very difficult and complicated to achieve among nation states (Mearsheimer 1995). The liberal institutionalists believe in the power of institutions through strategies to control conditions of conflict and achieve cooperation under anarchy (Keohane and Martin 1995, Axelrod and Keohane 1993). The constructivists describe anarchy or conditions of conflict as what nation states make of it and that power politics as being socially constructed (Wendt 1992, Checkel 1998, Hopf 1998).

It is useful to engage the interdisciplinary nature of international relations and politics to understand the dynamics of transboundary rivers between countries, be it in a bilateral or a multilateral setting, as this has the potential to unpack a host of linkages, making sense of the key drivers of conflict and cooperation in the shared river basins.

The realist understanding of conflict and cooperation in transboundary rivers emanates from the hydro-hegemony framework which highlights how conflict, even if it is not open and visible, can be structurally present between riparians (Zeitoun and Warner 2006). It has been criticized as being state-centric and embedded in the Westphalian concept of nation state sovereignty, underappreciating structural positive-sum outcomes, and overlooking the increasingly blurring relationship between state and non-state actors (Lopes 2012). There have been predictions of violent environmental conflicts over transboundary rivers offered under the discourse of 'water wars' (Starr and Stoll 1998, Ohlsson 1995, Chellaney 2012), and was sought to be dispelled by the work of Wolf (1998), Giordano et al. (2002) and Yoffe et al. (2003).

Given the criticism of Wolf and others' work demonstrating that cooperation was an inevitable march of history (Ohlsson and Turton 1999), a middle path between conflict and cooperation on transboundary rivers has been offered by scholars such as Zeitoun and Warner (hydro-hegemony) and Mirumachi and Allan (TWINS model). Their conceptual frameworks, which argues that conflict and cooperation can exist simultaneously in any river basin, without reverting to a 'water wars' scenario (Warner and Zawahri 2012), is the counter-narrative to the assumptions that held conflict and cooperation as essentially opposite ends of the spectrum of interactions.

International Relations Theory	Literature Surveyed on Core Concepts	Transboundary Waters Literature Co-relation	Application to the Research Thesis
Realism	Mearsheimer (1995), Collins (1996)	Starr and Stoll (1998), Ohlsson (1995), Chellaney (2012)	Understanding the 'water wars' discourse in Sino-Indian context
Liberal Institutionalism	Keohane and Martin (1995), Axelrod and Keohane (1993), Keohane (1984), Nye (1990)	Wolf (1998), Giordano et al. (2002), Yoffe et al. (2003), Zawahri and Mitchell (2011), Tir and Stinnett (2011)	Furthering the emphasis on cooperation through building of institutions and river treaties, laws
Constructivism, Critical Theory, Third World Theory	Wendt (1992), Checkel (1998), Hopf (1998), Ayoob (1991), Buzan (1991)	Mirumachi and Allan (2007), Warner and Zeitoun (2008)	The TWINS framework of analysis in Sino-Indian context, issue linkages, drivers

Figure 1: Literature surveyed across international relations theory and its applications.

1.4 Analytical Framework: The TWINS Model

The literature surveyed initially by this thesis on conflict and cooperation on transboundary water interaction, was largely directed towards an assumption that

cooperation was inevitable and it was marked by an absence of conflict on river basins, as demonstrated by such examples from around the world (Wolf et al. 2003). However, available literature surveyed during the course of this research points out towards a layered understanding of conflict and cooperation on transboundary water basins between countries, and not just a mechanical and reductionist understanding of conflict and cooperation occurring in dyads and essentially seen one after the other. It is essential to look beyond the framework where conflict and cooperation is seen as opposing concepts on a single axis from undesirable conflict to desirable cooperation.

The available literature and an increasing volume of recent work point out towards a dynamic interplay of conflict and cooperation, with various interconnected linkages, and the understanding that both conflict and cooperation can happen simultaneously in any river basin, in an essentially iterated interaction between the riparian countries. The thesis adopts the Transboundary Waters Interaction Nexus, TWINS (Mirumachi 2007), as a framework for the analysis of the specific Sino-Indian interaction on the Yarlung Tsangpo-Brahmaputra River case study, and in a comparative dimension of available literature on the Mekong and the Ganges river basins. This approach and frame of reference helps the thesis to explain the behaviour of both China and India in its interactions on transboundary rivers in the region over the timeline of 1990-2015.

The Transboundary Waters Interaction Nexus framework, hereinafter referred to as the TWINS framework, as put forward by Mirumachi (2007) involves examining the varying intensities of co-existing conflict and cooperation in a two-dimensional nexus between riparian states over transboundary waters. It examines how power relations between riparians and power-determined contexts in the river basin shape trajectories of

such interaction. The two-dimensional conflict-cooperation nexus is further layered into taking into account a third dimension of the political economy, which provides for a tool to analyze overall riparian relations in a regional or shared economic interaction order, and this enables better contextualized analysis.

The TWINS approach must essentially be understood as a two-stage framework, the first stage involving the two dimensional conflict-cooperation nexus, and the second stage involving the added political economy dimension, which makes it a three-dimensional framework analyzing riparian behaviour on transboundary waters. The TWINS framework further takes into account the aspects of hegemonic stability theory between riparian nations, regimes and the establishment of water governance institutions, and explains also how various intensities of power relations, including image and soft power are contextualized. The changes over time in intensity of conflict and cooperation, and the development of political economy determine successful water allocation regimes in bilateral and multilateral river basin contexts.

Mirumachi and Allan (2007) explain that conflict intensity over transboundary waters increases as the perception of the issues by the state changes; as issues become more of a threat to the state, they are prioritized in the national agenda, and receives more attention and attracts allocations of various state resources, thereby securitizing it. They detail the four levels of conflict intensity employed in the TWINS framework, the non-politicized, politicized, securitized/opportunitized and violized, given below:

i) Non-Politicized Issues: The issues that do not concern the state, or issues that are not in the public domain and its attention, are called non-politicized issues.

ii) Politicized Issues: The issues once it gets a place in the political agenda are politicized issues, and they concern the state and are in the public domain.

iii) Securitized/Opportunitized Issues: When the issue is an existential threat, requiring emergency measures and justifying actions outside the normal bounds of political procedure, the issue is securitized (Buzan et al. 1998). Warner (2004) contends that issues can also be opportunitized, when the issues offer such a chance to improve an existing situation that justifies actions outside the normal bounds of political procedure. Though Warner (2004) differentiates securitization and opportunitization, Zeitoun (2007) considers these two levels as opposite sides of the same coin; a securitized issue is a threat that justifies emergency actions, an opportunitized issue is an opportunity for improving an existing situation, requiring emergency actions.

iv) Violized Issue: At the most extreme, when violence is employed over the issue, the issue is considered as violized (Neumann 1998). Zeitoun (2007) had also used the term violated, in order to include a wider range of responses to any confrontational action, violence by other means, such as blocking a river.

Mirumachi (2007) put forward five levels of cooperation intensity, which are identified by the existence or non-existence of four factors, which are common goals, joint action, intention of contributing to collective action, and the belief that the other actor will contribute to collective action. Mirumachi (2007) has drawn these four factors from the work of Tuomela (2000) on cooperation and action-dependence. They detail the cooperation intensity scale of the TWINS framework, as given below:

i) Confrontation of the Issue: This is the lowest level of the cooperation intensity scale, the confrontation of the issue, where the issue is acknowledged but there is no specific joint action or identification or sharing of goals by the riparians.

ii) Ad-Hoc Joint Action: When there is joint action but no shared goals on the given issue area, it is considered as ad hoc joint action between the riparians.

iii) Common Goal Formation: When there are shared goals and no joint action is taken, such an interaction is considered as common goal formation; the difference in these two intensities of cooperation being is how actors shape their goals. In the case of ad hoc interaction, the two actors just so happen to be acting together, but with different goals; but in the case of common goal formation, there may be shared goals on how to solve a specific water-related problem, but the action and policies may not necessarily be fully aligned.

iv) Common Norm Formation: Common norm formation happens when there is joint action and shared goals, in addition to the belief that the other actor will do as expected to execute the action, and the states do not commit to or undertake the unforeseen costs in the future when committing to such action.

v) Common Identity Formation: Common identity formation happens when such costs and risks are taken into account by the states, and is considered as the highest ideal form of cooperation in the TWINS cooperation intensity scale, as it is unlikely that states will assume costs/risks without evident reciprocation.

1.5 Analytical Framework: Comparative analysis of the Mekong and the Ganges

The analytical framework involves the comparative analysis of past Chinese and Indian behaviour and engagement on regional transboundary rivers, the Mekong and the Ganges. This analytical framework helps inform the Yarlung-Tsangpo-Brahmaputra case study, as there is no ready reference of past Sino-Indian formal and institutionalized negotiations on shared transboundary rivers. The Mekong and the Ganges are examples where both China and India have been involved separately, and they provide a regional reference. The relevant secondary literature on Chinese riparian interaction on the Mekong with the Mekong River Commission or the Lower Mekong countries of Laos, Thailand, Cambodia and Vietnam and on Indian riparian interaction on the Ganges with Bangladesh have been analyzed and then compared.

The primary literature surveyed for the Mekong and Ganges case studies are:

- Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, 5 April 1995, Mekong River Commission.
- MRC Hua Hin Declaration, 'Meeting the Needs, Keeping the Balance: Towards Sustainable Development of the Mekong River Basin', 5 April 2010, Mekong River Commission.
- Sanya Declaration of the First Lancang-Mekong Cooperation (LMC) Leader's Meeting, 'For a Community of Shared Future of Peace and Prosperity among Lancang-Mekong Countries', 23 March 2016, Ministry of Foreign Affairs, People's Republic of China.
- China and Vietnam sign Land Border Treaty, 15 November 2000, Ministry of Foreign Affairs, People's Republic of China.

- Joint Statement on all-round cooperation in the new century between the People's Republic of China and the Socialist Republic of Vietnam, Ministry of Foreign Affairs, People's Republic of China.
- Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganga/Ganges waters at Farakka, 12 December 1996.
- Land Boundary Agreement between Bangladesh and India, the 2011 Protocol to the 1974 LBA, and its ratification by India in 2015, Ministry of External Affairs, Government of India.

1.6 Research Gaps

This thesis focuses on the bilateral interaction between China and India on its shared transboundary rivers, particularly on the Yarlung Tsangpo-Brahmaputra river system, using the Transboundary Waters Interaction Nexus (TWINS) approach (Mirumachi 2007). This approach and frame of reference helps explain the trajectory of bilateral interactions between China and India on transboundary water sharing, unpack the interaction dynamics, linkages and the interplay of the drivers of conflict and cooperation in such an interaction. This thesis fills an important research gap as such analysis based on the TWINS approach has not been done earlier on the given Sino-Indian case study, thereby marking its relevance. The Sino-Indian case study on the Yarlung Tsangpo-Brahmaputra river system, offers an interesting analysis of riparian behaviour involving a democratic regime (India) and an authoritarian regime (China), both being developing countries and also engines of Asian regional economic growth.

1.7 Research Problem(s)/Question(s) and Research Hypotheses

The specific research problems/questions that this research thesis aims to answer are:

Research Problem/Question

What are the factors affecting transboundary water understanding and management between China and India, in context of the Yarlung Tsangpo and the Brahmaputra?

Research Problem/Question

How does the absence of a formal and legal bilateral treaty arrangement between China and India on transboundary water sharing and management affect bilateral relations, creating an atmosphere of mutual distrust and apprehensions of future water conflicts?

Corresponding Hypothesis

The lack of bilateral institutionalized mechanisms on transboundary water sharing and management between China and India, and lack of effective information channels on respective river dam/diversion infrastructure projects is leading to riparian contestations.

Research Problem/Question

How does the unresolved territorial/boundary dispute between China and India, especially in the eastern sector affect/influence cooperation on transboundary water cooperation, management and understanding on the Yarlung Tsangpo-Brahmaputra case?

Corresponding Hypotheses

The unresolved territorial/boundary dispute between China and India has spillover effects on the aspect of negotiating a transboundary water sharing and management treaty. The transboundary water sharing and management issues between China and India, if understood well, directed towards co-riparian benefit, can in turn have spillover effects in providing a thaw in bilateral territorial/boundary disputes, thereby ensuring mutual trust.

Research Problem/Question

What indicators do the past negotiating behaviour of China and India respectively on transboundary water sharing and management with other countries provide for the Yarlung Tsangpo-Brahmaputra case?

Corresponding Hypotheses

The past negotiating behaviour of China with the Mekong River Commission countries over transboundary water sharing and management issues of the Mekong provides a reference for China's negotiating behaviour on the Yarlung Tsangpo-Brahmaputra case.

The past negotiating behaviour of India with Bangladesh over transboundary water sharing and management issues of the Ganges provides a reference for India's negotiating behaviour, on the Yarlung Tsangpo-Brahmaputra case.

The indicators provided by the past negotiating behaviour of China and India respectively outlines the regional precedent of transboundary water sharing and management.

1.8 Expected Research Outcomes

The major outcomes expected of this research study are:

- To identify the core factors affecting transboundary water understanding and management between China and India in the Yarlung Tsangpo- Brahmaputra.
- To demonstrate evidence that the unresolved geopolitical contestation over territory between China and India is a factor in overall Sino-Indian bilateral relations, and provide indicators on the direct issue linkages between the territorial question and the transboundary waters sharing question on the Yarlung Tsangpo-Brahmaputra.
- To provide indicators for riparian engagement and behaviour towards establishing a formal/legal treaty framework on transboundary water sharing and management on the Yarlung Tsangpo-Brahmaputra, based on past Chinese and Indian riparian engagement and behaviour on the Mekong and the Ganges respectively.
- To analyze the riparian engagement and behaviour of China and India on regional rivers, and its respective tendency/intent towards bilateralism and multilateralism.

1.9 Thesis Chapterization

The thesis comprises seven chapters. The first two chapters are based on the literature review done for the research study. The third chapter contains the research methodology and the analytical framework of the research study. The fourth and the fifth chapters contain the analysis of the research questions based on the TWINS framework. The sixth chapter contains the analysis of the research question based on the comparative case study method. The seventh chapter concludes the research work with the findings and

policy recommendations and directions for future research. The seven thesis chapters are:

Chapter 1: ***Introduction***

This chapter introduces the topic of the study and present an overview of the issues in question in a holistic manner, thereby setting the tone for the research work. The research questions and hypotheses is detailed, the gaps in the literature, and discuss the scope and relevance of the research study for transboundary riparian cooperation.

Chapter 2: ***Transboundary water issues in International Relations***

This chapter outlines the general nature of transboundary water issues in international relations; provide case studies of conflict and cooperation over water in the world, enunciating in context the core international relations theories. This chapter discusses the TWINS model and a comparative Mekong-Ganges research analysis framework.

Chapter 3: ***Research Methodology and Analytical Framework***

This chapter outlines the research methodology and analytical framework of the research thesis in detail. The literature review done in the earlier two chapters on conflict and cooperation in transboundary rivers and international relations theories are summed up in the context of how it answers the research questions of the thesis.

Chapter 4: ***Analyzing Sino-Indian transboundary water sharing of the Yarlung Tsangpo-Brahmaputra River: Outlining the Hydrocracies and the Speech Acts***

This chapter discusses the hydrocracies and the speech acts between China and India, in their transboundary water interactions. It sets the context of the study site, and the context in which the hydrocracies and speech acts are used in the TWINS analysis.

Chapter 5: ***Analyzing Sino-Indian transboundary water sharing of the Yarlung Tsangpo-Brahmaputra River: A TWINS Approach Case Study***

This chapter underlines the issues of transboundary water sharing between China and India, the level of bilateral relations in such terms, and the reasons for aspersions of conflict between the two countries in the future, and the possible avenues of cooperation. The TWINS model research analysis forms the basis of this chapter.

Chapter 6: ***A Comparative Case Study Analysis of Chinese riparian behaviour on the Mekong and Indian riparian behaviour on the Ganges***

This chapter analyzes two case studies in a comparative framework, one the Chinese negotiations on sharing of the waters of the Mekong with the MRC countries, and India's negotiations with Bangladesh on sharing of the waters of the Ganges. The comparative analysis helps explain both China and India's behaviour on shared rivers.

Chapter 7: *Conclusion*

This chapter summarizes the major findings of the earlier chapters. This chapter concludes the thesis by discussing the spillover effects of the water issues on larger territoriality questions between China and India and the future geopolitics of the region, and the linkage between ecology and Sino-Indian economic cooperation.

The Sino-Indian political posturing on rivers in the region is discussed. The research thesis provides policy recommendations on the Sino-Indian transboundary riparian engagement on the Yarlung Tsangpo-Brahmaputra river basin. This chapter provides directions in future research in this context, in order to build upon the current analysis. This underlines the emphasis on cooperation instead of conflict in the Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra, and furthers applicability of the thesis' core findings to other shared transboundary river basins across the world.

Chapter 2

Transboundary Waters in International Relations

This chapter begins by discussing the engagement of International Relations as a discipline with the field of transboundary waters and its management between nation-states of the international system. The core concepts and theories of International Relations are discussed in the context of their applicability to transboundary waters and riparian engagement between nation-states. The principles of state sovereignty, territorial borders, the understanding of conflict and cooperation in the context of disciplinary engagement of International Relations with transboundary waters are discussed in sections 2.2 and 2.3 respectively. Subsequently, the realist, the liberal institutionalist and the constructivist perspectives on transboundary waters are discussed in sections 2.4, 2.5 and 2.6 respectively. The bilateralism versus multilateralism debate in the conduct of international relations in transboundary waters is discussed in section 2.7, and the layered and plural nature of transboundary waters interactions is discussed in section 2.8.

2.1 International Relations and its interaction with Transboundary Waters

The discipline of International Relations, which is concerned with the interactions and exchanges between nation-states, has oscillated in its engagement with transboundary waters. The terms of such engagement has been dependent on how the modern nation state system has essentially distinguished between high politics and low politics. In classical International Relations terminology, high politics refers to issues critical to the survival of the nation-state, often military in nature, and correspond to what are considered to be 'traditional' security issues (Buzan 1991). The low politics refers to non-military issues relating to daily human survival and livelihood and are termed as

'non-traditional' security issues, which do not directly pose a threat to the survival of the nation-state (ibid). The discursive power and material capability of nation-states to utilize and control transboundary waters makes for a mix of low politics and high politics, having securitization fears and opportunitization possibilities (Mirumachi 2015).

The United Nations (UN) Human Development Report (1994) brought into focus the need of the state to move beyond traditional security and military based approaches, to an understanding of security, which is based on sustainable development. A narrow territorial and military based security approach was gradually replaced by an approach seeking to build consensus on important human security elements of environment, food, water, economic and social growth. This prepared the stage for the discipline of International Relations to engage with the non-traditional security issues, which included environment, climate change and water issues. At the very basic level, since rivers are transboundary in nature, often traversing more than two countries, the disciplinary boundaries of International Relations cannot remain closed to understanding the bilateral and multilateral political interactions over transboundary river basins. The attention of nation-states and the international system as a whole has involved transboundary waters.

The UN Human Development Report of 1994 was brought out in the backdrop of economic liberalization and political globalization, which had changed the terms of engagement in international relations. This larger shift in attention to non-traditional security issues was marked by the changes brought about in the state security literature, which linked the survival of the state beyond military centric control strategies, primarily by the works of Buzan (1991) and Waever (1995). Confronting non-traditional security aspects such as environmental, epidemiological and economic threats had become a

major activity of the nation state system, after the end of the Cold War (Buzan et al. 1998). The employment of the 'security' language provided for effective ways to manage new issues, and the securitization opens up avenues for direct and successful resolution of threats, bring about collective pursuit of common interests, making the nation-state take cognizance of non-traditional threats (Buzan et al. 1998, Gehring 1996).

The transnational nature of non-traditional security issues, and essentially following from that transnational premise, the transboundary nature of water issues between two or more countries have been in the attention span of nation-states in the international realm. Ikenberry and Moravcsik (2004) point out that the discipline of international relations does study such 'alternative' areas and politics, which are considered non-traditional in the 'narrow' security studies conversations. However, it remains unclear if the semantic distinction between traditional and non-traditional security issues and the contours of what the security studies discipline within international relations should study, has been embedded in real concepts and theories (ibid). There seems to be a sense of fuzzy back and forth of 'issue linkages', which means the simultaneous discussion of two or more issues for joint settlement, which increases the possibility of cooperation through negotiated agreements, and induces the commitment of the actors involved (Poast 2013).

Warner and Zeitoun (2008) argue that international relations theory and water do mix and point out towards what they call reverberating messages in the world water community that politics matter in water issues. They contend further that one cannot understand water issues in any river basin unless they understand the politics involving the nation-states in that particular river basin, and this makes for a situational context for every set of nations and every river basin concerned. Warner and Zeitoun (2008) point

out that the few studies conducted on international water relations have been written by geographers, civil engineers and experts of law, paying cursory attention to established international relations theory or political science frameworks. They blame the supposedly multi-disciplinary field of international relations for its poor image, describing it as being 'on an island' on water issues, the reason behind the limited impact of international relations on the transboundary water interactions between nation-states.

We can see that the 'low politics' of transboundary water interactions have been securitized and politicized after the end of the Cold War, and therefore there is a need for a systematic and theoretical application of international relations theories to such issues, and having an essentially cross-disciplinary approach to be able to explain conditions of conflict and cooperation. The lens of analysis through the nation-state centric approach (Buzan 1991), the institutionalist approach (Ayoob 1997) and the individual (Booth 1999) to security issues in the modern international system, makes for a focused understanding by the discipline of international relations. The basic argument of Buzan (1991) is to broaden the security agenda of the nation-state and the international system and include political, economic, societal, ecological issues apart from the traditional military security. This broadening of the security agenda aids the study of transboundary water interactions in a mix of political, socio-economic and ecological security frames.

2.2 State Sovereignty, Territorial Borders and Transboundary Waters

The world that we live in modern times is compartmentalized into states and regions, and territorial borders are the defining characteristics of such compartmentalization (Newman 2010). Political map-making in the modern nation-state system, depict nation-states as confined to fixed drawn lines of territory, to such an extent that they seem to be

'natural' formations (Anderson 1995). Nation-states have been described as 'bordered power containers' (Giddens 1985), lending context to territorial border fixities. Sovereignty is the supreme power or authority of a nation-state to govern itself within its fixed territorial borders. The primary base from which we discuss transboundary waters in the context of international relations is the modern nation-state system, and its characteristics of state sovereignty and fixed territorial borders. It is pertinent to examine the location and flows of transboundary waters in the context of territorial sovereignty and the geopolitical reality of contemporary international relations between nation-states.

The notion of 'natural' formations of territorial and political markers of nation-states (Anderson 1995) is in direct contestation with natural geographical features such as mountains, valleys, plains and rivers, depicting the physical map of the world. Transboundary rivers aptly demonstrate its inherent nature of 'flows' in the face of such 'fixed' notions of territorial sovereignty of the modern nation-state, which flows from one country to the other, and in many instances traversing more than two countries. The nation-state is often described as a container in terms of territoriality (Taylor 1994), and it is this very container concept that is challenged by the geopolitical realities and dynamics of transboundary waters. Some transboundary rivers cross multiple nation-state borders (Nile, Brahmaputra, Mekong), while some form boundaries between nation-states (the Mekong in the case of Laos and Thailand, the Ganges in the case of India and Bangladesh for a smaller part before it enters Bangladesh to form the Padma).

After the end of the Cold War in the early 1990s, the emergence of globalization processes and its challenge to territorial sovereignty of nation-states in the world has been the pivot of international relations as a discipline (Laine 2016). Over time, the

practice of geopolitics has been closely associated with the territorialization of political space, building and performing states as definitive bounded territories, constructing domestic order through different methods of government, constituting the 'international' as the 'inter-state' (Moisio and Paasi 2016). This concept of geopolitics fits into the 'inter-state' domain of interactions in the politics of water among nation-states, as put forward by Mollinga (2008), in his four-fold classification, which includes the everyday politics of water resources management, the politics of water policy in the context of sovereign states and the global politics of water. Sovereignty of nation-states complicates the politics of access and the management of transboundary waters (Alam et al. 2009).

The nation-state attempts to exert control over transboundary waters through physical and institutional infrastructure in the backdrop of territorial exclusivity and political boundaries, yet the vulnerabilities and interdependence of transboundary water utilization are not merely political in nature, but ecological as well (Alam et al. 2009). Transboundary waters are characterized by surface flows and groundwater flows between two or more nation-states, and this inextricably links the concept of territory to transboundary waters in the modern world of politics between nation-states. What constitutes the edge of one particular nation-state, and where does the edge start of the other nation-state are determined in territorial terms by borderlines which are highlighted by physical geographical attributes and features such as hills, valleys and rivers. The determination of such edges in the case of transboundary waters, physicality determined by flows rather than fixity, is a major geopolitical challenge confronting nation-states.

2.3 Conflict, Cooperation and Transboundary Waters in International Relations

The incidence of conflict and cooperation among sovereign nation-states in international relations based under conditions of anarchy and inadequate communication, have underpinned the nature of interaction in the international system in contemporary history. Conflict or conditions of competition is described as goal-seeking behaviour that strives to reduce the gains available to others or impede their want-satisfaction (Milner 1992). Cooperation, on the contrary, is described as conditions when actors adjust their behaviour to the actual or the anticipated preferences of others. Cooperation can occur through a process of policy coordination on a given issue area, and/or on the basis of pre-existing complementary interests among nation-states involved (Keohane 1984). The determining common factor in both conflict and cooperation that we can infer from the above two definitions given by Milner (1992) and Keohane (1984) is actor-specific behaviour and actions taken by the actors to achieve specific goals vis-à-vis other actors.

The three core schools of thought in international relations - the realists, the liberal institutionalists and the constructivists - have theorizations on conflict and cooperation, and how both conflict and cooperation play out in interactions between nation-states in the international system. The realists concentrate on hard military power and explain why cooperation is very difficult and complicated to achieve among nation-states (Mearsheimer 1995). The liberal institutionalists believe in the power of institutions through strategies to control conditions of conflict and achieve cooperation under anarchy (Keohane and Martin 1995, Axelrod and Keohane 1993). The constructivists describe anarchy or conditions of conflict as what nation-states make of it and that power politics as being socially constructed, determining conflict and cooperation conditions

(Wendt 1992, Checkel 1998, Hopf 1998). The basic arguments of these three schools of international relations on the interplay of conflict and cooperation are discussed below.

The realists forward the premise of the security dilemma, which explains how nation-states perceive conflict and cooperation under conditions of anarchy (Jervis 1978). It describes the obstacles nation-states face in achieving peace and cooperation (Acharya and Ramsay 2013). Securitization refers to the process which removes a given political issue area from the bounds of normal political procedure and academic deliberation, by portraying it as a special kind of politics or 'above politics' (Buzan et al. 1998). Securitization allows for 'low politics' to climb up in the level of importance to 'high politics' in the nation-states' formulation of responses. The realists argue that in a context of uncertainty and bounded rationality, perceived external threats (real or imagined) generate feelings of insecurity, particularly in those nation-states, which are the target of such threats. Such nation-states adopt measures to increase their power and capability to counteract insecurity by alliance creation and arms build-up (Collins 1996).

The liberal institutionalists emphasize on rules, and the development of norms, regimes and institutions, which ultimately define and shape the power structures of the international system and the political bargaining which takes place within it (Keohane 1984). The state is the key actor in the liberal institutionalist worldview, but by not emphasizing alone on the state, it focuses on the increasing interdependence between the state and the non-state actors. The liberal institutionalists emphasize that 'international behaviour is institutionalized' (Ruggie 1975), and is characterized by regimes, which are 'implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area of international relations' (Krasner

1983). The constructions of regimes aid institutionalization, are examples of cooperative behaviour and facilitate cooperation between nation-states, by addressing uncertainty brought about by the inherent characteristic of anarchy of the international system (ibid).

The constructivists make a critical assessment of the conditions of conflict and cooperation, the state and other non-state actors attaching specific meanings to existing anarchy, and the multiplicity of meanings of anarchy (Hopf 1998). An example of the specific meaning attached to anarchy by the constructivist school is the Third World theory, where the notion of conflict and cooperation and subsequently the security dilemma for the Third World developing and underdeveloped countries is differentiated in meanings attached from that of the First World developed countries. Given that security priorities of Third World countries are not just focused on military dimensions, but more on food, health and economic security, the challenges to cooperation come from internal than external constraints (Ayoob 1991). The contextual framing of the Third World nation-states' understanding of anarchy and its responses to conditions conflict and cooperation leads to critical and layered analysis of their development goals.

The realists being the dominant school of thought in international relations; and the liberal institutionalists' ability to pose a strong counter-narrative to the realist assumptions of conflict and cooperation; and the constructivists' focus on specific meanings to specific contexts, all these approaches are important towards understanding the conditions/dynamics of conflict and cooperation in the international system. There are evidences of conditions of conflict and attempts towards achieving cooperation between nation-states, manifested in the two great World Wars of the twentieth century, which has shaped world politics today. The dynamics of interplay of conflict and

cooperation between nations basically defines the content of international relations. The understanding of specific events and conditions in this conflict-cooperation backdrop is necessary; emphasizing that this can happen iteratively and can co-exist, explained later in the TWINS framework of understanding conflict and cooperation (Mirumachi 2015).

The above discussion of the broad parameters of conditions of conflict and cooperation among nation-states in international relations under conditions of anarchy and inadequate information channels which may accompany conditions of anarchy, sets the tone for applying it to the transboundary waters scenario. The relations/interaction between any two or more countries in the anarchic international system can either be bilateral (involving two countries alone) or multilateral (involving more than two countries). The next section discusses the bilateralism-multilateralism context in transboundary waters. It is pertinent to examine the relationship of international relations theory and water scholarship on transboundary rivers and sharing, encompassing the realist, liberal institutionalist and constructivist discourses and perspectives. This will ensure a holistic understanding of riparian contexts and the contextualization of responses by nation-states to conditions of conflict and cooperation, specific to the issues of transboundary waters.

2.4 Conflict and Cooperation in Transboundary Waters: Realist Perspectives

The concept of hegemony in international relations, as espoused by Antonio Gramsci, means political leadership based on the consent of the led, a consent which is secured by the diffusion and popularization of the world view of the ruling class (Bates 1975). When we talk about hegemony in the context of exercise of power, emanating from its basic premise that ‘man is not ruled by force alone, but also by ideas’ (ibid), we obtain a layered understanding of how hegemony operates among nation-states. Power, as

defined by Dahl (1957), is a particular actor's (nation-state) capacity to make the other actor (another nation-state) to do something, which the other actor would otherwise not do. The strategies and methods through which such power and the capacity to use power is acquired by hegemon and the layered nature of the actual manifestations of power, allows the hegemon to influence the rules of the game (Zeitoun and Warner 2006). The concept of hegemony in the context of transboundary water relations is discussed below.

Zeitoun and Warner (2006) introduce an approach called the framework of 'hydro-hegemony', which they say is their shorthand for hegemonic power active in transboundary water relations and affairs, exercised by a variety of means, from material to normative. This will help in unearthing several nuances of relations over water issues, particularly in international transboundary settings, and hence needs to be employed by researchers engaged in this field. The concept of hydro-hegemony, as defined by Zeitoun and Warner (2006), is hegemony at the river-basin level, achieved by the hegemonic riparian nation-state in a particular river basin, through water resource control strategies such as resource capture, integration and containment. The tactics through which such water control strategies are executed, for example employing hard power strategies such as coercion-pressure in the realist perspective, are further enabled by the exploitation of the existing power asymmetries within a weak international institutional context (ibid).

Warner and Zeitoun (2008) in their analysis of Kathryn Furlong's concern with power relationships, which says that interaction over water issues set within a context of structural power asymmetry is qualifiedly and substantially different than when the playing field is more level; applauds Furlong for suggesting that the body of international relations and the transboundary water literature tends to suffer from a mis-

theorization of hegemonic structures. For the purposes of this research, the discussion on power by Zeitoun and Warner (2006) is drawn upon, which differentiates between coercive power (military, economic, modes of production, access to knowledge and technology), bargaining power (controlling the rules of the game by offering no choices regarding compliance and non-compliance), and ideational power (employing ideology and persuasion to achieve willing compliance). Power asymmetry is determined by the presence and absence of the forms of power in the relations between nation-states (ibid).

The realist understanding of conflict and cooperation in transboundary rivers emanates from the hydro-hegemony framework which highlights how conflict, even if it is not open and visible, can be structurally present between riparians (Zeitoun and Warner 2006). The range of relationships between riparians sharing a particular river basin is determined by the hegemonic abilities, intent and strategies of the individual or a group of co-riparians, and by the effect of the ensuing power relations within the river basin. There have been predictions of violent military conflicts between nation-states over environmental issues such as transboundary waters, offered under the discourse of 'water wars' (Starr and Stoll 1998, Ohlsson 1995, Chellaney 2012). Highly dramatized terms such as 'water wars', 'water scarcity' and 'water crises' have characterized the dominant debate on transboundary waters, its sharing and management between nation-states, and the perceptions of possible future conflicts over transboundary water issues in the world.

The characteristics that make transboundary water resources likely to be a source of strategic rivalry among nation-states are, firstly the degree of scarcity, secondly the extent to which the water supply is shared by more than one region or state, thirdly the relative power of the basin states, and lastly the ease of access to alternative fresh water

sources (Gleick 1993). In certain parts of the world, such as the Middle East and southern and Central Asia, water is gradually being seen as a scarce resource, that has become increasingly important for economic and agricultural development. Water is an issue of "high politics" in these regions, and hence the probability of water-related violence and conflict is increasing (Gleick 1993), and hydro-hegemonic configurations dominate the security discourse of transboundary waters and rivers, particularly in the Euphrates, Nile, Jordan and Tigris river basins (Zeitoun and Warner 2006).

The basic premise of realism that nation-states are rational actors and the high prominence that they accord to military force as an instrument to enforce power and secure national interests, towards their survival within an anarchical international system, depends on how nation-states engage in the act of agenda setting (Waltz 1979, Waever 2009). The act of agenda setting largely depends on how a particular nation-state exercises the power at its disposal; balances power within the international or regional system, towards asserting its hegemony, and in cases of transboundary river basins, the dynamics of hydro-hegemony. The presence of a hydro-hegemon in a particular river basin is seen as bringing a sense of stability to the affairs of managing the river basin resonating with the hegemonic stability theory of international relations, which explains that enforcing international order requires a hegemon (Kindleberger 1981, Gilpin 1983). The hegemon must be prepared to take the costs of enforcing international order (ibid).

The realist paradigm of international relations is characterized by the prevalent anarchic nature of the international system and the exchanges between nation-states, where they do not have sufficient information to predict the other's behaviour. This effectively stems from the lack of cooperative behaviour, which is exacerbated by the weak

international institutional context, thereby giving rise to aspersions of conflict and war. Hydro-hegemony at the basin level requires a regional hegemon, which determines asymmetrical power flows, however the power asymmetry between riparians does not necessarily lead to violent military conflict over water, but can create inequitable outcomes among upper-riparian and lower-riparian nation-states within the river basin (Hanasz 2014). The asymmetrical nature of relations between nation-states in a transboundary riparian relationship can take different structural forms of cooperation and conflict, based on the strategies of application of power and capabilities by the actors.

The asymmetrical structure of water conflict in the transboundary context, in classical game theory terms known as a 'rambo' situation, excludes the possibility of a cooperative solution, and the interaction or the payoff structure of the 'rambo' situation makes the advantaged upper riparian nation-state prefer to maintain the status quo, as opposed to seeking a compromise with the disadvantaged lower riparian nation-state (Haftendorn 2000). A rambo situation is one in which there is no possibility of a solution, and represents a situation having a single equilibrium outcome, satisfying only one actor and leaving the other actor aggrieved (Hasenclever et al. 1997). This situation together with hydro-hegemonic ambitions of riparians makes cooperation difficult, in the sense that only one actor may be in a cooperation mode, but the other actor does not reciprocate the same cooperative sentiment, and maintains the status quo by unilateral actions and strategies (Hasenclever et al. 1997, Haftendorn 2000, Hensengerth 2009).

The river systems of the Euphrates, the Nile and the Ganges are some examples which are characterized by a flow that, although plentiful in the upper basin, is drastically reduced in the lower basin because of the extensive use of the water resource among the

upper riparians; and as a result of this arrangement, the water resource needs of the lower riparian states are not being satisfactorily met (Haftendorn 2000). The geographical location of the upper-riparian nation-state/s in relation to the lower-riparian nation-state/s by itself embeds both to an asymmetrical system in the river basin, and the terms of natural geography in the context of sharing a transboundary river is something that one cannot escape. The positional entrapment in a particular river basin in this upper-riparian and lower riparian dyad brings to the table of riparian relations, an active interplay of power politics and hegemonic ambitions.

The realist perspective on transboundary waters has been criticized as being overtly state-centric and embedded in the Westphalian concept of nation-state sovereignty, underappreciating structural positive-sum outcomes, and overlooking the increasingly blurring relationship between state and non-state actors (Lopes 2012). The aspect of issue-linkages, which can modify the power asymmetry existing between riparian nations in a transboundary rivers context, is not taken into account fully by the realist literature on water. The range of possibilities in which the conditions within which any asymmetrical power imbalance and conflict is embedded can change the preference structure of the riparian nations sufficiently to lead to a cooperative solution, is demonstrated by the critique of the realist perspective on transboundary waters by the liberal institutionalists and constructivists.

2.5 Conflict and Cooperation in Transboundary Waters: Institutionalist Perspectives

The liberal institutionalists lay stress upon the importance of the role of global and regional institutions in explaining the contours and dynamics of international relations in

the world. This strand of theorization has been as a response to the realist understanding of international relations, and aims to build effective and robust international institutions and its ability to make nation-states cooperate by emphasizing on common goals in the international system, and the tenets of global and regional governance (Keohane and Nye 1977, Bull 1977). In the case of transboundary river basins, this effectively means that the common goals of riparian nations are emphasized to bring forward a basin wide governance regime, through effective institutionalization of riparian engagement and exchange, which leads to overall cooperation in the particular river basin. The institutions can range from basin-wide water governance bodies, such as River Basin Organizations (RBOs) and river based treaty frameworks between two or more riparians.

Wolf (2002) says that that the claims of a direct causal relationship between water scarcity and international insecurity or war are based on anecdotal and rather selective evidence. In the transboundary water literature, there has been a tendency to select case studies from the 'hottest' basins, for example between Israel, Jordan and Palestine over the River Jordan, between Turkey and Syria over the Euphrates River, Angola, Namibia and Botswana over the Okavango basin, Ethiopia and Egypt over the River Nile. While generalizing from such selective case studies is problematic, there has also been a tendency to exclude cooperative events from studies on the relationship between water scarcity and international relations (ibid). This makes the tests of causality incomplete, and therefore the counter-hypothesis, that water scarcity can also lead nation-states to cooperate, is totally ignored by the realists (ibid).

Sadoff and Grey (2002) explores the dynamics that drive the choice between conflict and cooperation, and puts forward a framework for examining the extent of potential benefits

that could underlie these choices, and broaden the range of perceived benefits. The framework presented by them categorizes four types of benefits from cooperation on international rivers, which are environmental, direct economic, political and indirect economic respectively. This framework helps us understand the various issue-linkages in the context of transboundary river basins, in the face of an increased number of actors in many river basins, especially in Asia, Africa and Europe. Sadoff and Grey (2002) emphasize that international rivers are interwoven with the world's geopolitical map, but map-making has ignored the significance of hydrology, and further explain their four-fold typology of cooperative rivers as follows.

Firstly, cooperation will enable better management of ecosystems, providing benefits to the river, underpinning all other benefits that can be derived, which they call the ecological river (Sadoff and Grey 2002). Secondly, efficient, cooperative management and development of shared rivers can yield major benefits from the river, in increased food and energy production, which they call the economic river (ibid). Thirdly, cooperation on an international river will reduce the costs because of the river, as tensions between the co-riparian states will always be present and will generate costs, which they call the political river (ibid). Fourthly, as international rivers can be catalytic agents, cooperation that yields benefits from the river and reduces costs because of the river can pave the way to greater cooperation between the co-riparians, even economic integration among nation-states, generating benefits beyond the river, which they call the catalytic river (ibid). This frame of reference makes for a multilayered analysis of rivers.

The range of possibilities towards designing cooperative structures and institutions to effectively manage transboundary river disputes in the liberal institutionalist framework,

depend on the strategy of issue-linkages, which involves trade-offs between riparian nations on economic, ecological, social and political benefits accruing from the transboundary river. Some strategies that have proved themselves as particularly effective include firstly, the improvement of information exchange and the promotion of confidence, secondly, the embedding of the conflict in a positive interactive complex, thirdly, the creation of package solutions by constructing linkage strategies and fourthly, the use of arbitration, mediation and intervention (Haftendorn 2000). The above strategies help nation-states in the transboundary riparian relationship effectively break out from the narrow one-dimensional conflict thinking.

Uitto and Duda (2002) argue that instead of being zones of conflict, shared water resources can provide a basis for cooperation and benefit sharing provided that threats to the international waters are recognized and collaborative structures are created; and ensuring political commitment that can result in institutional, policy and legal reforms in the countries concerned, towards sustainable development of transboundary waters. In the context of regime types influencing the outcome of any transboundary river negotiations, democracies have better chances of entering into water sharing agreements, invest in designing effective treaties and accords (Zawahri and Mitchell 2011, Tir and Stinnett 2011) and hydrological data sharing agreements with other democracies, than with non-democracies. This makes for a typology of political character of nation-states influencing the hydropolitics of a river basin.

The concept of soft power can be used to explain how relations between nation-states could be peaceful through the power of attraction without the need for a threat of actual violence in any form (Nye 1990), which is referred to in the transboundary water

relations as the ideational power (Zeitoun and Warner 2006). Warner, Zeitoun and Mirumachi (2014) contend that in an integrated transboundary water configuration, on one hand, interests between the dominant and subordinate riparians are harmonious and on the other hand, in a distributed power configuration, the riparian's interests are seen as being fundamentally at odds with each other. They point out that cooperation by the non-hegemonic actor, or its compliance with certain states of affairs, does not necessarily mean consensus. The successful framing by the stronger party, that is the hegemon, of the common good (soft power), however can result in power differences going uncontested and countries signing treaties that bring highly differential benefits (ibid).

The differential benefits of signing treaties that come from such institutionalized cooperation, forms an integral part of the critique of the liberal institutionalist perspective, which does not allow the weaker nation-states in the transboundary riparian relationship to escape the conditions of power asymmetry existing or imposed by the hydro-hegemon of that particular river basin. Such a treaty based framework of institutionalist cooperation, can be described as 'domination dressed up as cooperation', depending on the structural conditions of conflict and cooperation in the river basin (Selby 2003). This is evident from case studies such as the Israeli-Palestinian water relations, especially in the water sector of the contentious West Bank, where the structural political conflict ensures that the benefits from cooperation in the water sector are at best cosmetic and not tangible (ibid). The constructivist perspectives discussed in the next section offers a critique of both realists and liberal institutionalists perspectives.

2.6 Conflict and Cooperation in Transboundary Waters: Constructivist Perspectives

The critique of realist and liberal institutionalist perspectives on conflict and cooperation in transboundary waters comes from the constructivists, which explain riparian relations from the standpoint of the unique character of the transboundary river basin, given the basin's unique hydrology, geography, history, socio-economic characteristics and political dynamics; and changing identities of the actors (Wendt 1999, Mirumachi 2015). The constructivists point out that the prevailing anarchy in international relations is not a structural condition inherent in the system of states (Wendt 1992) and therefore context specific responses to anarchy are possible through the means of cooperation between nation-states. We cannot understand the choices made by nation-states sharing a transboundary river basin on water sharing and management issues, only on the assumption that anarchy and self-help requires it to behave in a certain manner. We have to situate nation-states' choices in the unique context of the transboundary river basin.

Reuss (2004) argues that successful negotiations to resolve international water conflicts need to be grounded in accurate, comprehensive history, and explains that the application of history to water issues and politics helps enlarge perceptions and supply necessary historical context, refine existing analyses and deepen understanding. This further helps address concerns of existing non-historical approaches focusing on the nature of the conflict rather than on the root problems, which are more descriptive than analytical, does not provide the underlying causes, be it political, economic, environmental, or a combination of problems. A historical referent and a shared history of a particular transboundary river basin binds the co-riparians in a unique relationship on the shared

river, and they are more likely to construct their strategic choices and interventions on the river basin, in context of such shared history.

A focus on mainstream neo-realist and neo-liberal literature in the transboundary water literature caricatures and limits the scope of international relations, and also overlooks important critical scholarship on hydropolitics and its engagement with international relations, and inhibits soul-searching discussions on imputed 'water consensus' among critical water academics (Warner and Zeitoun 2008). There are multiple meanings of anarchy and layers of understanding a particular transboundary river basin, and water sharing and managing water resources is 'what nation-states make of it', borrowing from Wendt (1992) seminal definition of 'anarchy is what nation-states make of it'. Constructivist perspectives emphasize the role of knowledge, norms and values, and the perspectives of epistemic communities, in shaping the strategies nation-states adopt on transboundary rivers.

Furlong (2006) says that the application of international relations theory on transboundary waters is implicit and hidden in nature and content within the 'territorial trap' of the nation-state; and offers a geographical critique to how such theories are applied. She argues that such approaches mis-theorize hegemony, be pessimistic on multilateral cooperation, assume conflict and cooperation exist along a progressive continuum, neglect the conflict and violence that nation-states inflict within their territorial container and depoliticize ecological conditions. Constructivist approaches such as critical geopolitics, political ecology and the social production of nature help identify the territorial trap and avoid it, give a fitting perspective on hegemony, theorize

ecological conditions and the social dynamics they reflect, and add complexity to conflict and cooperation by analyzing non-state actors as well (ibid).

2.7 Bilateralism-Multilateralism on Transboundary Waters in International Relations

Transboundary rivers, by its very nature of crossing territorial borders and political boundaries, are in the realm of international relations between two or more nation-states. Thereby, based on the international relations perspectives described above, the essential distinction of bilateralism and multilateralism as a method of engagement between riparian countries comes into play, often a mix of both, with bilateral outcomes coming from multilateral engagement on multilateral river basins. The post-World War II international relations scenario, has led to a multitude of multilateral institutions and synergies to offset critical global and regional challenges, prominent among them is the United Nations Organization. This has picked up momentum in the post-Cold War period, and is most visible in international financial and trade investment architecture. However, in the context of transboundary rivers, we see a mix of bilateral and multilateral methods and strategies in the management of transboundary water resources.

Ruggie (1992) brings out the essential distinction between bilateralism and multilateralism, where he points out that bilateralism differentiates international relations on a case-by-case basis, principally on a priori particularistic grounds or situational exigencies, whereas multilateralism implements generalized principles of international relations and its conduct. This essentially means that bilateralism gives adequate space to countries to design their responses to particular situations on the merits of the case in hand, and taking into account the linkages of other sectors in their bilateral engagements.

In the context of transboundary river basins, bilateralism helps formulate actor- and event-specific responses, as each river basin is unique in its physical and geographical resource base; and the political characteristics and strategic disposition of the riparian nation-states that share that particular river basin.

An umbrella multilateral arrangement will not be able to take into account these specific exigencies, and this explains why countries are averse to commit themselves to multilateral arrangements alone. Borrowing from Ruggie (1992), on a given issue area, such as transboundary river management, bilateralism is seen as a matter of choice, because it entails the range of customized options in the hands of the countries involved, based on the content of their overall bilateral relations. The expression of power as a strategic option in the hands of any nation-state is best preserved when bilateralism is retained, and at times taken with multilateralism (Singh 2011). The adoption of bilateralism as a strategy in international relations comes from a focus on the uniqueness of the context in which the co-riparian countries are engaged in, both in terms of overall political, economic, strategic and foreign policy interactions (Ruggie 1992). This can be applied in specific sectoral contexts of transboundary water issues between nation-states.

As an instrument of state policy, multilateralism seems to be employed to address a host of complex and problematic issues, actors and interactions. Bilateralism, on the other hand, remains the mainstay of emerging powers' newfound interest in multilateralism, and while outwardly expressing support for multilateralism, most states continue to work on a bilateral basis to support multilateral discussion, and have a fallback position, if multilateralism fails to deliver (Singh 2011). Power asymmetry between nation-states can play a significant role in the kind of treaty mechanism that is entered upon between

riparians. According to Crow and Singh (2000), powerful riparians prefer bilateral treaties in multilateral river basins because it allows them to impose a 'divide and rule' policy, and secure substantial relative gains in the river basin. We can therefore infer that since power asymmetry in a multilateral basin leads to bilateral treaties, it will require the prevalence of power parity in the multilateral river basin to enact multilateral treaties.

2.8 Towards a Layered Analysis of Transboundary Waters in International Relations

The discipline of international relations needs to engage more with other social science and technical disciplines to be able to explain conditions and dynamics of transboundary waters better (Warner and Zeitoun 2008, Mirumachi 2015). The transboundary waters context is an important subset of the larger bilateral or multilateral relations between nation-states in the international system. This makes the study of transboundary waters central to the study of world politics using international relations/political science frameworks (Gerlak and Grant 2009, Menga 2016). It is useful to engage the interdisciplinary nature of international relations and politics to understand the dynamics of transboundary rivers between countries, in a bilateral or a multilateral setting, though bilateralism is seen as common, and multilateralism is elusive. This helps unpack a host of linkages, making sense of the key drivers of conflict and cooperation in the shared river basins, frame the transnational connect in formulating joint responses and solutions.

A layered and plural understanding of the behaviour of nation-states in its engagement with transboundary waters is possible through a critical analysis based on elements of geography, politics, history and economics. The TWINS (Transboundary Waters Interaction Nexus) framework, developed by Mirumachi (2015), of understanding

interaction and behaviour of nation-states on transboundary rivers falls neatly into the constructivist domain of international relations, through a critique of the realist and liberal institutionalist standpoints (ibid). The plural perspectives in any transboundary river basin or a specific geographical region will come through a comparative method of analyzing case studies, connect narratives from other transboundary river basins in the region. The next chapter, which deals with the TWINS framework of understanding conflict and cooperation in transboundary waters will examine in detail the content of these methods, drawing from theories of international relations discussed in this chapter.

Chapter 3

Research Methodology and Analytical Framework

3.1 Transboundary Waters Interaction Nexus (TWINS) Framework: An Introduction

The conceptual development of the Transboundary Waters Interaction Nexus framework (Mirumachi 2007, Mirumachi and Allan 2007), hereinafter referred to as the TWINS framework, has its genesis in the basic questions of the interplay of governance in transboundary river basins and water resources, how governance can guide management of transboundary water resources between nation-states. The core questions of how do we understand dynamism in transboundary river basins and in sharing of water resources, and the scientific enquiry into the technical, political, social and economic contours of adaptation by the co-riparian nation-states in a particular river basin, lead to the concept of the TWINS framework. The essence is to bring about a plural perspective to politics and governance of transboundary waters, and its allocation among riparians as a political process (Allan and Mirumachi 2010).

The TWINS framework attempts to move the analysis of transboundary water resources interaction and governance between nation-states away from the dichotomy of conflict and cooperation witnessed in affairs of international relations and politics. This emanates from the basic premise that if conflict occurs over water, then that conflict is a result of failure of politics to negotiate a settlement over the shared use of the water, and that the idea that a war over water is without doubt a war over politics (Barnett 2000). The steady rise in constructivist theorizations and critical literature explaining international relations and politics after the end of the Cold War in the early 1990s, to analyze conflict and

cooperation as contingent to 'what states make of the anarchy in the international system' (Wendt 1992), became the conceptual development base of the TWINS framework (Benson et al. 2015).

The opening up of the conceptual space for examining constructivist threads and critical security studies, has allowed for a more engaged international relations approach to security, particularly water security in the transboundary context (Warner and Zeitoun 2008). This is evident in the development of formulations such as hydro-hegemony and its operationalization in transboundary river basins explaining strategic behaviour of co-riparian nation-states, and the consequent TWINS conceptual approach to examine co-existing conflict and cooperation. This provides new directions to researching the politics of 'water security', effectively moving away from the concepts of deliberate construction of scarcity which is instrumental in fostering resource conflict aspersions; while the illusion of 'plenty' in the transboundary river basin depoliticizes structural and environmental exploitation (ibid).

The absence of war does not mean the absence of conflict or the presence of 'peace', and similarly the existence of a treaty or some form of cooperation over transboundary water does not mean the absence of conflict (Zeitoun and Warner 2006). This is borrowed from the two fold concept of peace, where 'negative peace' means absence of violence but does not necessarily mean absence of conflict in structural terms, and 'positive peace' means the constructive resolution of conflict through restoration of relationships and the creation of social systems and institutions (Galtung 1996). The understanding of conflict and cooperation in linear terms make such conceptualizations inherently trapped in binary formulations and are reductionist in its treatment of reality and nature, and are

problematic as they ignore the complex reality of water resources management in a fundamental manner (Mollinga 2010).

The interplay of cooperation in international relations has to be assessed in a subjective manner, and nation-states may want to inhibit cooperation at times and want to enhance cooperation at other times, depending on how the nation-state views cooperation as good or bad from their strategic perspective (Axelrod 1984). In the context of hydropolitics, the nuanced nature of cooperation is highlighted by Frey (1993), who argues that cooperation is not necessarily positive at all times, so much as conflict is not necessarily negative at all times, either for the individual nation-states sharing the transboundary river basin or the social systems that depends on the river basin. Multiple views and values in water resource management can be contested by nation-states, innovative solutions facilitated by political discursive spaces through deliberative meanings of conflict and cooperation (Warner 2005).

Mirumachi (2015) argues that the understanding of politics of nation-states in transboundary river basins is directly related to conflict and cooperation of the actors in question, and are embedded in a dynamic process of riparian engagement, where questions of either conflict or cooperation and related binaries are trapped in epistemological problems and lack explanatory power of the range of transboundary water politics. The spatial scale of analyzing transboundary water interaction comes into effect through the domains of politics, as put forward by Mollinga (2008), which are at the levels of global politics, inter-state hydropolitics, politics of water policy and everyday politics, where nation states engage in decision making over water. This spatial

interaction process happens at the domestic context within the nation-states, at the basin level or regional level, and the international level (ibid).

The relative gains or the zero-sum outcome perspective of cooperation based overtly on security concerns (Dinar and Dinar 2000) under conditions of power asymmetry (Lowi 1993), as put forward by the realist strand of international relations thinking and theorization, exemplifies reality, rules and regulations in transboundary river basins as determined by powerful nation-states of the river basin (Mirumachi 2015). The liberal institutionalist strand of thinking of international relations offers a more persuasive explanation of hydropolitics than the realists, as evidenced by the many agreements entered upon by nation-states on transboundary rivers and water management (Dinar 2009). The level of cooperation in transboundary river basins in the world are a result of the emphasis on institutions and regimes, its creation and growth, which have been able to create incentives and achieve actor compliance (Mirumachi 2015).

Moving beyond realist and liberal institutionalists perspectives, Mirumachi (2015) argues that the constructivist perspectives help explain interaction dynamics in transboundary river basins, and therefore her TWINS analytical framework is based upon constructivist assumptions of social order and agency. The identity of a particular nation-state engaged in water resources management are established in relation and engagement with other nation-states sharing the river basin, are dynamic in nature and it cannot be assumed to be a given (Wendt 1999). The TWINS framework builds on these concepts of conflict and cooperation, and provides a layered understanding of how they occur simultaneously and goes beyond the framework of hydro-hegemony, broadens it

by offering plural and critical perspectives in today's era of globalization and complex interdependence (Zeitoun and Mirumachi 2008).

3.2 The TWINS framework: The Three Dimensional Conceptual Approach

The TWINS framework, as put forward by Mirumachi (2007) and Mirumachi and Allan (2007), involves examining the varying intensities of co-existing conflict and cooperation in a two-dimensional nexus between riparian nation-states over transboundary waters, and how power relations and power-determined contexts shape trajectories of such interaction. The two-dimensional conflict-cooperation nexus is further layered into taking into account a third dimension, the political economy dimension, which provides for a tool to analyze overall riparian relations in a regional or shared economic interaction order. The TWINS framework enables contextualized analyses, going beyond 'simplistic' analyses of river basins, illustrates the manner in which river basin management is framed by powerful elite decision-makers, combined with geopolitical factors and by geographical imaginations (Mirumachi 2015).

The TWINS framework takes into account the aspects of hegemonic stability theory (Kindleberger 1981, Gilpin 1983) between riparian nations, regimes (Krasner 1983) and the establishment of water governance institutions, and explains also how various intensities of power relations, including image and soft power (Nye 1990) are contextualized. The changes over time in intensity of conflict and cooperation, and the development of political economy determine successful water allocation regimes in bilateral and multilateral river basin contexts. The TWINS approach must essentially be understood as a two-stage framework, the first stage involving the two dimensional conflict-cooperation nexus, and the second stage involving the added political economy

dimension, making it a three-dimensional framework analyzing riparian behaviour on transboundary river basins (Mirumachi and Allan 2007).

Mirumachi (2015), while attempting to create the TWINS framework for the purposes of examining coexisting conflict and cooperation, underlines that transboundary water interactions inherently involve both conflict and cooperation, and this should examine the complex politics in which shared transboundary water resources are controlled, negotiated and governed by nation-states. The incidence and outcomes of conflict and cooperation can occur at the same time determining interdependence between nation-states (McMillan 1997), and in specific contextual terms, conflict can be witnessed within cooperative relationships, and cooperation can be seen in conflicting relationships (Vasquez 1995). Axelrod and Keohane (1985) argue that it is only in situations where we witness a mix of conflictive and complementary interests; nation-states can find cooperative spirit in international relations.

The TWINS framework employs an interdisciplinary approach, borrowing from Craig (1993), who defined conflict as a concept which is independent of cooperation and not always in opposite spectrums of understanding and application, where both can co-exist in various social settings. Conflict can induce sustain co-operative behaviour, and that terms such as 'bad conflict' and 'good cooperation' are value-laden normative assumptions, not helpful for the analysis of relationships. The stability or the lack of it in relationships is dependent on low conflict and high cooperation on one hand and high conflict and low cooperation on the other respectively (ibid). Mirumachi (2015) scales up the sociological conceptualizations on interpersonal relationships by Craig (1993) and

goes on to apply them to formal transboundary water interactions between nation-states in international relations.

3.3 The Four-by-Five TWINS Matrix of Conflict and Cooperation Intensities

The TWINS framework, originally constructed by Mirumachi (2007) and Mirumachi and Allan (2007), and revised by Mirumachi (2015) is operationalized by positing the various intensities of conflict and cooperation in transboundary water relations in a two-dimensional matrix. This matrix has been modified to suit the context of hydropolitics, and helps examine and understand the development and trajectory of transboundary river basin developments. The basic assumption of the TWINS framework is that transboundary river basin dynamics and water relations between nation-states are not static, but rather in a constant state of flux, and performs the dual role of influencing and getting influenced by the broader political context in international relations (ibid). The unique contribution of the TWINS framework is in its ability to explain the larger political dynamics in a particular transboundary river basin.

The TWINS framework and the matrix of conflict and cooperation intensity has been developed as a remedy to escape the trap of binaries in the analysis of transboundary water interactions, which was leading to oversimplification characterization of basins as being either in conflict or in terms of cooperation. A nuanced understanding of transboundary river interaction is possible by an examination and analysis of the changing nature of the degree of coexisting conflict and cooperation, and the underlying reasons for such change and dynamism (Mirumachi 2015). The figure below is of the two-dimensional four-by-five TWINS matrix of conflict and cooperation intensities, which is the basic tool of analysis used for the TWINS framework in its approach to

understand transboundary water interaction between nation-states, demonstrating dynamic co-existing conflict and cooperation patterns.

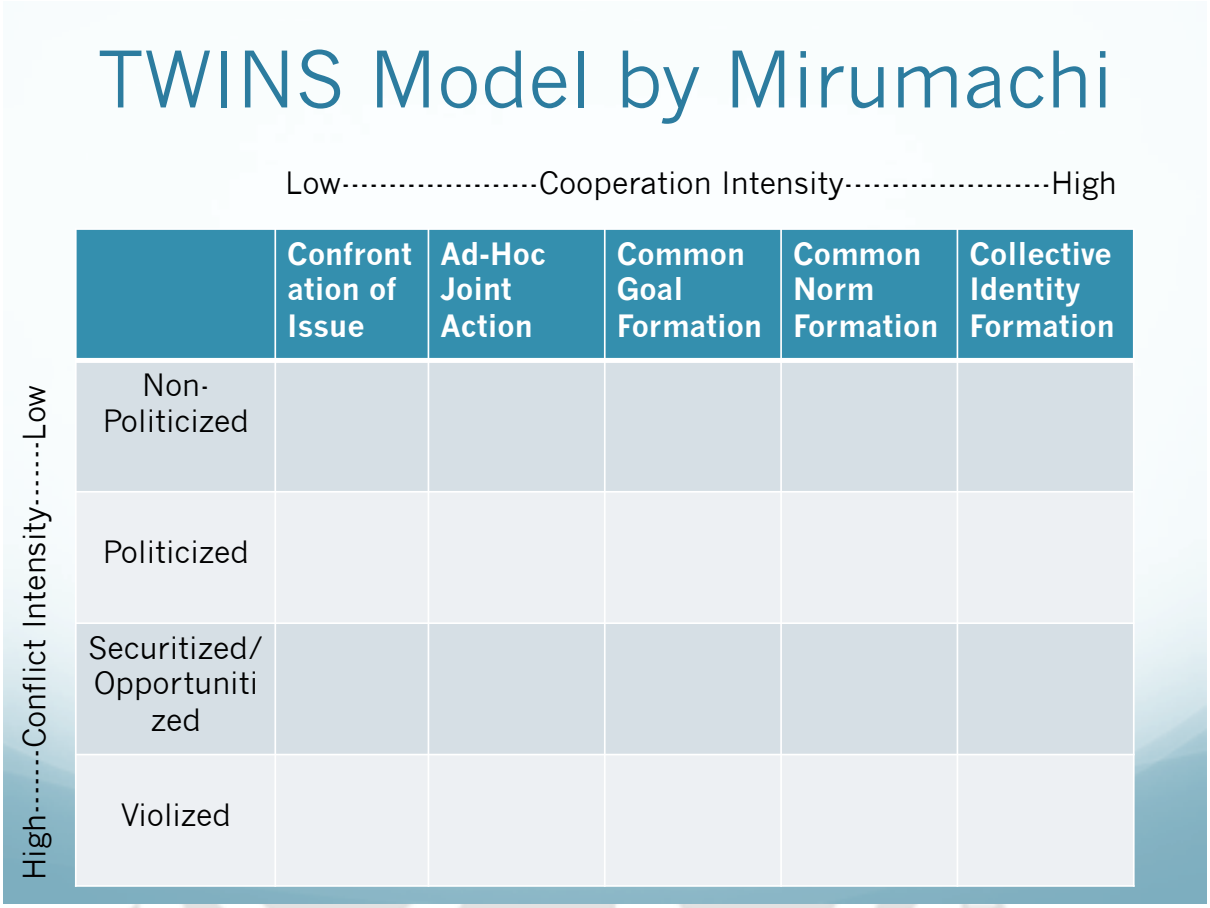

Figure 2: The four-by-five TWINS matrix developed by Mirumachi (2015).

3.3.1 The Conflict Intensity Scale of the TWINS Matrix

The conflict intensity scale of the TWINS matrix (Mirumachi 2007, Mirumachi and Allan 2007, Mirumachi 2015) was developed by drawing upon various earlier conceptualizations by Warner (2004) and Zeitoun (2007); whose work on conflict intensity in turn were clarifications on work on security by Buzan and others (1998) and Neumann (1998). Security is taken to be about the pursuit of freedom from threat and the ability of nation-states and societies to be able to maintain their independent identity and functional integrity against forces of change, which they see as hostile (Buzan 1991).

The bottom line of security is survival of the nation-state, but it also reasonably includes a substantial range of concerns about conditions of existence of the nation-state in the international system, which falls under the constructivist understanding of the concept of security in international relations (ibid).

Buzan's work looks at the concept of security in a broader and holistic framework, looking at security from all angles going from micro to macro, and addressing the social aspects of security, and how people, societies and countries construct or 'securitize' threats (Stone 2009). Mirumachi and Allan (2007) explain that the conflict intensity over transboundary waters increases as the perception of the issues by the nation-state changes; as issues become more of a threat to the nation-state, they are prioritized in the national agenda, and receives more attention and attracts allocations of various state resources, thereby securitizing it. They detail the four levels of conflict intensity employed in the TWINS framework, the non-politicized or non-politicization, politicized or politicization, securitized/opportunitized or securitization/opportunitization and violized or violization, which are discussed as follows:

i) Non-Politicized Issues: The issues that do not concern the nation-state, or issues that are not in the public domain and its attention, are called non-politicized issues.

ii) Politicized Issues: The issues once it gets a place in the political agenda are politicized issues, and they concern the nation-state and are in the public domain.

iii) Securitized/Opportunitized Issues: When the issue is an existential threat, requiring emergency measures and justifying actions by the nation-state outside the normal

bounds of political procedure, and when the security label is attached to the issue, the issue is securitized (Buzan et al. 1998). Warner (2004) contends that issues can also be opportunitized, when the issues offer such a chance to improve an existing situation that justifies actions outside the normal bounds of political procedure. Though Warner (2004) differentiates securitization and opportunitization, Zeitoun (2007) considers these two levels as opposite sides of the same coin; a securitized issue is a threat that justifies emergency actions, an opportunitized issue is an opportunity for improving an existing situation, requiring emergency actions.

iv) Violized Issue: At the most extreme, when violence is employed over the issue, the issue is considered as violized (Neumann 1998). Zeitoun (2007) had also used the term violated, in order to include a wider range of responses to any confrontational action, violence by other means, such as blocking a river by a riparian nation-state.

Mirumachi (2015) explains the scale of conflict intensity as reflective of the process which fosters the increasing prioritization of issues on political agendas, from a completely unattended level of attention to the extent that acute military action is taken to justify them, effectively using the securitization theory (Buzan et al. 1998) as the base of understanding. The Copenhagen school of thought is employed in the TWINS approach of understanding security due to the emphasis that it places on illustrating the social causes of threats and crises, where threats are discursively framed to reflect a sense of special politics (Mirumachi 2015). Waever (1995) pointed out that the mere utterance of security by a nation-state is the act of securitization, and the label of security is thus attached to the issue-area; invoking a sense of urgency, which cannot be dealt with by normal politics (Laustsen and Waever 2000).

3.3.2 The Cooperation Intensity Scale of the TWINS Matrix

Cooperation intensity among nation-states in transboundary water interactions is marked by a lack of proper conceptualization as compared to conflict intensity, and it stems from the understudied nature of cooperation in international relations theory (Mirumachi 2015). Gerlak and Grant (2009) point out that the mainstream international relations theories attached to the realist and liberal institutionalist strands is marked by an inability to fully explain the creation and functioning of cooperative institutional arrangements in transboundary river basins. This is seen as a weak zone in the disciplinary engagement of international relations theory with aspects of cooperative behaviour of nation-states. The definition and explanation of cooperation in the larger transboundary water interactions literature has been sketchy, yet there are some strands of work making initial headway (ibid).

The rational choice theory or game theory formulations on Prisoner's Dilemma, demonstrates that reciprocity is vital in such contexts, where nation-states may mutually win, mutually lose or unilaterally gain from individual and uncoordinated actions (Axelrod 1984). However, the basic assumptions of game theory are trapped in the binaries of conflict and cooperation, and analysis based on it is not able to grasp the simultaneous nature of such interactions (Mirumachi 2015). Riparian nation-states in a transboundary river basin share norms and ideas about water resources management and governance in an essentially reflexive process of cooperation (ibid). This moves beyond simplistic understandings of cooperation, which see institutions of water governance as proxies for cooperation (Marty 2001, Kistin 2012, Schmeier 2013); and by nature of problems negotiated between nation-states (Zawahri 2008).

The constructivist underpinnings of the TWINS framework of transboundary water interactions assume that nation-states can develop collective identities that bring about collective action or cooperative behaviour in shared transboundary river basins (Mirumachi 2015). For instance, cooperation or collective action between nation-states can be seen through the formation of collective identity through the internalization of norms such as collective security and the formation of collective institutions, at the global, regional or the basin level (Wendt 1999). This can subsequently lead to international interests becoming a part of national interests (ibid), and such processes of cooperation have a similar effect to that of securitization, in construction of specific social realities in transboundary water interaction between nation-states, making such cooperative behaviour contextual (Mirumachi 2015).

The cooperation intensity of the TWINS matrix is operationalized through the identification of norms and ideas and based on the intention for collective action and common goals between nations-states in a transboundary water interaction (Mirumachi 2015). Joint actions require coordination of behaviour between nation-states who strive for common goals based on mutual compatibility of goals, and the intention towards realization of at least some of these common goals can be understood as cooperation (Frey 1993). Tuomela (2000) goes beyond the requirement of joint actions, pointing out that collective action brings about dependence, which is intentionally and voluntarily formed, and is based on the mutual belief among nation-states in collective reasons based on common goals and practices. Cooperation is based on the nation-states' intent to collective action and mutual belief on common goals.

Mirumachi (2007) put forward five levels of cooperation intensity, which are identified by the existence or non-existence of four factors, which are common goals, joint action, intention of contributing to collective action, and the belief that the other actor will contribute to collective action. Mirumachi (2007) has drawn these four factors from the work of Tuomela (2000) on cooperation and action-dependence. These five levels of cooperation intensity are confrontation of the issue, ad-hoc interaction, technical cooperation, risk-averting cooperation and risk-taking cooperation (Mirumachi 2007). There have been some terminology modifications in the five levels of cooperation intensity by Mirumachi (2015), and both the terms used by Mirumachi (2007) and Mirumachi (2015) are used here, where she details the cooperation intensity scale of the TWINS framework, discussed as follows:

i) Confrontation of the Issue: This is the lowest level of the cooperation intensity scale, the confrontation of the issue, where the issue is acknowledged but there is no specific joint action or identification or sharing of goals by the riparians.

ii) Ad-Hoc Interaction or Ad-Hoc Joint Action: When there is joint action but no shared goals on the given issue area, it is considered as ad hoc interaction or ad-hoc joint action between the co-riparian nation-states sharing the transboundary river basin.

iii) Technical Cooperation or Common Goal Formation: When there are shared goals and no joint action is taken, such an interaction is considered as technical cooperation or common goal formation; the difference in these two intensities of cooperation being is how actors shape their goals. In the case of ad hoc interaction, the two actors just so happen to be acting together, but with different goals; but in the case of

technical cooperation, there may be shared goals on how to solve a specific water-related problem, but the action and policies of the actors may not necessarily be aligned.

iv) Risk-averting Cooperation or Common Norm Formation: Risk-averting cooperation or common norm formation happens when there is joint action and shared goals, in addition to the belief that the other actor will do as expected to execute the action, and the actors do not commit to or undertake the unforeseen costs in the future when committing to such action.

v) Risk-taking Cooperation or Collective Identity Formation: Risk-taking cooperation or collective identity formation happens when such costs and risks are taken into account by the states, and is considered as the highest and ideal form of cooperation in the TWINS cooperation intensity scale, as it is unlikely that the states will assume costs/risks without evident reciprocation.

3.4 The TWINS Framework: Key Analytical Concepts

The two key analytical concepts that Mirumachi (2015) puts forward in the operationalization of the TWINS matrix as a tool for situating the analysis of transboundary water interactions between nation-states are firstly the hydrocracy of a nation-state and secondly the speech acts of such elites comprising the hydrocracy of a nation-state. In a given sovereign nation-state, the bureaucratic agencies, such as ministries and departments responsible for agriculture, irrigation, water resources and energy, be it at the central level or the provincial level, depending on the type of the nation-state's political system, comprises the hydraulic bureaucracy or hydrocracy

(Wester 2008, cited in Mirumachi 2015). Speech acts are defined as verbal acts (Austin 1962, Searle 1969) as well as non-verbal acts (Frederking 2003), that helps create social facts, establish relations between nation-states and construct the rules of relationships (ibid).

The TWINS framework uses the analytical lens and concept of hydrocracy to focus on the elite decision-makers in influential positions within the nation-state who are responsible for water allocation and utilization actions in particular, and in a general manner, on transboundary river basins shared by the particular nation-state (Mirumachi 2015). The hydrocracy is described as a group of actors which are supported by politicians within a nation-state in order to influence and gain from river development projects (Molle et al. 2009). They are able to set the agenda of the nation-state through their technical expertise, which is facilitated by their ability to accumulate vast amounts of knowledge and information on river basins of their respective nation-state, and their access to national and international forums to deliberate and negotiate transboundary river water allocations (Mirumachi 2015).

While there are many other actors within and outside the nation-state which help frame water issues, such as donor agencies, international funding organizations, private businesses and contractors in the water resource management sector and local communities; the focus on the hydrocracy helps unpack the government machinery and avoids homogenization (Mirumachi 2015). The focus on agency of the elite decision-makers unravel the dynamics of how the nation-state enforces decisions and rally support on water resource management in the face of domestic or international criticism, and in turn reflect the machinations of the political economy of water allocation and use within

the nation-state or the transboundary river basin (ibid). The overall rationale and justifications of carrying out hydraulic interventions and changes by a nation-state in a transboundary river basin is explained by such agency focus.

In a transboundary river context, the management and governance of shared water resources are done through speech acts, which help the powerful nation-states in the transboundary river basin, socially construct structures (Mirumachi 2015). Speech acts leads to understanding the process of socialization, creating social order where the identities and interests of the nation-states change and develop through the employment and deployment of power (Wendt 1999, Klotz and Lynch 2007). Speech acts are assertive, for example public statements and declarations that signal reciprocal understanding between nation-states on an issue-area; directive, for example economic sanctions or military intimidation to secure compliance from other nation-state/s; and commissive, for example international agreements binding the nation-states to the content of such agreements (Duffy and Frederking 2009).

The speech acts are plotted in the TWINS matrix of conflict and cooperation as markers of the transboundary water interaction between nation-states, where conflict and cooperation intensities will increase or decrease depending on how such speech acts are perceived by the hydrocracy of the respective nation-states (Mirumachi 2015). A joint declaration on water quality improvement is an assertive speech act, unilaterally constructing hydraulic infrastructure or closing dam gates without consulting other riparian nation-states of the basin is an directive speech act, signing a bilateral or multilateral treaty on water sharing is a commissive speech act (ibid). The shared expectations about appropriate riparian behaviour held by nation-states or the

international system, on transboundary water interactions determine norms governing transboundary river basins (Finnemore 1996, Mirumachi 2015).

The process of socialization in transboundary river basins, when viewed through the lens of constructivist theory of international relations (Wendt 1999), requires the diffusion and adoption of such norms and ideas between nation-states sharing a transboundary river basin (Checkel 1999). Norms induce cooperative behaviour when they are collectively understood and adopted in policies (O'Neill et al. 2004). These norms are supported by ideas, known as public ideas, which help explain the nature of a social problem and the best possible manner to solve it (Ringius 2001). These norms and public ideas help inform the agenda, interests and policies of the nation-states sharing a transboundary river basin (ibid). Speech acts can be observed through a collection of documents, such as public declarations, legal documents, treaties and agreements, policy briefs, media reports, newspaper articles (Mirumachi 2015).

3.5 The TWINS Framework: The Political Economy Dimension

The third dimension of the TWINS framework, the political economy dimension, involves analyzing the drivers of conflict and drivers of cooperation, in order to measure the level of resource use by nation-states in a transboundary river basin context (Mirumachi and Allan 2007, Allan and Mirumachi 2010). This dimension shows how solutions outside the watershed such as industrialization and the diversification of economic engagement and activity by the nation-state collectively and fundamentally determine the levels of water resource exploitation and conservation in the transboundary river basin (Mirumachi 2015). Allan (2001) emphasizes that it is the nature of the 'problemshed' that the analysis of transboundary river basins and water

interactions should be concerned with, rather than basing such analysis by only concentrating on characteristics and dynamics of the watershed.

The drivers of conflict, as identified by Mirumachi and Allan (2007) are population growth, basin closure/water scarcity and environmental degradation; and the drivers of cooperation are the existence of or initiatives/actions taken by Basin Regimes, River Basin Organizations, International/National NGOs, International Law, Water Science and International Financial Institutions/World Bank, a mix of basin and third parties. The presence or absence of these drivers of conflict and drivers of cooperation in any transboundary river basin, determines riparian relations between the nation-states involved. The political economy dimension of the TWINS framework helps provide a layered understanding by highlighting the fact that coexisting conflict and cooperation is based on the political and economic interdependencies, structures and interlinkages with water, in a broader river basin context (Mirumachi 2015).

3.6 The TWINS framework: The operationalization of discursive power and capability

The speech acts, be it assertive, directive or commissive, are not normative in nature, and therefore require the deployment of power analysis, where power asymmetry determines the extent to which cooperation is achieved between nation-states, and the how, when and why of cooperative process (Zeitoun and Mirumachi 2008, Zeitoun et al. 2011). The concept of power asymmetry in context of transboundary river basins is based on three key factors, which are riparian position, power and exploitation potential; through which hydro-hegemons command control over transboundary river waters (Zeitoun and Warner 2006). The manner in which the hydrocracy or the elite decision-makers of a nation-

state sharing a transboundary river basin frame the water allocation process and to what ends and purposes is a critical marker of the analysis of power asymmetry in transboundary river basins (Mirumachi 2015).

Mirumachi and Allan (2007) explains how different trajectories of international relations demonstrates how power manifests in water allocation, development and management. These are expressed as coercive power, material power observed at higher levels of conflict; bargaining power, controlled choices on compliance and non-compliance observed at both low levels of conflict and low levels of cooperation; and ideational power (willing compliance observed at low levels of cooperation intensity). These faces of power, when posited in the TWINS framework, help define the interaction between nation-states sharing a transboundary river basin, in terms of power manifestations (ibid). For instance, hard military power expressed by a hydro-hegemon in the coercive domain is different from mixed power balancing in the bargaining domain and soft power manifestations in the ideational domain.

The analysis based on power in the TWINS framework helps explain why cooperation may not imply equitable outcomes for all the nation-states; the exclusionary processes of issues and nation-states from effects of cooperative mechanisms; and demonstrate the manner in which conflict can bring new issue-linkages to inform transboundary water interactions and negotiations (Mirumachi 2015). The Framework of Hydro-Hegemony developed by Zeitoun and Warner (2006) brings the factors of riparian position and exploitation potential to the TWINS framework of analysis, combining them to understand material capability, and its third factor of power is understood in its discursive framing, called discursive power (Mirumachi 2015). The manner is which

access, control over transboundary water resources between nation-states are contested, negotiated and agreed are analyzed by the above factors.

The technological expertise of the hydrocracy and its potential to extract water resources and access, modify and control the flow of the river, proximity to water resources, riparian position and access, and the level of maturity of the river basin's hydraulic vision and mission determine the aspects of material capability (Mirumachi 2015). The manner in which persuasion, deliberation and consent occurs over water allocation and utilization, through an expression of soft power to suit the interests of the nation-state determine the interplay of discursive power (ibid). Discursive power is employed through speech acts, which help constitute or change existing discourse coalitions or discourse dynamics, thereby aiding the reconfiguration of existing power relations (Stritzel 2007). Securitization, knowledge production, soft power, public ideas and norms shape discursive power (Mirumachi 2015).

3.7 The TWINS framework: A layered analysis of transboundary water interaction

The focus of the TWINS framework on the hydrocracy and the elite decision-makers of the nation state allows for the insertion of the spatial scale into the dynamics of transboundary water interaction, thereby providing a layered analysis at multiple scales (Mirumachi 2015). External factors such as donor initiatives in the transboundary river basin, and domestic factors such a pressure groups or domestic constituents, budgetary considerations, personal gain influence the decision-making of the hydrocracy (ibid); the focus on which enable a better insight into the linkages between the domain of national decision-making and the domain of hydropolitics (Mollinga 2008). The unpacking of the dynamics of the nation-state helps the discourse on hydropolitics to move away from the

lens of the nation-state, and brings in layered domains of understanding interactions on transboundary river basins (ibid).

The analysis of the spatial scale in the TWINS framework is informed by the discipline of political geography, emphasizing the importance of looking at the local level for the analysis of power relations instead of the basin level, in order to gain a better understanding of how water impinges on the security of basin states (Mustafa 2007). The discourse on water allocation and use at the national level is in turn is influenced by decisions at the international basin level (Mirumachi 2015), while the practice of the nation-state to coerce and gain consent transcends multiple spatial scales (Warner 2008). The socio-economic, political and ecological implications, the scalar implications at the local level must be factored in to understand the institutionalized cooperation mechanisms, and this moving beyond the nation-state lens comprises the research agenda of critical hydropolitics (Sneddon and Fox 2006).

Chapter 4

Analyzing Sino-Indian transboundary water sharing of the Yarlung Tsangpo-Brahmaputra River: Outlining the Hydrocracies and the Speech Acts

4.1 An Introduction and Description of the Study Site

The Yarlung Tsangpo-Brahmaputra river has a total length of 2,880 kilometres and is the 22nd longest river in the world (Sarma 2005: 72), its total drainage area is 5,73,394 square kilometres, and is shared by China, India, Bhutan and Bangladesh as basin countries (Sarma 2005: 73). The river is known as the Yarlung Tsangpo or the Yarlung Zangbo in China, the Brahmaputra in India and the Jamuna in Bangladesh. The Yarlung Tsangpo originates at an altitude of 5,150 metres about 250 kilometres to the northeast, in the Kailash range in Tibetan Autonomous Region of China, and also forms the longest and the deepest canyon in the world (Bandyopadhyay 1995: 417). This river is thought to be the highest river on earth with an average altitude of 4,000 metres (Liu 2001: 104). The Yarlung Tsangpo-Brahmaputra river has a discharge of about 700 BCM (billion cubic metres) annually (Salehin et al. 2011).

Five major tributaries join the Yarlung Tsangpo in China, which are the Xiong Zangbo river, the Nianchu river, the Lhasa river, the Niyang river and the Ponong Zangbo river (Liu 2001: 104). After traversing 1,700 kilometres and draining 293,000 square kilometres area in the Tibet Autonomous Region of China, the Yarlung Tsangpo or the Yarlung Zangbo enters India across the Sadiya frontiers in Arunachal Pradesh, where it is known as the Siang or the Dihang (Sarma 2005: 73). In India, three major tributaries join this mighty river, which are the Dibang, the Lohit and the Subansiri, apart from many other smaller tributaries in Arunachal Pradesh, Assam, Nagaland and Meghalaya.

Upon entering the northeastern state of Assam in India, the river is known as the Brahmaputra and inside India, the Brahmaputra traverses a total distance of 760 kilometres (Sarma 2005: 73, Rahaman and Varis 2009).

The entire territory of Bhutan belongs to the Brahmaputra basin; four major tributaries of the Brahmaputra have their origins in Bhutan (Sarma 2005: 73). These are the Amochu or the Torsa, the Wang Chu, the Sonkosh, and the Manas (Rao 1979: 78). The Wangchu, the Sonkosh and the Manas joins with the Brahmaputra inside India in the state of Assam and the Amochu join it inside Bangladesh (Rao 1979: 78). The Brahmaputra finally enters Bangladesh through the Lalmanirhat district of northern Bangladesh and after passing 50 km inside Bangladesh, another major tributary, the Tista river, joins with the Brahmaputra near Chilmari river port (Rahaman and Varis 2009: 60). From the confluence point of the Tista and the Brahmaputra, the river is known as the Jamuna and many small tributaries join the Jamuna inside Bangladesh, like the Korotoya and the Atrai (Rahaman and Varis 2009: 60).

The Brahmaputra river flows across the plains of Bangladesh as the Jamuna for 337 kilometres before joining the Ganges, another great river of South Asia, at a place known as Goalanda (Sarma 2005: 73). The combined flow of these two rivers is now known as the Padma and flowing another 105 kilometres (Rao 1979: 77), the Padma merges with another major transboundary river, the Meghna, at Chandpur (Rahaman and Varis 2009: 61). From this confluence, the combined flow of the three rivers, the Ganges, the Brahmaputra and the Meghna, is known as the Lower Meghna, and finally it empties into the Bay of Bengal as the Lower Meghna (Rahaman and Varis 2009: 61). The above is the description of the course of the Yarlung Tsangpo-Brahmaputra river, from its origin

in the glaciers in the Tibetan Autonomous Region (TAR) of China through to its final discharge in the Bay of Bengal.

4.2 Contextual Background of the Sino-Indian Case Study for TWINS Analysis

In the case of the Yarlung-Tsangpo-Brahmaputra river, China enjoys the status of an upper riparian country, India being both a lower riparian country in relation to China on the one hand and upper riparian nation-state in relation to Bangladesh on the other, and Bangladesh being the lower riparian country. The question of just, harmonious and equitable sharing of freshwater resources between the three countries, therefore, remains one of the most important and indeed highly contentious (Economy 2007). Effective resource optimization in the face of water competition among the three riparian countries, and the streamlining of cooperation procedures in the context of water sharing in the region, has been gaining prominence (Samaranayake et al. 2016). The Sino-Indian riparian engagement is layered with several political linkages (Ho 2014), and securitization-desecuritization attempts (Biba 2014).

The transboundary relationship in the context of India and China has to be understood from the perspective of its shared colonial history, and the relative neglect of this has led to a misperception that India's relations with China were essentially a subset of Sino-British relations in the colonial period (Thampi 2007). India gained independence from the British colonial rule in 1947, and China became free from civil conflict, foreign occupation and several decades of weakness to take the form of a strong nation-state in 1949. Nationalism in India and China came forward as a response to colonial and imperialist domination, which in turn have marked Sino-Indian relations in the post-colonial phase. There were many instances of cooperation between the two nation-states,

but at the same time, such nationalism contributed to sowing the seeds of bitterness and mistrust, which continues to this day (ibid).

The end of colonialism saw the determination and consolidation of the territorial limits of India and China. This was contributed by a number of factors such as Partition of India, the formation of Pakistan, the British colonial determinism of the political map of India, and the overall reconfiguration of the political map of South Asia (Zamindar 2007). In the Chinese context, the retreat of the Chinese Nationalist Party or the Kuomintang led by Chiang Kai-shek to present-day Taiwan and the dominance of the Chinese Communist Party in the mainland of China led by Chairman Mao Zedong, led to political consolidation (Pepper 1978). These events led to both India and China finding themselves next to each other as the two giants of Asia, and the stage was set for the interplay of power and influence in this geographical space, which has been accentuated as the years have passed by (Thampi 2007).

The political and military impact of the Sino-Indian War of 1962 has been a determining factor in the subsequent bilateral relations between India and China. The war described as a traumatic shock for India (Cohen 1971), and dealt a body blow to the pacifist views of Sino-Indian relationship in the post-colonial period; with India having to suffer defeat at the hands of the Chinese military (Maxwell 1970). At the heart of the reasons leading to this war was the colonial legacy of unresolved borders between India and China, and the major theatre of the 1962 war was in the eastern sector of the Sino-Indian boundary dispute in Arunachal Pradesh (Raghavan 2010). The Yarlung Tsangpo-Brahmaputra river flows from Tibet through Arunachal Pradesh in India, a part of this very territory

where the 1962 war was fought, which the Chinese considers to be South Tibet, and claims as part of Tibet in China.

Another outstanding political issue between India and China, which is linked to the 1962 Sino-Indian war, is the flight of the 14th Dalai Lama, from Lhasa in Tibet through Tawang in Arunachal Pradesh in 1959; and the fact that India plays host to the Dalai Lama and a large number of Tibetan refugees who fled Chinese political oppression in Tibet (Bhutani 2004). China considers the Dalai Lama as a separatist figure and a direct threat to its one-China policy, accusing him of duplicity in dealing with the Tibetan independence question (Sperling 2004), and condemns any country supporting the Dalai Lama's political agenda (Goldstein 1997). China has on several occasions officially made its displeasure known to India relating to the Dalai Lama's political activities, particularly so when he visits Arunachal Pradesh, part of the ongoing Sino-Indian boundary dispute talks (Venkatachalam 2017).

The aftermath of the 1962 war saw the breakdown of Sino-Indian bilateral relations, and it was only in the year 1976, when ambassadorial diplomatic ties were resumed, and the first visit of a head of the government was in 1988, when Prime Minister of India, Rajiv Gandhi visited China on an official bilateral tour (MEA 2012). A Joint Working Group (JWG) to seek a fair, reasonable and mutually acceptable solution to the Sino-Indian boundary dispute was agreed upon during this visit in 1988, along with a Joint Economic Group (JEG), to take forward economic and trade ties between India and China (ibid). The end of the Cold War in the early 1990s saw a series of high-level visits between India and China, and an Agreement on the Maintenance of Peace and Tranquility along

the Line of Actual Control (LAC) in the India-China Border Area was signed in 1993, a declaration to respect the status quo (ibid).

The first nuclear tests conducted by India in 1974 were during a period when there was no diplomatic relations with China following the 1962 Sino-Indian War, and India's nuclear programme had managed to unsettle strategic policy-makers in China (Kondapalli 1998). The second nuclear tests conducted by India in 1998 resulted in a minor freeze in Sino-Indian relations, but the two nuclear capable nation-states, and also leading engines of economic growth in Asia in the post-Cold War period, managed to reassure each other (MEA 2012). High-level political visits were resumed with President of India K.R. Narayanan visiting China in 2000, and Chinese Premier Zhu Rongji visiting India in 2002 (ibid). However, this nuclear status of India changed the terms of Sino-Indian strategic engagement in subsequent years, given the yet unresolved boundary dispute (Kondapalli 1998, Basrur and Kartik 2011).

It was in 2003, during the visit of Indian Prime Minister A.B. Vajpayee to China, a comprehensive agreement for development of bilateral relations between India and China was signed, and the two countries agreed to set up a mechanism of Special Representatives to negotiate the framework of a boundary settlement from the political perspective (MEA 2012). An agreement on political parameters and guiding principles on the boundary talks was signed during Chinese Premier Wen Jiabao's visit to India in 2005, along with a joint statement on 'Strategic and Cooperative Partnership for Peace and Prosperity' (ibid). A notable document was signed during Indian Prime Minister Manmohan Singh's visit to China in 2008, titled 'A Shared Vision for the 21st Century of

the Republic of India and the People's Republic of China', outlining common positions on bilateral and international issues (ibid).

A prominent example of cooperation between India and China is the Panchsheel, or the Five Principles of Peaceful Co-existence, which were formally enunciated in the Agreement on Trade and Intercourse between the Tibet region of China and India, signed on 29 April 1954 (MEA 2004). The Panchsheel was seen as a new set of principles for the conduct of international relations in the post-colonial world, which would reflect the aspirations of all nations-states to co-exist and prosper in peace and harmony. India and China entered into the Panchsheel Agreement based on the five principles of, (i) mutual respect for each other's territorial integrity and sovereignty, (ii) mutual non-aggression, (iii) mutual non-interference, (iv) equality and mutual benefit, and (v) peaceful co-existence (ibid). These five principles continue to resonate in various ways in the Indian and Chinese foreign policy discourses.

The vision of Panchsheel, said to be based on the historical, civilizational and cultural roots of India and China, and the shared linkage of the spread of Buddhism from India to China, found acceptance in regional and international forums such as the Afro-Asian Conference at Bandung, 1955, and the Conference of Non-Aligned Nations in Belgrade, 1961 (MEA 2004). Several Indian and Chinese heads of government have during their official visits, reiterated adherence to the Panchsheel, including the founding leaders, Prime Minister Jawaharlal Nehru, Chairman Mao Zedong, Premier Zhou Enlai between 1954 and 1961; Prime Minister Indira Gandhi in 1983, Prime Minister Rajiv Gandhi in 1988, Premier Li Peng in 1991, Prime Minister P.V. Narasimha Rao in 1993, Prime

Minister Atal Behari Vajpayee in 2003 (ibid); Premier Li Keqiang and Prime Minister Manmohan Singh, both in 2013 (PMO India 2013).

The post-Cold War foreign policy orientation of China is based on its 'harmonious rise' discourse revolving around its soft power discourse and economic capabilities (Ding 2008), and the recalibration of Indian foreign policy towards a strategic engagement with East and Southeast Asia has led to normalized Sino-Indian bilateral ties (Pant 2006). A Chinese brand of foreign policy aims to be distinctive in the face of increased global interactions, and designed to promote socialism with Chinese characteristics and then continued dominance of the Communist Party of China (Zhang et al. 2015). The concept of major-power diplomacy with Chinese characteristics as the framework of China's international diplomatic engagement was proposed during the eighteenth National Congress of the Communist Party of China held in 2012, with a proactive and assertive diplomatic engagement agenda (ibid).

India is a multi-party democratic and federal system of government and its foreign policy is based on a sense of domestic democratic consensus based on Indian values and tradition (Dixit 2001), while China has a one-party led authoritarian political system, the Communist Party of China, which asserts all political and military authority under its domain (Breslin 2008). The Communist Party of China controls the army in China (ibid). The debate around political reform, nationalism and legitimacy in the process of democratization of a one-party rule marks the political dynamics of contemporary China (ibid). India and China are engaged in their respective economic expansion in Asia, and their strategic interests often compete and collide particularly in South and Southeast Asia (Malik 2004). China surpassed the United States of America to become India's

largest trade partner in 2008 (Gupta and Wang 2009), reflecting a complex interdependence in the overall Sino-Indian bilateral relationship and engagement.

4.3 Hydrocracy in the context of the Sino-Indian Case Study for TWINS Analysis

The first key analytical concept towards operationalizing the TWINS matrix for situating the analysis of transboundary water interaction between nation-states as put forward by Mirumachi (2015) is hydrocracy. This section outlines and discusses briefly about the bureaucratic agencies, such as ministries and departments responsible for agriculture, irrigation, water resources and energy in context of the Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra river. This identification of the hydrocracy or the hydraulic bureaucracy (Wester 2008, cited in Mirumachi 2015) is done through identifying the key actors and elite decision-making authorities involved in the formal interactions between India and China on aspects related to the transboundary rivers shared between them. The political and strategic interlinkages of the hydrocracy in context of India and China respectively are also discussed.

In the context of India, the Ministry of Water Resources, River Development and Ganga Rejuvenation (MoWR India) is the primary and nodal ministry at the central level of governance and management of water resources, including transboundary rivers shared with other nation-states. The primary functions of this ministry are related to overall planning, policy formulation, coordination and technical guidance in the water resources sector, in activities such as irrigation, flood control and minor and major multi-purpose water infrastructure projects, and covers both surface water and ground water in the territory of India (MoWR India Official Website). The ministry operates the central network of flood forecasting and warning in India, and prepares flood control master

plans for the Ganges and the Brahmaputra, and entrusted with the formulation of India's National Water Policy (ibid).

The responsibility of the conduct of talks and negotiations with neighbouring countries of India, in the context of transboundary river waters and water resources development projects rests with MoWR India (ibid), and this makes this particular ministry the pivot of the hydrocracy in India. The MoWR India is assisted by various organizations operating under its aegis, which relate to technical and consultancy aspects to water governance and management, such as the Central Water Commission (CWC), National Water Development Agency, National Institute of Hydrology, Roorkee and WAPCOS Limited (ibid). In context of the Brahmaputra basin, the Brahmaputra Board, the North Eastern Regional Institute of Water and Land Management (NERIWALM), and local field offices of the Central Water Commission assists the MoWR India in basin specific technical issues and consultancy (ibid).

The questions asked by parliamentarians on issues of water resources and its management in India and transboundary rivers in the Lok Sabha (Lower House of the Parliament of India) is mostly directed at the MoWR India (Lok Sabha Questions Database). Some questions specifically related to transboundary rivers and its sharing with a neighbouring country of India are also directed at the Ministry of External Affairs, India (MEA India), for example on infrastructure projects such as dams, water diversion and treaty arrangements on transboundary rivers, especially in bilateral contexts (ibid). This marks the MEA India as an important actor, which works closely with the MoWR India on substantive issues, and its role in shaping the discourse on infrastructural

development and hydraulic interventions within the country, and talks and negotiations on transboundary waters with the neighbouring co-riparian countries.

The National Water Policy of India 2012, which is the result of improvements on earlier versions in 2002 and 1987 by the MoWR India, has a special section on transboundary rivers, which mandates efforts to enter into international agreements with neighbouring countries, having a clear emphasis on the rule of bilateralism and the need for the exchange of hydrological data (National Water Policy 2012, MoWR India). It places the national interest of India to be the guiding principle for all talks and negotiations on shared transboundary rivers, and the establishment of adequate institutional arrangements at the central government level, in order to implement any international agreements entered thus (ibid). The emphasis on bilateralism reflects the agenda-setting abilities of the Indian hydrocracy (MoWR India) in its engagement and interactions on shared transboundary rivers with neighbouring countries.

In the context of China, the Ministry of Water Resources, People's Republic of China (MoWR China) is the primary ministry, which is entrusted by the State Council of the People's Republic of China with the responsibility of ensuring rational development and utilization of water resources and formulating water resources development strategies, plans and policies (MoWR China Official Website). The ministry has the mandates of promulgating water administrative rules and regulations, draft legislations, undertaking integrated water resources management and supervision, irrigation and rural water supply within China and engage in flood control, drought relief and disaster mitigation activities (ibid). The formulation of the National Water Policy is entrusted with the

MoWR China, which deals with management of various river basins of China in a comprehensive manner.

The construction of small and big hydropower dam projects in China is under the purview of the MoWR China, which makes it the primary ministry in terms of water abstraction plans and the development of hydropower in China (ibid). The MoWR China is responsible for setting up international transboundary rivers cooperation mechanisms between China and its neighbouring countries, and to promote exchanges and cooperation in the field of hydrological data provision in the flood-season, flood control, emergency response, improvement of boundary rivers, utilization and protection of shared water resources (ibid). The vast nature of the roles and responsibilities accorded to the MoWR China makes it the pivot around which the discourse on water resources management is shaped within China, and the contours of China's transboundary water interaction with its neighbouring countries.

The MoWR China derives its powers from the State Council, which is the country's highest executive body, and based on national laws such as the Water Law, the Flood Control Law and the Law on the Prevention and Control of Water Pollution enacted by the Standing Committee of the National People's Congress (NPC) of the People's Republic of China, the highest legislative body in the country (Liu and Speed 2009). The levels below the MoWR China are water resources departments at the provincial levels, and water resources bureaus at the prefecture and county levels, thereby denoting a structured set up in the domestic water sector in China (ibid). The principles set by the national laws and rules are general in nature, and the local levels usually have some discretion in the implementation (Wouters et al. 2004).

The Water Law of China 2002 says that all water resources is the property of the central state or the collective, water is a public good owned by the state or its rural extensions and not for private gain, and includes under its purview both surface and ground water (Water Law of China 2002), which demonstrates the strong centralized control over water resources. The Chinese hydraulic bureaucracy concentrated political power and was so expansive and strong, that it led to an ability to mobilize its vast human resources in the construction of major irrigation projects during the initial years of China as a nation-state (Wittfogel 1957). The same rings true of hydropower and water diversion projects of national importance in China today, for example the Three Gorges Dam, the world's largest hydropower project, and the South North Water Diversion Project (SNWDP), a multipurpose water supply scheme.

The political leadership of both India and China as modern nation-states demonstrated strong leanings on big infrastructural interventions on rivers such as hydropower projects, irrigation schemes and water diversion projects, and this created a lot of political support for the hydraulic bureaucracy in both countries. For instance, the first Prime Minister of India Jawaharlal Nehru in his speech at the inauguration of the Bhakra Nangal Dam in 1954 described the dam and other such projects as the 'temples of modern India' (Mukherjee 2014). India's National River Linking Project (NRLP), which aims to connect India's Himalayan and the peninsular rivers, has received political support from Prime Minister Indira Gandhi by forming the National Water Development Agency in 1982, and Prime Minister AB Vajpayee who constituted a task force for the project in 2003 (Vajpayee 2003).

India's NRLP, which has its origins in British colonial understanding of managing water resources, is being aggressively pushed by Prime Minister Narendra Modi, to make the water deficient parts of India into water surplus (Piper 2017). Given this impetus, the MoWR India has put the NRLP on a high priority basis, marking it as a project of national importance, and a special committee was set up in 2014 to closely monitor the NRLP project (MoWR India). There has been a lot of domestic criticism on the NRLP (Iyer 2012, Koshy and Bansal 2016, Chandran 2017) and calls for reassessment (Amarasinghe et al. 2009, Bansal 2014), but the hydrocracy in India is emboldened by the political support, and the judgment by the Supreme Court of India, ordering the Indian government to go ahead with the implementation of the NRLP project effectively, expeditiously and without default (Supreme Court of India 2012).

In the context of China, a great symbolism is attached to rivers and water resources as markers of national strength and civilizational pride, which translates into an intimate connection between hydraulic engineering, governance, moral rectitude and metaphysical speculation that has no parallel in the world (Ball 2017). This is manifested in the fact that Chairman Mao Zedong repeatedly asserted his personal power by swimming in the Yangtze river and it was the first President of China, Sun Yat Sen who envisioned the Three Gorges Dam on the Yangtze, which was eventually realized in 2012 (ibid). President Hu Jintao, who was in power from 2002-2012, was a hydrologist by training, spoke of water as exerting an evident impact on China's economic, ecological and national security (China Daily 2011). This focus on water by key national leaders of China gave huge support to the hydrocracy.

The threat of water shortage in China was described by Premier Wen Jiabao (2003-2013) as a threat to the survival of the Chinese nation (Moore 2009), which makes the case for the China's ambitious South North Water Diversion Project (SNWDP), also known as the South North Water Transfer Project (SNWTP) marked as a project of national importance (Webber et al. 2017). The close ties between the Chinese political leadership and the hydro-business corporations in China which are mostly state-owned, makes for an interesting perspective as to how major decision-making on critical hydropower and river engineering and infrastructure projects are taken in China (ibid). Lin (2017) points out that at a time when important decisions regarding the SNWDP was taken, all the nine political members Politburo standing committee of the Communist Party of China were trained as engineers.

The major hydropower corporations in China, for example Sinohydro, HydroChina, China Three Gorges Corporation, China Yangtze Power Corporation Limited and China Power Investment Corporation, to name a few major ones, mark the corporatization of the hydrological development of China. These corporations, which are supervised by the Chinese government, depends on the success of domestic projects in China to spread their operations in other parts of the developing world, such as countries of Southeast Asia and Africa, Brazil and Pakistan (China Three Gorges Corporation Official Website). These major corporations serve as important consultancy and technical service providers to the hydrocracy of China, for instance HydroChina, which is supervised under the State-owned Assets Supervision and Administration Commission of the State Council of China (HydroChina Official Website).

India's major hydropower companies are a mix of government-owned, such as the National Hydro Power Corporation (NHPC), North Eastern Electric Power Corporation Limited (NEEPCO), THDC India Limited (formerly Tehri Hydro Development Corporation Limited), and private ones such as Jindal Power Limited, Reliance Power and Jaiprakash Power Ventures Limited, to name a few. These hydraulic corporations are engaged in hydropower projects in India's immediate neighbourhood, primarily with Indian investment, with projects in Nepal, Bhutan and Myanmar (Lamsang 2017, Tortajada and Saklani 2016, Das and Thomas 2016). Indian and Chinese hydro-corporations faced domestic opposition to their respective dam projects in Myanmar, while India suspended its hydropower projects, but China continues to put pressure on Myanmar for revival of the dam projects (Ramachandran 2016).

The outline of the Indian and the Chinese hydrocracy demonstrates that their power base and influence are derived from the political and strategic interlinkages with their respective national governments, which in turn are dictated by their respective national interests. The slew of hydropower dam projects announced by the Chinese and the Indian governments on the Yarlung Tsangpo-Brahmaputra river on their respective stretches in Tibetan Autonomous Region and Arunachal Pradesh, comes from this larger political and strategic national interest articulation. The hydrocracy of both India and China are the main channels of communication through which the transboundary water interaction happens on its shared rivers. The next section discusses the specific water related events in context of such interest articulation, and brings out the contours of conflict and cooperation between India and China.

4.4 Speech Acts in the context of the Sino-Indian Case Study for TWINS Analysis

The second key analytical concept towards operationalizing the TWINS matrix for situating the analysis of transboundary water interaction between nation-states as put forward by Mirumachi (2015) is 'speech acts'. This section outlines and discusses briefly the speech acts, the verbal acts (Austin 1962, Searle 1969) as well as the non-verbal acts (Frederking 2003), that helps create social facts, establish relations and construct the rules of relationships between nation-states, in particular context of the Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra river. The identification of the speech acts is done through identifying the key water related events on the Yarlung Tsangpo-Brahmaputra during the time period of 1990-2015 within the overall formal bilateral interactions between India and China; by analyzing bilateral agreements, legal documents, policy briefs and newspaper articles/reports.

Blaikie and Muldavin (2004) point out an example of engagement between Indian and Chinese politicians and scientists involving sensitive bilateral relations between the two countries, when in the year 2000, severe flash floods in the form of artificial lake formation bursts upstream, was reported in the Sutlej and Siang rivers that flow from Tibet through the provinces of Arunachal Pradesh and Himachal Pradesh in India. The flash floods happened in the Siang river on 11 June 2000, which is the main channel of the Yarlung Tsangpo-Brahmaputra entering India in Arunachal Pradesh; and on the Sutlej on 1 August 2000 severely affecting the Kinnaur, Shimla and Mandi districts of Himachal Pradesh in India (Gupta 2001, Gupta 2014). The official death toll in the Siang and the Sutlej flash floods was about 26 and 100 people, and washed away many strategic bridges and stretches of important roads (ibid).

The twin incidents of flash floods of 2000 was brought up by Indian officials in the Ministry of Defence (MoD India) and MoWR India, alleging the culpability of the Chinese army in breaching temporary lakes created by landslides without adequate warning to the Indian side, causing loss of life and damage to strategic infrastructure, particularly the Nathpa-Jhakri hydroelectric project on the Sutlej, which was set back by three years (ibid). The Chinese officials denied the above charges; although the Indian Space Research Organization (ISRO), through the help of satellite imagery, claimed to have pin- pointed the lakes that were breached (Blaikie and Muldavin 2004). This is an example of a directive non-verbal speech act between India and China, involving unilateral actions or sabotage, reflected in the allegations made by the Indian ministries, backed by evidence of satellite imagery by ISRO.

The above directive non-verbal speech act is based on the perception of the hydrocracy of India and the manner in which this helped construct and frame the strategic response to a flood disaster event, bringing a change in the rules and terms of reference on transboundary rivers engagement and interaction between India and China. The MoWR India sent a team to visit China in 2001 headed by the Commissioner (Eastern Region) of the ministry, ML Goel, for talks with the Director General of International Cooperation in the Chinese Ministry of Foreign Affairs, and to seek cooperation from China in the prevention of such flash floods from happening again (Gupta 2001, Gupta 2014). The MoWR India termed this visit as the first possible step towards a Sino-Indian sharing of hydrological data for the purposes of flood forecasting and a joint monitoring group for improved transboundary river and water management (ibid).

India and China signed a Memorandum of Understanding (MoU) for a period of five years, during Chinese Premier Zhu Rongji's official visit to India in January 2002, for the provision by China of hydrological information on the Yarlung Tsangpo-Brahmaputra river during the flood season to India (MoWR India). According to the provisions of the MoU, China provided hydrological information (water level, discharge and rainfall data) in respect of the Nugesha, Yangcun and Nuxia hydrological data collection stations located on the Yarlung Tsangpo from 1 June to 15 October every year, which was to be utilized for the formulation of flood forecasts by the Central Water Commission of India (ibid). A similar MoU was signed for a period of five years for the provision of hydrological data by China on the Sutlej river, during the official visit of Chinese Premier Wen Jiabao to India in April 2005 (ibid).

The 2002 MoU on the Yarlung Tsangpo-Brahmaputra lapsed after the completion of five years in 2007, but was renewed in June 2008 for another five years, and subsequently during the official visit of Chinese Premier Li Keqiang to India in May 2013, the same MoU was renewed for an additional five years period, along with its implementation plan being signed between India and China (MoWR India). The MoU on the Sutlej was renewed once for a period of five years in December 2010 during the official visit of Indian Prime Minister Manmohan Singh to China, and subsequently in November 2015 for an additional five years during the official visit of Chinese Vice-President Li Yuanchao to India, the implementation plans for the five-year terms of the MoU being signed in 2011 and 2016 respectively (ibid). These agreements are currently in force in the Sino-Indian bilateral hydrological cooperation.

The above trend of bilateral agreements in the shape of MoUs between India and China on the provision of hydrological data by China on shared transboundary rivers of Yarlung Tsangpo-Brahmaputra and the Sutlej can be seen as a direct outcome of the directive non-verbal speech act between India and China of the year 2000, relating to flash floods. These MoUs are an example of assertive verbal speech acts between India and China, signifying public statements and declarations at the bilateral level and signaling reciprocal understanding of an issue-area related to transboundary water interaction between two nation-states. These sets of assertive verbal speech acts embody the changes in the rules and terms of reference on shared transboundary rivers engagement and interaction over a period of time, first set in motion by the directive non-verbal speech act of 2000 between India and China.

The State Council of China approved the South North Water Diversion Project (SNWDP), considered to be a legacy project of China, on 23 August 2002, after extensive research, planning and discussions within the Chinese hydrocracy and political leadership (Webber et al. 2017). The Planning, Design and Management Bureau of the SNWDP under the MoWR China, prepared the blueprint for the construction period, and subsequently in 2003, the Office of the Construction Committee for the SNWDP (Office of the SNWDP) was set up to oversee the construction phases, directly under the aegis of the State Council of China (ibid). The SNWDP project is the largest inter-basin water transfer scheme in the world (Barnett 2015), and described as a mega hydraulic-engineering project in an unprecedented scale (Janku 2016), and seeks to remake the hydraulic geography of China (Webber et al. 2017).

The SNWDP project consists of three major routes, the Eastern route, which began operating in 2013, the Central route, which saw operation in 2014, and the Western route, which is yet to be functional (ibid). Wang (2006) point out that the SNWDP was in Chinese domestic political debate for a long period of time, and the third route of the SNWDP, which is also called the Great Western Route of the project or the New Moon Canal Project, directly concerns the Yarlung Tsangpo-Brahmaputra river. This component of the SNWDP was first introduced by Jiang Benxing, a former vice-minister of the MoWR China, and Guo Kai, an official with the same ministry, who were aware that the originally proposed SNWDP did not have a guaranteed source of water, because the Yangtze river did not have the required capacity for large-scale water transfer to the north of China in the mid-to-long term (ibid). The component of the SNWDP of China, which directly concerns the Yarlung Tsangpo river diversion is yet to start (Sinha 2016).

The perception of the SNWDP, when the State Council of China sanctioned it in August 2002, and actual construction work started in 2003, by the hydrocracy in India, is an example of a directive verbal speech act between India and China, signifying the action of the hydrocracy of an upstream state, in this case China, of unilaterally constructing hydraulic infrastructure, without the consent of riparian nation-states downstream, in this case India. Mirumachi (2015) explains that conflict intensity increases when the directive speech act of unilateral construction of hydraulic infrastructure by an upstream nation-state is detrimental to the interests of the downstream nation-states, and could further result in changes in the cooperation intensity of the water interaction. The perception of the hydrocracy who receives such a directive speech act is an important marker of the range of possible responses (ibid).

It is in the above context that the subsequent speech acts between India and China has to be analyzed, based on the perception of the Indian hydrocracy of the Chinese hydrocracy directive verbal speech act of the SNWDP, and the responses that came as an outcome of it. The hydrocracy and the elite decision-makers of the upstream nation-state in the context of a transboundary river may deem it necessary as a means of ensuring human safety and needs in terms of drinking water supply and promoting irrigation and agricultural related economic activities (Mirumachi 2015). The same applies for the strategic choices of the downstream nation-state of the shared transboundary river basin, which has to safeguard its national interests in terms of the needs of its own population and economic activities. A diversion project of the nature of SNWDP necessitated responses in the Sino-Indian water interaction.

An Expert-Level Mechanism (ELM) between India and China was set up during the official visit of the Chinese President Hu Jintao to India in November 2006, to discuss interaction and cooperation on the existing provision of flood season data by China, emergency management and exchange of views on other related issues of mutual interests regarding transboundary rivers as agreed jointly between the two countries (MoWR India). The MoWR China describes the Sino-Indian cooperation at a level higher than that of exchange of hydrological information, which is the Expert-Level Mechanism. However, Sinha (2016) points out that China clearly does not want a permanent mechanism. China has on many occasions invested significant material and human resources to deal with emergencies relating to natural disasters, such as blocked river sections and barrier lakes caused by landslides in upstream parts of the river, with the goal of reducing potential secondary disasters to downstream India (MoWR China).

The setting up of the Expert Level Mechanism on transboundary rivers shared by India and China in November 2006, is an example of a assertive verbal speech act between India and China, signifying public statements and declarations at the bilateral level and signaling reciprocal understanding of an issue-area related to transboundary water interaction between two nation-states. This assertive verbal speech act can be described as an outcome of the deliberations between India and China at the bilateral level of the impact and possible range of responses to the directive verbal speech act related to the SNWDP of China. This assertive verbal speech act has been used to clear the ambivalence in the nature of hydraulic infrastructure development activities on shared transboundary rivers between India and China on many occasions by the hydrocracy of both India and China (MoWR India, MoWR China).

The above assertive verbal speech act of the ELM can be read in conjunction with the subsequent signing of the MoU on 'Strengthening Cooperation on Trans-Border Rivers' between India and China, during the official visit of Prime Minister Manmohan Singh to China in October 2013 (MoWR India). This MoU resulted in the revision of the implementation plan of the provision of hydrological data by China on the Yarlung Tsangpo-Brahmaputra from the earlier agreed period of 1 June to 15 October, and enhanced it by 15 days to 15 May to 15 October every year (ibid). This was formalized during the Eighth ELM meeting between India and China on transboundary rivers at New Delhi in June 2014 (ibid). This extension of 15 days was aimed at a more comprehensive peak flood season data available to the Central Water Commission of India to be able to efficiently forecast floods.

The series of announcements of hydropower development plans of China in Tibet on the Yarlung Tsangpo, and the larger aspect of the lower riparian threat perception of India from the SNWDP has been managed by the hydrocracy of India and China within the parameters of the assertive verbal speech act of the ELM (MoWR India). As an example, the construction of the Zangmu Hydroelectric Project in on the main channel of the Yarlung Tsangpo was communicated to India officially emphasizing that all dam projects upstream were run-of-the-river projects and were based on proper scientific planning, and will not affect downstream water flows (MoWR India 2012). In October 2011, the Vice Minister of the MoWR China stated that the Chinese government had no plans to conduct any water diversion on the Yarlung Tsangpo river, which will affect India's downstream interests (ibid).

An official document titled 'International Cooperation on Transboundary Rivers between China and its Neighbouring Countries', published by the MoWR China has emphasized that the cooperation on transboundary rivers between India and China has set a good example (MoWR China 2015). The same document notes that in many joint official communications between the two countries, India has appreciated China's provision of hydrological data in the flood season, and that it has helped India towards protecting the lives and properties of its riparian population (ibid). The directive non-verbal speech act of the flash floods of 2000 explains the framing of such response. The above statements demonstrate the changing nature of the relationship between the hydrocracy of India and China, and the mutual acceptance of structures and rules of engagement on shared transboundary rivers between the two countries.

Chapter 5

Analyzing Sino-Indian transboundary water sharing of the Yarlung Tsangpo-Brahmaputra River: A TWINS Approach Case Study

5.1 A Four-by-Five TWINS Matrix Analysis of the Sino-Indian Case Study

The outlining, discussion and analysis of the two key analytical concepts, the hydrocracy of India and China respectively and the speech acts related to the transboundary water interactions between India and China sets the stage for operationalizing the four-by-five TWINS matrix developed by Mirumachi (2015) by plotting the speech acts as markers of coexisting conflict and cooperation. This section discusses the overall characteristics of the speech acts between India and China in their transboundary water interactions on the Yarlung Tsangpo-Brahmaputra river. Subsequently, a closer examination of the speech acts is done on a one-by-one basis for the specific context of plotting them in the TWINS four-by-five matrix. At the end, the specific Sino-Indian case study TWINS matrix of coexisting conflict and cooperation is analyzed on the basis of its trajectory and dynamics and broader outcomes.

The four speech acts in the Sino-Indian transboundary water interactions, which have been discussed in the earlier section are, first, the directive nonverbal speech act of the year 2000, when the flash floods related to the Yarlung Tsangpo-Brahmaputra river and the Sutlej river happened in Arunachal Pradesh and Himachal Pradesh respectively. Second is the assertive verbal speech act of the year 2002, which concerns the MoU signed between India and China on the provision of hydrological data by China to India on the Yarlung Tsangpo-Brahmaputra river, and this continues in motion with extensions of the MoUs till the present day. Third is the directive verbal speech act of the year 2002,

which concerns China's South North Water Diversion Project (SNWDP). Fourth is the assertive verbal speech act of the year 2006, when the Expert Level Mechanism (ELM) on transboundary rivers was signed by India and China.

While examining the broader characteristics of the four speech acts between India and China on the transboundary water interaction on the Yarlung Tsangpo-Brahmaputra river, we can see that there have been one nonverbal speech act and three verbal speech acts. The nonverbal speech act of the year 2000 was termed as landslide-induced flash floods. However, it was the perception of the hydrocracy of India of this particular speech act, which made it allege unilateral action or sabotage by China in the upper reaches of the Yarlung Tsangpo, before it entered India in Arunachal Pradesh, and thereby an directive speech act. This was a situation created mainly due to the overall lack of engagement between India and China in sharing of hydrological data on shared rivers and transboundary water interactions, which explains the construction of such perception of sabotage by the hydrocracy of India.

This specific water related event was alleged to be a result of unattended landslides by China, not necessarily designed to achieve any compliance from India, but it had the unintended effect of inducing interaction between India and China for the prevention of such flash floods in the future, establishing a bilateral political engagement on rivers. The three verbal speech acts involved public declarations and MoUs, which were clearly laid out in a written manner. The directive speech act of 2002 was also largely contingent on the perception of the Indian hydrocracy, as there were no established mechanisms through which water diversion could be assessed, or the hydrocracy or the political leadership could communicate on the matter. It was only through the assertive speech

acts of 2002 and 2006 respectively that there was some sense, which could be made out of the Sino-Indian transboundary water interaction processes.

5.1.1 Directive Nonverbal Speech Act of the year 2000, Flash Floods in India

The incidents of flash floods, on 11 June 2000 in Arunachal Pradesh on the Yarlung Tsangpo-Brahmaputra river and on 1 August 2000 in Himachal Pradesh on the Sutlej river respectively underlined the threat level that such transboundary rivers could have in the context of Sino-Indian relations. This directive nonverbal speech act between India and China, when plotted in the TWINS matrix of coexisting conflict and cooperation intensity, comes forth as a 'securitized/opportunitized confrontation of the issue'. It is plotted as 'securitized' as the issue was an existential threat requiring emergency measures and justifying actions outside the normal bounds of political procedure (Buzan 1998). It is plotted as a 'confrontation of the issue' as the issue was acknowledged but there was no specific joint action or identification and sharing of goals between the actors (Mirumachi and Allan 2007).

The above speech act can also be termed as 'opportunitized' as this water-related event provided the hydrocracy of lower riparian India to pursue options with the hydrocracy of upper riparian China, which were otherwise not available in their bilateral political interactions. The sense of crisis characterized by water-related events between two nation-states can be taken advantage of to perform two tasks, one to advance the vested interests of hydrocracies and two, to avert such crisis in the future through the play of 'emergency politics' (Warner 2004, Warner 2011). In this particular case, the Indian hydrocracy pursued options with the Chinese hydrocracy to find ways to avert such flash floods in the future, as evidenced by the subsequent developments of sending a MoWR

India team to China (Gupta 2001, Gupta 2014), and shared rivers were previously not a factor in the Sino-Indian bilateral relationship.

This speech act occurred in the backdrop of the larger Sino-Indian bilateral relationship beginning to emerge from the shadow casted by the nuclear tests by India of 1998, which was described as a minor-freeze by the Ministry of External Affairs India (MEA 2012). The first high-level state visit between India and China after the 1998 nuclear tests was of Indian President K.R. Narayanan official visit to China in May-June 2000 (ibid). The thaw in the Sino-Indian political relationship made possible the pursuance of the options by the Indian hydrocracy to address the issue of flash floods with the hydrocracy of China. The improvement of the political relationship between India and China led to the exploration of official interactions between the hydrocracies of both the countries to address the crisis of flash floods, thereby underlining the political nature of such transboundary water interactions.

The perception of the Indian hydrocracy of the directive nonverbal speech act of the year 2000 as a securitized confrontation of the issue, comes from the aspect of riparian position in the case of the Yarlung Tsangpo-Brahmaputra and the Sutlej rivers, where China is the upper riparian, and India is the lower riparian. The flash floods was seen as an unilateral action and sabotage by China, which were evidenced by the allegations made by the Indian hydrocracy, and the Ministry of Defence in particular, about the culpability of the Chinese army in the flash floods, and the invocation of the satellite imagery collected by the ISRO (Gupta 2001, Gupta 2014). The central driver of this perception comes from the Sino-Indian upper-lower riparian position, which forms the

base of the securitization of this speech act and the invocation of 'emergency politics', with an opportunity to use the crisis to address the issue of flash floods.

5.1.2 Assertive Verbal Speech Act of the year 2002, MoU on hydrological data provision

The Memorandum of Understanding (MoU) signed between India and China for a period of five years, during Chinese Premier Zhu Rongji's official visit to India in January 2002, for the provision of hydrological information by China on the Yarlung Tsangpo-Brahmaputra river during the flood season to India (MoWR India), is a direct outcome of the directive nonverbal speech act of the year 2000. The backdrop of the securitization and the opportunitization available to the Indian hydrocracy led to these outcomes, leading from the discussions initiated towards the possibility of the provision of hydrological data by the hydrocracy of China, designed to address the issue of flash floods. The opportunitization evidence of the speech act leading to the 2002 MoU is found in the beginning of Sino-Indian MoU-based cooperation on hydrological data provision on its shared transboundary rivers.

This assertive verbal speech act between India and China, when plotted in the TWINS matrix of coexisting conflict and cooperation intensity, comes forth as a 'securitized/opportunitized common goal formation'. It is plotted as 'securitized/opportunitized' as the issue offers such a chance to improve upon a securitized 'existential threat' situation, that it justifies actions outside the normal bounds of political procedure, based on the differentiation provided by Warner (2004) between securitization and opportunitization. Zeitoun (2007) described an opportunitized issue as an opportunity for improving a situation that requires emergency actions. It is plotted as

'common goal formation' as there are shared goals in how to solve a specific water-related problem, but the actions and policies of the two countries may not necessarily be aligned, and there is no joint action by them on the issue (Mirumachi 2015).

In the case of the speech act of 2002, the signing of the MoU is the action outside the normal bounds of political procedure between India and China, to improve upon a securitized 'existential threat' situation of flash floods in India. The provision of hydrological data by China to prevent flash floods in the future in India is the shared goal towards solving a specific water-related problem. Achieving the above-mentioned limited goals drove the hydrocracies of India and China, and therefore there was no necessary alignment between their actions and policies. There was only a provision of hydrological data by China, and it is necessary to emphasize upon the term 'provision', which is different from hydrological data 'sharing' or 'exchange', where India was not bound by the MoU of 2002 to provide any hydrological data to China on the Yarlung Tsangpo-Brahmaputra, indicating no joint action.

This assertive verbal speech act of 2002 is read in conjunction with the several extensions that have happened of the MoU of 2002 in the years 2008 and 2013 respectively (MoWR India). The hydrocracy of India emphasized the utility of the MoU of 2002 in flood forecasting activities in the lower reaches of the Brahmaputra river (Lok Sabha 2002:544). India's Foreign Minister Jaswant Singh discussed this speech act of January 2002 subsequently at the bilateral level during his official visit to China in March-April 2002, indicating the elevation of transboundary water interaction to normal Sino-Indian bilateral relationship (Lok Sabha 2002:3804). The hydrocracy of India, buoyed by the MoU of 2002, pushed for a similar MoU between India and China on

provision of hydrological data on the Sutlej river by China (Lok Sabha 2003:30), and it was finally signed in 2005 (MoWR India).

5.1.3 Directive Verbal Speech Act of the year 2002, China's SNWDP announcement

The approval and announcement of the South North Water Diversion Project (SNDWP) by the State Council of China in August 2002 is a clear marker of the coexisting conflict and cooperation dynamics in the transboundary water interactions between India and China. This announcement came in the backdrop of the directive nonverbal speech act of the year 2000 and the assertive verbal speech act of the year 2002 between India and China. The perception of the hydrocracy of India of this water-related announcement by China was significantly influenced by the securitized nature of the previous speech acts. Although the MoU of 2002 on the Yarlung Tsangpo-Brahmaputra river relating to provision of hydrological data by China was signed only in January 2002, the transboundary water interactions between India and China was being tested with new factors emerging to change the rules of the relationship.

This directive verbal speech act between India and China, when plotted in the TWINS matrix of coexisting conflict and cooperation intensity, comes forth as a 'securitized/opportunitized confrontation of the issue'. It is plotted as 'securitized' as the issue was an existential threat requiring emergency measures and justifying actions outside the normal bounds of political procedure (Buzan 1998). It is plotted as a 'confrontation of the issue' as the issue was acknowledged but there was no specific joint action or identification and sharing of goals between the actors related to the specific water-related announcement (Mirumachi and Allan 2007). In this particular speech act, the China's SNWDP announcement was perceived by the Indian hydrocracy, as an

existential threat required emergency measures to protect its own national interests, in terms of ensuring an uninterrupted flow of water in the Brahmaputra.

The opportunitized aspect of this speech act is in the ability of the respective hydrocracies of India and China to make the existing cooperation more substantive and explore avenues to dispel the perceptions of water diversion from the Brahmaputra, which has been a sensitive political topic in downstream India ever since the project was announced in 2002. This speech act and its perception by the Indian hydrocracy and the people of downstream India, is inherently based on a characteristic geographical feature of the Yarlung Tsangpo-Brahmaputra. This is the 'Great Bend' area where the Yarlung Tsangpo enters from Tibet into Arunachal Pradesh as the Siang, from where the river in China normally flowing eastwards, takes a 'u-turn' to change direction towards the west, dramatically cutting through the deep gorges between Mount Namcha Barwa and Mount Gyala Peri (Chellaney 2012).

Ball (2017) points out that most of Chinese rivers follow the innate rule of 'shan to shui', meaning 'mountains to water', on an essentially west-east axis, from the Tibetan plateau on the west to the ocean on the east, and this directional behaviour of China's waterways that has dominated its topographical and hydrological consciousness. It is at this Great Bend area where China is planning a hydroelectric project, which involves cutting a 22-mile-long canal through rock, with an installed generating capacity of 40 million kilowatts, billed to be the largest of its kind in the world (Mathou 2005). Although the hydroelectric project remains on the drawing boards, a possible extension of the hydroelectric dam project can be to divert part of the waters of the Yarlung Tsangpo,

which could be pumped northward across hundreds of miles of mountains to China's arid northwestern provinces of Xinjiang and Gansu (ibid).

5.1.4 Assertive Verbal Speech Act of the year 2006, ELM on Transboundary Rivers

The Expert Level Mechanism (ELM) on shared transboundary rivers set up by India and China in November 2006 can be described as a direct outcome of the directive verbal speech act of the year 2002 relating to China's announcement of the SNWDP. Apart from the general nature of discussions on issues related to provision of hydrological data by China, already covered by the existing MoU-based cooperation between India and China, the ELM emphasized on 'emergency measures' and 'exchange of views' on issues of mutual interests regarding transboundary rivers as agreed jointly between the two countries (MoWR India). The use of the word 'jointly' here indicates and opens up a two-way exchange of views between the two countries, which under the existing MoU-based cooperation, was only limited to 'provision' of hydrological data by China, and used for flood forecasting by India.

This assertive verbal speech act between India and China, when plotted in the TWINS matrix of coexisting conflict and cooperation intensity, comes forth as a 'securitized/opportunitized common goal formation'. It is plotted as 'securitized' as it was an existential threat and required emergency measures, which justified actions or mechanisms outside the normal bounds of political procedure (Buzan 1998). It is plotted as 'common goal formation' as there were shared goals in how to solve a specific water-related problem, but the actions and policies of the two countries were not necessarily be aligned, and there was no joint action indicated between the two countries (Mirumachi 2015). The opportunitization aspect comes from the abilities of the hydrocracies of the

two countries to improve upon a situation related to transboundary waters, which requires emergency actions (Zeitoun 2007).

In this speech act, the setting up of the ELM in 2006 was outside the bounds of normal political procedure between India and China, and involved issues related to the SNWDP announced by China in 2002 and its perceived impact and implications on downstream India. The ELM indicated shared goals between India and China towards solving a common water-related problem, but the alignment of the actions and policies were contingent upon mutual agreement by the two countries, and there was no indication of joint action (MoWR India). The cooperation under the ELM was limited to an exchange of views between India and China, which were not binding on each other, and it was left open for which issues could be discussed in the future rounds of the ELM (ibid). The opportunity was how the ELM could be used as a vehicle to further deepen Sino-Indian cooperation on shared transboundary waters.

The first meeting of the ELM was held in September 2007 in Beijing, after both India and China constituted their respective expert groups (Lok Sabha 2008:1012). Indian Prime Minister Manmohan Singh and Chinese Premier Wen Jiabao emphasized in January 2008, that their joint efforts at cooperation on transboundary rivers since 2002 has set a good example, and it has contributed positively to building mutual understanding and trust between the two countries, and the ELM is poised to take this cooperation further (ibid). The ELM has been cited on many occasions by the Indian hydrocracy as a robust mechanism through which issues related to transboundary river water flows can be taken up with China on a bilateral basis, more particularly so when

there have been aspersions of water diversion and dam building activities by China (Lok Sabha 2009:1008, 2010:4199, 2011:2909, 2013:766).

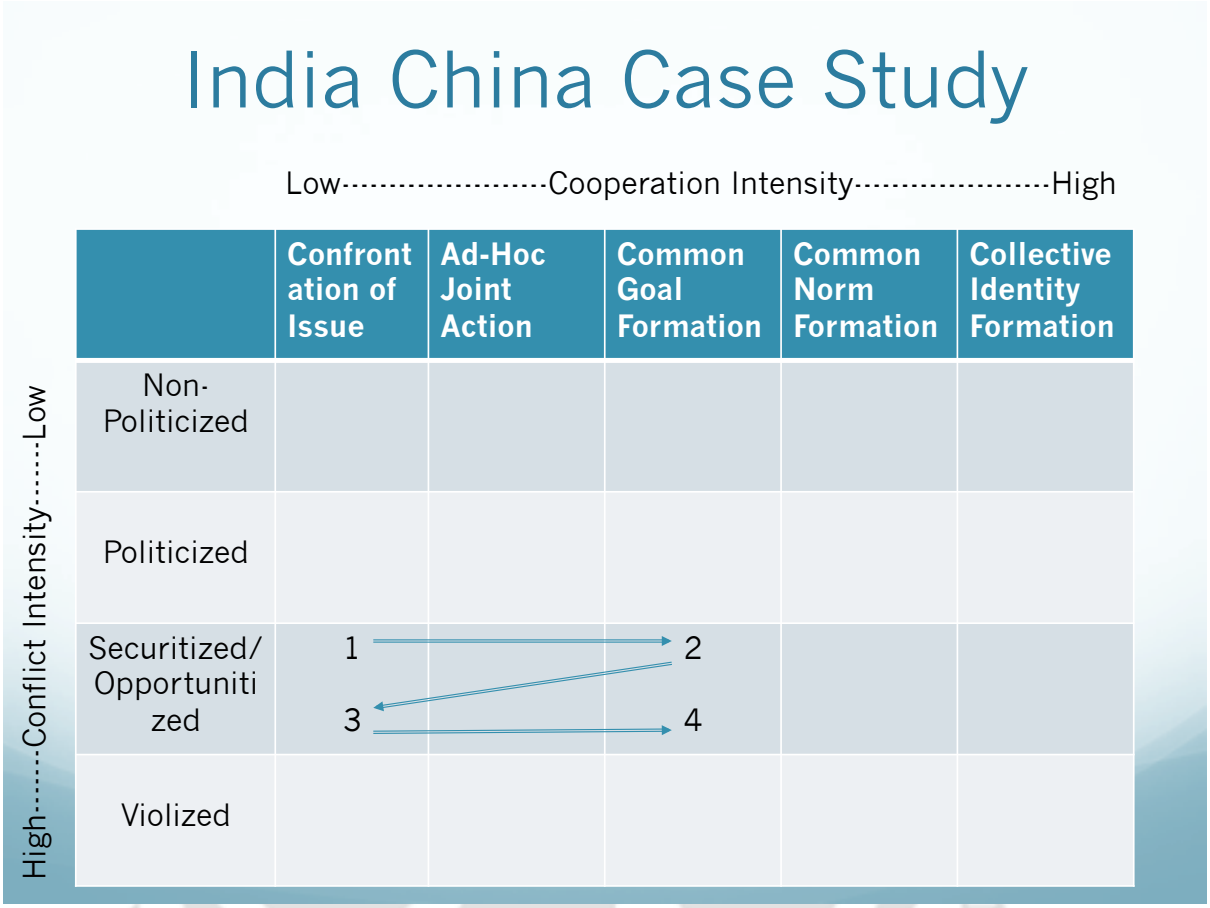

Figure 3: TWINS four-by-five matrix analysis using water-related events in the Sino-Indian case study.

In the above four-by-five TWINS matrix analysis of water related events in the Sino-Indian case study on the Yarlung Tsangpo-Brahmaputra, the points plotted are as below:

- 1 denotes the directive nonverbal speech act between India and China, relating to the incidents of flash floods, on 11 June 2000 in Arunachal Pradesh on the Yarlung Tsangpo-Brahmaputra river and on 1 August 2000 in Himachal Pradesh on the Sutlej river respectively; plotted as a 'securitized/opportunitized confrontation of the issue'.

- 2 denotes the assertive verbal speech act, relating to the Memorandum of Understanding (MoU) signed between India and China, during Chinese Premier Zhu Rongji's official visit to India in January 2002, for the provision of hydrological information/data by China on the Yarlung Tsangpo-Brahmaputra river during the flood season to India; plotted as a 'securitized/opportunitized common goal formation'.

- 3 denotes the directive verbal speech act between India and China, relating to the approval and announcement of the South North Water Diversion Project (SNDWP) by the State Council of China in August 2002, perceived by the Indian hydrocracy as potentially impacting the flow of the Yarlung Tsangpo-Brahmaputra river; plotted as a 'securitized/opportunitized confrontation of the issue'.

- 4 denotes the assertive verbal speech act, relating to the setting up of the Expert Level Mechanism (ELM) on shared transboundary rivers by India and China in November 2006, to discuss interaction and cooperation on provision of flood season hydrological data, emergency management and other issues regarding transboundary rivers as agreed between the two countries; and is plotted as a 'securitized/opportunitized common goal formation'.

The pattern that is seen in the above TWINS matrix relating to the Sino-Indian case study on the Yarlung Tsangpo-Brahmaputra river, is of an iterated securitized and opportunitized common goal formation, from particular cases of water-related events that have been confronted by the hydrocracies of the two countries, most particularly that

of India. The overall water interaction dynamics and relationship between India and China is characterized by this iterated back and forth of securitized and opportunitized moves. A high level of conflict intensity throughout and a back and forth of low level to medium level of cooperation intensity characterizes the transboundary water interaction between India and China, as is evident from the plotting of the speech acts in the TWINS matrix above. The larger bilateral political ties between India and China influence their interaction on the rivers.

The above TWINS matrix demonstrates the coexisting conflict and cooperation intensities in the Sino-Indian transboundary water interactions, which forms the core argument of Mirumachi (2015) in developing the TWINS framework of analysis. As an example, a speech act which has high-level conflict intensity and low-level cooperation intensity, such as the directive verbal speech act of 2002 related to China's announcement of the SNWDP, denoted as 3 in the TWINS matrix above. This coexists simultaneously with a speech act, which has high-level conflict intensity and medium-level cooperation intensity, such as the assertive verbal speech act of 2002 related to the MoU on provision of hydrological data on the Yarlung Tsangpo-Brahmaputra, denoted as 2 in the TWINS matrix above. This validates use of the TWINS matrix for the case study, demonstrating coexisting conflict and cooperation.

5.2 Political Economy Dimension of the TWINS framework: The Sino-Indian case study

This section analyses the drivers of conflict and cooperation identified by Mirumachi and Allan (2007) under the political economy dimension of the TWINS framework, in context of the overall riparian relationship between India and China on the Yarlung

Tsangpo-Brahmaputra. This analysis helps understand the solutions outside the watershed, and examining the nature of the 'problemshed' as put forward by Allan (2001), going beyond the characteristics and the dynamics of the water-related issues. The level of industrialization in the river basin and the push for diversification of economic engagement between India and China, for instance, determines the content of the transboundary water interactions on the Yarlung Tsangpo-Brahmaputra. The sustainable development agenda of the larger river basin in the national policies of India and China is a factor determining such riparian engagement.

Analyzing the overall Sino-Indian interaction on the Yarlung Tsangpo-Brahmaputra system, using the drivers of conflict and the drivers of cooperation in the TWINS framework, it is found that the drivers of conflict which are population growth, basin closure/scarcity of water and environmental degradation are all present in varying forms and intensities in both India and China. The drivers of cooperation such as basin regimes, river basin organizations and the application of international law are absent in the context of the Yarlung Tsangpo-Brahmaputra. The drivers of cooperation such as International NGOs/National NGOs, Water Science, International Financial Institutions/World Bank exist in varying forms and intensities, particularly contributing in activism by Non-Governmental Organizations (NGOs), scientific, social research and policy studies on the Yarlung Tsangpo-Brahmaputra.

The 2017 Revision of World Population Prospects prepared by the Population Division of the United Nations Department of Economic and Social Affairs, pegs China's total population at 1.4 billion and India's population at 1.3 billion, comprising 19 and 18 per cent of the world's total population respectively. By the year 2024, India's total

population is expected to surpass China's total population, still making the Himalayan neighbours and economic engines of Asia's growth the two of the most populous countries in the world (United Nations 2017). This aspect of population increase in both China and India definitely puts enormous strain on their respective national water resources, and as an essential extension, on shared transboundary water resources such as that of the Yarlung Tsangpo-Brahmaputra. This is a pertinent driver of conflict under the political economy dimension of the TWINS framework.

Cannon (2006) argues that China's focus on high economic growth in the decade and a half following the end of the Cold War, and its 'economy first' principle have already put tremendous pressure on its water resources. China has only 7 per cent of the world's total water resources but about 20 per cent of the global population, and it increasingly faces acute challenges regarding water distribution, supply, and quality (ibid). There are clear signs that unless China is prepared to take urgent corrective measures, serious water-related conflicts and domestic political and economic instability may occur in the country (ibid). This is evident in the large water diversion projects China has been involved in such as the SNWDP, which directly pits it against its riparian neighbours such as India, in the driver of conflict relating to basin closure/diversion to be able to tackle water scarcity in the domestic scenario.

Economy (2007) point towards a growing realization in China, that the issue of water and energy security combined together, would lead to grave social, political and economic consequences at home and it needs to tackle these on a priority basis. Although China holds the fourth largest freshwater resources in the world after Brazil, Russia and Canada, skyrocketing demand, overuse, inefficiencies, pollution and unequal

distribution of water resources have produced a situation in which two-thirds of China's approximately 660 cities have less water than they need, and 110 of them suffer from severe water shortages (ibid). These factors lead to the aspect of environmental degradation along with water shortages in China, which is a driver of conflict, and this can be equated with examples of environmental degradation that led to India's efforts at rejuvenation of the Ganges and the Yamuna rivers.

Wang (2006) point out that China's domestic water supply crisis has taken on an international dimension in terms of disputes over transboundary water resources in its neighbourhood, especially with India, which have been a difficult issue to negotiate or resolve despite the so-called strategic political and economic partnership between China and India, established over the recent years. Stobdan (2009) argues that if the water diversion plans of the Yarlung Tsangpo-Brahmaputra at the 'Great Bend' become a reality, it will pose a threat to India in terms of China's ability to manipulate the Brahmaputra's flow. In addition to political controversy, the project site is in a geologically fragile zone with rapid bedrock exhumation rates, and in case of a massive earthquake, it will cause a water disaster in terms of flash floods for the populations of downstream provinces in India and Bangladesh (ibid).

Analyzing the aspect of adherence to established principles of international law, China had voted against and India had abstained from voting on the Convention on the Law of the Non-Navigational Uses of International Watercourses when it was adopted by the United Nations General Assembly on 21 May 1997. When it came into force in 17 August 2014, neither China nor India were part of it, or for that matter any other South Asian country (United Nations Treaty Collection 2014). This demonstrates evidence that

a critical driver of cooperation under the political economy dimension of the TWINS framework is weak in terms adherence to international law governing transboundary water resources by both China and India. The lack of participation by both India and China in the aforesaid UN Convention does not only weaken the international legal mechanism, it affects their bilateral cooperation.

The complete absence of River Basin Organizations (RBOs) and basin regimes in the context of the Sino-Indian transboundary water interaction on the Yarlung Tsangpo-Brahmaputra river, is a natural corollary of the emphasis that both India and China put on bilateralism instead of multilateralism. In river politics, both China and India have been traditionally fixated on bilateralism, which allows space for national priorities and policies to gain prominence over regional aspirations. Ho (2014) argues that China manages its transboundary rivers as a subset of its broader relations with its co-riparian nation-states. India has adopted a bilateral stance in its riparian engagement with Pakistan, Nepal, Bangladesh, Bhutan and China, thereby allowing for maneuvering space in consonance with the respective dynamic bilateral relations, reflected in India's National Water Policy of 2012.

5.3 Analyzing Discursive Power and Material Capabilities: The Sino-Indian Case Study

This section analyzes the discursive power and material capabilities aspects of the Sino-Indian transboundary water interactions on the Yarlung Tsangpo-Brahmaputra. The key factors through which we understand the power asymmetry in the river basin dynamics, which are riparian position, power and exploitation potential, are discussed in the context of the Sino-Indian case study. The discursive framing by the respective hydrocracies of

India and China towards shaping the content and character of their transboundary water interactions is an important element towards understanding the power asymmetry. The speech acts are analyzed in context of their power frames in the TWINS matrix, to bring out the faces of power interplay in the Sino-Indian case study. The combining of riparian position with the exploitation potential brings forth the material capabilities of both India and China. India is uniquely positioned in the Yarlung Tsangpo-Brahmaputra river basin, as it is a upper riparian, middle riparian and lower riparian country at once (Sinha 2016).

In terms of riparian position, China is at an advantage given its upper riparian status in the Yarlung Tsangpo-Brahmaputra, while India has both a lower riparian status in relation to China and Bhutan and upper riparian status in relation to Bangladesh. The other two basin countries, Bhutan and Bangladesh are middle riparian and lower riparian respectively. Wirsing (2008) argues that the Chinese are beginning to gaze thirstily in the direction of the abundant river resources of the Tibetan Plateau, in particular the waters of the Brahmaputra, given its dominant upper riparian status. However, he qualifies it with the contention that whether the Yarlung Tsangpo-Brahmaputra river system holds enough water to meet the needs simultaneously of all the co-riparian nation-states, which are China, India, Bhutan and Bangladesh (ibid), among which are the first, second and the seventh most populous countries in the world at present. The availability of water and the material capability of China to tap this frontier river will shape future dynamics.

The geographical location of upper-riparian China in relation to the lower-riparian India by itself embeds both to an asymmetrical system of power in the larger river basin. The natural geography of the Yarlung Tsangpo-Brahmaputra, which in this case involves the eastern Himalayas, in the context of transboundary water interactions between China and

India is something that both countries have to factor in their employment of power in the river basin. The positional entrapment in this upper-riparian and lower riparian dyad brings to the table of riparian relations between India and China, an active interplay of power politics and hegemonic ambitions. This goes beyond the watershed to a larger 'problemshed' as described by Allan (2001), and in this case includes the unresolved territorial boundary dispute between India and China. The entire Indian territory of Arunachal Pradesh, claimed by China, falls in the Brahmaputra river basin, linking the transboundary water issue with unresolved Sino-Indian boundary dispute (Sinha 2016).

It was He Zuoxiu, an academician with the Chinese Academy of Social Sciences (CASS), who had submitted a formal proposal for the specific component of the SNWDP concerning the Yarlung Tsangpo-Brahmaputra to the Chinese People's Political Consultative Conference (CPPCC), invoking the need of the project to safeguard the future destiny of the Chinese people, gaining a high level of attention from Chinese political leaders (Wang 2006). However He Zuoxiu had made a critical geo-political mistake in his initial proposal, as he had used maps published in China, which showed the Indian province of Arunachal Pradesh as part of Tibet, which the Chinese claim and refer to as South Tibet (ibid). This links two of the most contentious and strategic issues in Sino-Indian relations in recent times, of the issue of unresolved territorial boundary dispute and other over concerns of transboundary waters and upstream river diversion.

It is evident that water-related events and its impacts will spill over China's borders, to its neighbourhood, which increases the importance of water issues in China's foreign and regional security policies, and its overall regional power discourse, and this concern is reflected in the attitudes of China's neighbours (Moore 2009). These changes in water

availability have important implications for the Chinese government's objectives both at home and abroad, and of great concern to Beijing as it pursues its policy of 'peaceful rise' (ibid). In the event of crisis concerning transboundary water interactions arise in a region, or with a country where the international border is not even agreed upon, it is likely to spur further regional tension (Mathou 2005). This holds true of the unresolved Sino-Indian boundary dispute over Arunachal Pradesh, which forms major part of the Brahmaputra river basin. In absolute strategic and military capabilities, including border access infrastructure, the power asymmetry is in favour of China (Chansoria 2011).

The link between the issues of territoriality between India and China over Arunachal Pradesh, and the general nature of transboundary water interactions on the Yarlung Tsangpo-Brahmaputra is a mix of securitization and opportunitization. There is a sense of material capability and consensus of the SNWDP within the Chinese hydrocracy, and given the historical association of political legitimacy and control of water resources in China (Mukerji 2003), the major water diversion project is a symbol of the nation-state's authority, an important political symbol (Webber et al. 2017). The geographical imagery of rivers and the territory that they flow through is an integral part of the Chinese domination of hydrological landscapes, of absolute control of water resources within Chinese territory (ibid), and what Ball (2017) refers as the traditional west to east flows of rivers in Chinese hydro-imagination. The dams being built on the main channel of the Yarlung Tsangpo upstream by China, allows China strategic control over the river basin.

The directive verbal speech act of the year 2002 related to China's announcement of the SNWDP, was based upon long years of research and planning by the Chinese hydrocracy, and directly linked to the exploitation potential of China given its access,

proximity and control over the headwaters of the Yarlung Tsangpo-Brahmaputra. The material capability of China was based on this assessment of exploitation potential and riparian position, which gave absolute territorial and sovereign access to the Great Bend area inside Tibet in China. The SNWDP announcement, which was backed to the hilt by the political elite of China, passed by the State Council, was seen as the embodiment of the long tradition of water resources management (Pietz 2014). The SNWDP was a strong political and material response by China to its social needs and environmental demands (Chen and Wenger 2014).

China's emphasis on absolute territorial sovereignty and its preference for bilateralism over multilateralism in its exercise of power relations with neighbouring countries, is an obstacle to greater cooperation on transboundary water resources (Fry and Chong 2016). They further emphasize that coordination and cooperation on transboundary water interactions will be less forthcoming when two nation-states have an unresolved territorial dispute, and such disputed areas poses a major hindrance for legal regimes on transboundary water management (ibid). This points towards a close interplay of the two factors of water issues and territoriality in the Sino-Indian bilateral relationship, securitized issue-areas having embedded opportunitization. Cooperation in water interactions can have spillover positive effect on boundary talks; and progress in the boundary talks can have positive effects on transboundary water interactions.

Analyzing power asymmetry using the the faces of power detailed by Mirumachi and Allan (2007), the speech acts plotted in the TWINS matrix of the Sino-Indian case study on the Yarlung Tsangpo-Brahmaputra, shows a mix of coercive power and ideational power. The coercive power refers to material power such as military might, economic

strength, modes of production, access to knowledge, political support, riparian position, size and value of the territory (Zeitoun and Warner 2006). The ideational power is considered the most effective as it produces compliance by the actors willingly and is related to imposing ideological frames of understanding transboundary water interactions (ibid). The third type, which does not apply to the speech acts between India and China is bargaining power, where the actors involved offer no choices for compliance and non-compliance (Mirumachi and Allan 2007).

The directive nonverbal speech act of the year 2000 was based on the access to knowledge, in this case the lack of hydrological information/data to India, and was seen in a higher level of conflict intensity. The directive verbal speech act of the year 2002 was based on political support, economic might, modes of production and riparian position, which collectively contributed to the announcement of the SNWDP by China, and was seen in a higher level of conflict intensity. The assertive verbal speech act of the year 2002 and the assertive verbal speech act of 2006 were based on soft power manifestations of cooperation based on the overall thaw in bilateral political relationship between India and China, and were seen in lower levels of cooperation intensity. The strategic competitiveness in the region and the economic interdependency between India and China make for coercive-ideational power mix.

The strategic political and economic interests that are accrued from exploiting water resources by a nation-state, as in the case of the SNWDP by China, being the upper riparian in the context of the Yarlung Tsangpo-Brahmaputra, makes such a situation obtain a strategic military value in times of geopolitical conflict (Gleick 1993). Water securitization when taken together with material capability of allocating resources for

mega water intervention projects on the one hand and to mobilize funds and resources to conduct scientific studies exploring alternatives to such interventions on the other hand, makes for a mix of low politics and high politics (Mirumachi 2015). In the Sino-Indian case study, both the countries enjoy a high material capability but the power asymmetry is manifested in the geographical reality of the upper riparian position of China vis-à-vis the lower riparian position of India in the basin.

The material capability of China to pursue the SNWDP is a matter of high politics, while at the same time the material capability of China for scientific studies for a revised cost benefit assessment of the Yarlung Tsangpo component of the SWNDP, based on the components already under construction, makes for the mix of low politics in the overall power dynamics. The speech act of the year 2006, relating to the setting up of the ELM between India and China has brought this mix of high and low politics in the riparian relationship. It can be said that China's dams along the upstream of the Yarlung Tsangpo-Brahmaputra represents a potential Chinese trump card, while the subsequent use of reassuring rhetoric of cooperation with India by China, could be read as signaling a willingness to exercise restraint as long as India would do likewise (Biba 2014), pointing to an effective mix of high and low politics.

The Vice Minister of the MoWR China stated in October 2011, that the Chinese government had no plans to conduct any water diversion on the Yarlung Tsangpo, which will affect India's downstream interests (MoWR India 2012). In December 2011, the Prime Minister of India, Manmohan Singh, while replying to a question in the national parliament of India, the Lok Sabha, said the following, 'I do not share the view that there is positive evidence to show that China has diverted waters of the Brahmaputra river.

The relations between India and China are sensitive. We are dealing with a very sensitive subject. Therefore, I think great responsibility lies on all concerned not to say things, which can be misunderstood' (Lok Sabha 2011:281). India uses its own material capability of using satellite data analysis to monitor any construction activity on the Yarlung Tsangpo in China (Lok Sabha 2011: 5628).

Mirumachi (2015) explains the perception of the hydrocracy of a nation-state of transboundary water interactions through the aspect of uncertainty and problem frames. Uncertainty can be normative, about the plurality of views examining a problem and its solution (Newig et al. 2005, Brugnach et al. 2008), and informational, about imprecise, inaccurate or limited knowledge (ibid). The problem frames of a transboundary water interaction can be structured, moderately structured or unstructured based on the combination of normative and information uncertainty (Hisschemoller and Hoppe 2001). Structured problem frames have low normative and information uncertainty; moderately structured problem frames have low normative uncertainty and high informational uncertainty and vice versa; unstructured problem frames have high normative and informational uncertainty (ibid).

The Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra is a moderately structured problem frame, with low normative uncertainty and high informational uncertainty. The perception of the hydrocracy and the political elites in India and China was based on the ideals and goals of the hydraulic mission paradigm, which advocates interventions with dams, transfer tunnels and irrigation canals as solutions to water-related problems (Allan 2001). The exclusivity of the decision-making power of the hydrocracies negates the plurality of views and stakeholders, and considers hydrological

information and data provision as core inputs to better management and decision-making abilities on shared rivers (Mirumachi 2015). The hydrocracies of India and China followed the path of exclusive decision-making, entering into MoUs to reduce informational uncertainty on hydraulic missions on the river.

The Sino-Indian border can be called a 'sensitive border', marked by nation-states with remarkably frayed edges, and characterized by uncertain sovereignty and apprehensive territoriality (van Schendel 2013). He goes on to argue that such a border cannot be called a border at all, as in official parlance, it is referred to as the 'Line of Actual Control' (LAC) or more famously as the 'McMahon Line' (ibid). This perception of sovereignty and territoriality, claimed by China and strongly refuted by India as its integral part, combined with the perception of the problem frames by the hydrocracy gives context to the lack of plurality of views and exclusive decision-making on the Yarlung Tsangpo-Brahmaputra, a major part of which flows through Indian territory of Arunachal Pradesh. The ability of India and China to strengthen cooperation on shared rivers in such a context of strategic uncertainty and apprehension is extremely limited.

5.4 The Geopolitics of Transboundary Water Interactions: The Sino-Indian Case Study

The perception of the hydrocracies of India and China of the strategic geopolitical dimension of the transboundary water interactions over the Yarlung Tsangpo-Brahmaputra makes for the exclusivity of the nation-state in decision-making on the river basin. The hydraulic mission paradigm is guided and invested by the respective central governments and national hydrocracies (MoWR India and MoWR China). Transboundary water interactions are informed by the geographical imaginations of the

river by the nation-state, their political elites and the hydrocracy (Mirumachi 2015). This in turn can project perceptions of water scarcity, flooding and abundance, securitization, opportunitization as an essential function of transboundary water actions by upper riparian nation-states on lower riparian nation-states (ibid), and this can significantly influence the range of responses that are offered as a result.

A geopolitical order can be facilitated by the above-mentioned geographical imaginations, which can induce a sense of fear of the 'other' threatening resource scarcity (Dalby 2009). In the context of the Sino-Indian case study, China's SNWDP and the geographical imagination of the Great Bend area, Chinese access to it and an advantageous upper riparian position are all factors which construct this geopolitical order on the Yarlung Tsangpo-Brahmaputra river. The overarching fear of diversion of the river by China, and its hydraulic mission on the river upstream is evident in lower riparian India, and these are raised at the national level by its political constituencies in the national parliament on a regular basis (Lok Sabha 2005:505, 2007:3754, 2008:1012, 2009:1008), and also by the provincial heads of government through which the river flows in India, in regular memorandums to the central government of India.

The power relations between India and China can be observed through an understanding of the dynamics of this geopolitical order. The framing of exclusivity in decision-making by the national hydrocracies of India and China at the domestic level is evident from the formulation of their respective National Water Policies, which lay down the parameters and the contours of water management with the nation-state. This points towards the justification and legitimization of the national level scale of operationalizing the aspects of water management at the domestic level and control of transboundary water

interactions and management at the international level. The invocation of national security discourse within the securitization frame, results in the negation of a plurality of views in transboundary water interactions, and the linkage of the territorial aspect between India and China lends credence to the argument.

The socio-economic, political and ecological implications of interventions on the river is often overlooked, and the way forward to understand them is to engage in a layered analysis going beyond the nation-state level, the domain of critical hydropolitics (Sneddon and Fox 2006). The aspect of environmental degradation in the ecologically sensitive Eastern Himalayas, which spreads through Arunachal Pradesh and Bhutan, and as the river flows through the plains of Assam and later to Bangladesh, the aspect of water level variability, due to the hydraulic mission paradigm of China are perceived as major concerns. The above is akin to the declaration of war by upper riparian China on lower riparian India and Bangladesh (Chellaney 2011). The riparian position and strategic dominance of China vis-à-vis India on the Yarlung Tsangpo-Brahmaputra is being fashioned as a political weapon by China (ibid).

The agency of the sub-national level actors to engage in the discursive processes of transboundary water interactions, be it at the provincial level or at the community level, is determined by the framing of the river as a source of livelihood (Sneddon and Fox 2006), and is essentially composed of a plurality of views at the domestic level (Mirumachi 2015). The structural level dominance of the national hydrocracies of India and China impedes upon the agent level plurality of understanding transboundary water interactions and its impacts. The historical and political context of the constructions of threat, the centralization of decision-making at the domestic level, and the socialization

of such processes relating to transboundary water interactions, help explain securitization, geopolitical framing, and the solutions and measures by the hydrocracies (ibid), and it is reflected in both India and China.

Chapter 6

A Comparative Case Study Analysis of Chinese riparian behaviour on the Mekong and Indian riparian behaviour on the Ganges

6.1 Introduction to the Case Study Method and the Comparative Approach

This section outlines the methodological approach adopted for comparing Chinese riparian behaviour on the Mekong river and Indian riparian behaviour on the Ganges river. The case study method employs an examination of the selected case studies involving China and India separately in two distinct river basins, the Mekong and the Ganges respectively. The case study approach, at the same time, fits within and also takes forward the larger comparative approach towards understanding the frames of power in the contexts of the Chinese and Indian riparian engagement and behaviour on the Mekong and the Ganges river basins respectively. The individual examination of the political and power frames in the case studies and the comparative approach to contextualize them in the larger regional riparian behaviour of China and India, complements the TWINS analysis of the Sino-Indian case study further.

The case studies discussed here are placed in an explicit comparative framework, the goal is to understand the broad parameters of riparian behaviour of China and India individually on transboundary river basins in the proximate international region, encompassing East Asia (China), Southeast Asia (Laos, Thailand, Cambodia and Vietnam), and South Asia (India and Bangladesh), all parts of a larger regional geopolitical framework of Asia. The placing of the case studies in an explicit comparative framework makes such case studies an implicit part of the comparative method, and the employment of more than one case study is essential to lend credence to

the findings of such a comparative case study approach analysis (Lijphart 1971). The case study method gains from the comparative approach and frame of reference leading to interpretations and comparisons on a systematic basis, enhancing its overall analytical abilities (ibid).

Collier (1993) points out that comparison is a fundamental tool of analysis, which sharpens the power of description of individual or a collection of case studies by focusing on their suggestive similarities and contrasts, thereby playing a central role in the formulation of concepts. The understanding and analysis of case studies in the context of their political dynamics and power attributes are best when the number of case studies is small; and in international relations, the trajectory of political behaviour over a specific period of time brings in greater legitimacy to such comparisons (ibid). This means that the comparative method used to analyze such case studies are grounded in a sense of contemporary history, and in the context of transboundary water relations, a historical account of the political relationship over shared waters is necessary to bring out the power dynamics (Reuss 2004).

The employment of case studies in a comparative analysis framework and the ensuing outlining of similarities and contrasts that comes out of such comparison of the case studies, is a central aspect of the interpretative domain of social sciences (Collier 1993). The examination of similarities, contrasts and variations in relation to each other; of the case studies being able to reflect upon broad trends in the political or thematic behaviour; and how simultaneous and coexisting processes of change may bring out different outcomes in different contexts, are three distinct but connected goals of such comparisons (Skocpol and Somers 1980). The comparison of the Mekong and the

Ganges case studies involving China and India attempts to interpret the broad political behaviour of these two nation-states in transboundary water interactions, through examining the similarities, contrasts and variations.

Sartori (1984) explains that the application of a concept to a broader range of case studies leads to what he calls as 'conceptual stretching', pointing out that certain core meanings associated with the concept fails to fails to fit or explain a larger number of cases. The worth and utility of any comparative analysis depends upon the clear outlining of similarities, contrasts and variations, as discussed by Skocpol and Somers (1980); and the application of a large number of case studies to a concept makes it very generalized and reduces its ability to focus on the above building blocks of comparative analysis (Sartori 1984). The real contribution of a comparative analysis in terms of knowledge creation and interest in the concept under study will be when the focus is on a small number of case studies, and can be extended to a larger number of case studies only after exercising some caution (Collier 1993).

The aspect of caution implied in the deployment of a large number of case studies to the comparative analysis of a concept comes from its share of difficulties in generalizing beyond a small number of case studies, although it is assumed that the basic goal of social sciences is to achieve a high level of generalization of concepts (Przeworski and Teune 1970). The understanding of 'system-specific' indicators that operationalizes the same concept in distinct manners in different contexts is the way forward, providing proper explanations and reasons for the variations in contexts of case studies (ibid). This points towards the validity of the interpretative approach to case studies in the comparative framework, bringing out the actor-specific contexts and meanings

associated with behaviour and institutions, while analyzing a concept, and this is especially true in concepts related to research on politics (Collier 1993).

The basic choice between the two types of comparative analysis, one which leads to generalizations and generic understandings of concepts with a large number of case studies, and the second which involve in-depth and specific understandings of concepts with a small number of case studies, thereby bringing out the complexities of the particular cases (ibid). In the context of international relations theory, the ability to understand the complexities of the case studies fits in well with the constructivist domain of understanding relations between two or more nation-states on a particular concept, for instance transboundary water interactions. The unique contexts and complexities of the particular case studies and its comparisons demonstrates how the two or more nation-states have engaged in constructions of power on a political and strategic basis on an given issue-area, based on their perceptions.

The TWINS approach to understanding transboundary water interactions between two or more nation-states falls in the constructivist domain of international relations (Mirumachi 2015), under which the specific Sino-Indian case study has been analyzed. The comparative case study approach to understanding individual Chinese and Indian riparian behaviour in the Mekong and Ganges respectively, adds indicators and context to the Sino-Indian bilateral case study on the Yarlung Tsangpo-Brahmaputra. The broad indicators in terms of the particular attitudes of the respective hydrocracies, bilateralism versus multilateralism as a strategy, emphasis on institutions and regimes, the linkages between water issues and territorial issues are analyzed in the two case studies and compared to each other. This adds to the understanding of political power framing of

transboundary waters by China and India in the backdrop of the power framing in terms of larger regional political and economic architecture of South Asia and Southeast Asia.

The analytical framework involves the comparative analysis of past Chinese and Indian behaviour and engagement on regional transboundary rivers, the Mekong and the Ganges. This analytical framework helps inform the Yarlung-Tsangpo-Brahmaputra case study, as there is no ready reference of past Sino-Indian formal and institutionalized negotiations on shared transboundary rivers. The Mekong and the Ganges are examples where both China and India have been involved separately, and they provide a regional reference. The relevant secondary literature on Chinese riparian interaction on the Mekong with the Mekong River Commission or the Lower Mekong countries of Laos, Thailand, Cambodia and Vietnam and on Indian riparian interaction on the Ganges with Bangladesh have been analyzed and then compared.

The primary literature surveyed for the Mekong and Ganges case studies are:

- Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, 5 April 1995, Mekong River Commission.
- MRC Hua Hin Declaration, 'Meeting the Needs, Keeping the Balance: Towards Sustainable Development of the Mekong River Basin', 5 April 2010, Mekong River Commission.
- Sanya Declaration of the First Lancang-Mekong Cooperation (LMC) Leader's Meeting, 'For a Community of Shared Future of Peace and Prosperity among Lancang-Mekong Countries', 23 March 2016, Ministry of Foreign Affairs, People's Republic of China.

- China and Vietnam sign Land Border Treaty, 15 November 2000, Ministry of Foreign Affairs, People's Republic of China.
- Joint Statement on all-round cooperation in the new century between the People's Republic of China and the Socialist Republic of Vietnam, Ministry of Foreign Affairs, People's Republic of China.
- Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganga/Ganges waters at Farakka, 12 December 1996.
- Land Boundary Agreement between Bangladesh and India, the 2011 Protocol to the 1974 LBA, and its ratification by India in 2015, Ministry of External Affairs, Government of India.

6.2 China's riparian behaviour on the Mekong with the MRC countries

The Mekong River has its origin and headwaters in the southeastern Himalayan ranges of the Tibetan Autonomous Region of China, from where the Mekong flows to the south and east on its way, before emptying into the South China Sea. The origin of the Mekong in China is in an area known as the 'three rivers area', from where two other major rivers of China originate as well, the Yangtze river and the Yellow river (CGIAR Mekong n.d). The Mekong flows through six nation-states, China, Myanmar, Laos, Thailand, Cambodia, Vietnam, and is considered to be the hydrological backbone of mainland Southeast Asia (Jacobs 2002). The Mekong is Southeast Asia's largest river, and it binds the four Lower Mekong nation-states of Laos, Thailand, Cambodia and Vietnam in a complex and a tightly woven web of interdependencies (Lauridsen 2004), apart from the uppermost riparian China and Myanmar.

The annual discharge of water volume into the South China Sea of the Mekong river basin is estimated at 475 cubic kilometres, out of which 16 percent is from China, 2 percent from Myanmar, 31 percent from Laos, 18 per cent each from Thailand and Cambodia and 11 percent from Vietnam (CGIAR Mekong n.d). The total drainage area of the Mekong basin covers 795,000 square kilometres, out of which 21 percent is located in China, 3 percent in Myanmar, 25 percent in Laos, 23 percent in Thailand, 20 percent in Cambodia and 8 percent in Vietnam (ibid). The Mekong river basin is ecologically rich and diverse and is holds the world's largest inland fisheries, which engages and supports an estimated 40 million rural population, which comprises of almost two-thirds of the basin's rural population (ibid). The rural economy of the four Lower Mekong countries is predominantly based on the fisheries.

The Mekong River is known as a 'boundary river', as it flows through China's southwestern province of Yunnan for almost half of its length, subsequently entering the 'Golden Triangle' region of Southeast Asia, forming the boundary between Myanmar and Laos, and then the boundary between Laos and Thailand, before flowing eastward into Laos; and after turning south within Laos, the Mekong River again forms the boundary between Laos and Thailand, and then flows into Cambodia. The Mekong river has many names, in China it is known as the Lancang Jiang which means 'turbulent river', in Thailand and Laos as the Mae Kong or the Mae Nam Kong which means 'mother water', and in Vietnam as the Cuu Long which means 'nine dragons' (CGIAR Mekong n.d). The name 'nine dragons' in Vietnam refers to the multiple branches and the braided nature of the Mekong as it enters the South China Sea.

At the Cambodian capital of Phnom Penh, the Tonle Sap river connects the Mekong with Cambodia's Tonle Sap lake, which is also known as the 'Great Lake'. During the wet season, the Tonle Sap river carries high flows away from the Mekong to the Tonle Sap lake, which subsequently expands to the north and west, while during the dry season, the Tonle Sap river reverses its flow and carries waters from the Tonle Sap lake back to the Mekong river. Below Phnom Penh, the Mekong splits into two rivers, with the main stem of the Mekong being the eastern branch, and the western branch being the Bassac River. Both the rivers then flow into the Mekong delta of Vietnam, finally entering the South China Sea. The uppermost riparian nation-state in the Mekong river basin is China and the lowest riparian nation-state is Vietnam, and Myanmar, Laos, Thailand and Cambodia are the middle riparian nation-states.

The foundation of the Mekong cooperation was laid in the hostile environment of Cold War, when the Committee for Coordination of Investigations of the Lower Mekong Basin, known as the Mekong Committee (MC), was initiated in 1957 (Mekong River Commission Official Website). The geopolitical influence of the United States of America (USA) in the Southeast Asian region had a major role in establishing this formalized cooperation. It was the United States Bureau of Reclamation and the United Nations (UN) that urged the formation of an international river basin organization towards development of irrigation and hydropower in the lower basin countries of Thailand, Cambodia, Laos and Vietnam, which was officially then only South Vietnam (ibid). The hydraulic mission paradigm put forward by Allan (2001) can be seen as the prime driver of the initiation of riparian cooperation on the Mekong basin.

The Mekong Committee was the product of the USA's efforts at containing China's influence in the region by uniting the Lower Mekong region against the spread of communism (in North Vietnam and China), which resulted in non-participation of these communist countries in the committee. As China and Myanmar were not members of the UN at that point of time, and the UN being the main funder of the MC, these countries were not invited to participate (Lauridsen 2004). China was not incorporated in the Mekong regime for a long time despite being the influential and crucial upper riparian basin stakeholder. This arrangement was altered with the shift in geopolitical order in Southeast Asia after the end of the Cold War, with China emerging as the most important regional power through its economic growth and riparian development initiatives in the Mekong region (Keskinen et al. 2008, Makim 2002).

Alongside China's policy shift, moving from a Cold War superpower competition to building beneficial relations with the Lower Mekong countries and its hydropower development initiatives in the Mekong River basin, created major dilemmas in the lower basin area on recognizing and opening up to China in the Mekong regime. Disagreements among the lower basin countries continued on whether to continue with the Mekong Committee framework or develop a new framework by incorporating China (Keskinen et al. 2008). It was finally only in the late 1990s that China and the four Lower Mekong countries began discussions on water resource management and river basin development cooperation (MRC Website). The Mekong Committee gave way to the formation of the Mekong River Commission (MRC) in 1995, which set the stage for the lower Mekong countries' riparian engagement with China.

The 1995 Agreement on Cooperation for the Sustainable Development of the Mekong River Basin that established the MRC was a major breakthrough as it incorporated China as an observer member in 1996 along with Myanmar (MRC Website). This agreement is regarded as a milestone in international water resource management treaties among co-riparian countries, bringing in new development initiatives with a formalized institution working on joint development of the river basin, ecological protection and a dynamic process of transboundary water allocation and resource use (Lauridsen 2004). The MRC also provided for member agencies, the National Mekong Committees (NMCs), established at country-level, in order to strengthen the link between the MRC and the four national governments, engaging with civil society and local people at the national levels (Dore and Lazarus 2009).

If we look at the trajectory of relations between China and the MRC countries, particularly on cooperation on the Mekong river basin, the strategy of counterbalancing a rising China by the Mekong River Commission countries forming a group, with Vietnam and Thailand taking leadership roles within that group, seems unable to explain the complex and dynamic relationship of the countries involved (Bobekova et al. 2013). Rather, it is an institutionalist approach that better explain China's role in Mekong basin politics with MRC countries and development dynamics (ibid). Institutional cooperation over sharing and management of water resources of the Mekong River basin has often been cited as one of the successful arrangements of riparian cooperation and basin development (Phillips et al. 2006). However, this cooperative sentiment remains limited to the four countries of the lower Mekong basin.

Even at times of strained relations and during conflicts, cooperation on the Mekong River has remained resilient. For example, during the Vietnam War, the Mekong Committee continued exchanging water data and information among its member countries (Wolf et al. 2005). The Mekong has seen remarkably few conflicts over water, and when these have occurred, they have had the form of political tensions rather than involving violent confrontation between riparian countries. It is likely that the early foundation of the Mekong Committee has played an important role in facilitating cooperation rather than violent conflict in river basin politics and experts often refer to a special 'Mekong Spirit' of cooperation when writing the history of regional hydro-politics (Lauridsen 2004). The same history of the Mekong Committee, when it had excluded China during the Cold War has been an impeding factor till the present.

The concept of benefits beyond the river (Sadoff and Grey 2002) from basin-wide cooperation, in the case of the Mekong, has been the driving principle right from the emergence of Mekong cooperation and this economic rationale still holds strong, as has been highlighted by the intensification of institutional initiatives. Backer (2007) points out that the major limiting factor for the effective operation of the MRC is that, the two upstream countries, China and Myanmar are not its members and are not bound by any legal agreements, thereby enabling them to keep open their avenues for unilateral hydraulic interventions on the Mekong river upstream. For instance, there are no official safeguards or protocols in place for prior consultations and information on hydraulic interventions on the Mekong river between China and the four Mekong River Commission countries (Goh 2004).

China's performance in international negotiations over water as well as in the regional Mekong regime reveals Beijing's understanding of transboundary cooperation as being more of a strategic option than a normative commitment (Menniken 2007). This also suggests that alliances confronted with the impacts of Chinese water policy should focus on strategies of counterbalancing rather than criticizing or ignoring Chinese ambitions (ibid). China being in a dominant position hydrologically and politically, a second strategy for such alliances would be 'issue linkage', by offering incentives in non-water fields in return for the cooperative management of shared water resources (ibid), and an important part of this can be regional economic development cooperation. Indeed, this explains the present character of the overall riparian relations between China and the four countries of the Mekong River Commission.

The fact that China is not a member of the MRC is seen as a source of potential weakness of the Commission itself, with lower riparian countries such as Cambodia and Vietnam seeing upstream dams constructed by China as a threat to the 'flood pulse' of the river and the livelihoods it sustains (UNDP 2006). Moore (2009) point out that the Mekong river is a challenge for China's security, as relations between China and its downstream neighbors in the Mekong basin have long been fragile, and likely to be exacerbated by the construction of several dams in the Chinese province of Yunnan, restricting flow to downstream nations. In the event of transboundary water flow to the Mekong becoming more variable under climate change, China's 'asymmetric' control of the river's headwaters and its hydraulic mission will become an issue of even greater concern to the Mekong River Commission countries (ibid).

The above is being seen in Vietnam, where floods and droughts occur almost every year, with an average of 1.7-1.8 flood and 0.14-0.24 droughts per year (Nguyen et al. 2007). Along with these complexities, the increasing saline intrusion and reduced nutrient-rich alluvial deposits in its delta has largely affected the agricultural production and food security (Miao et al. 2015). The worst of the floods in Vietnam occurred successively between 1999 and 2002, and in 2006, which largely impacted the Cuu Long Delta and in 2008 affecting the eastern highlands of the country (Nguyen et al. 2007; MRC 2013). The Vietnamese officials, from time and again stressed that these prolonged droughts occurring in the Mekong delta, is not just the result of the natural phenomenon such as El Nino as highlighted by an UNDP report (2016), but also due to Chinese hydropower dams on the Mekong operating upstream (Zhou 2016).

The Chinese government however has all along been saying that it remains committed the integral and comprehensive development of the Mekong River basin in the light of greater China-ASEAN integration, and ensure that Chinese activities in the upper Mekong River will not be carried out at the cost of the riparian countries in the lower reaches (Tang 2002). This theme is demonstrated in subsequent Chinese official pronouncements, for example in the 2010 Hua Hin Declaration (MRC 2010a) and the 2016 Sanya Declaration, which formed the Lancang-Mekong Cooperation Mechanism (LMCM). Furthermore, downplaying its hydropower dam's affecting downstream flow regime, China switched towards a 'damage control' strategy (Storey 2010). For instance, China invited officials of the lower Mekong countries to visit its Jinghong Dam for inspection in 2010, as a goodwill gesture (Biba 2016).

In 2013, China and the lower riparian countries renewed the 2002 agreement on hydrological data sharing during the annual flood seasons, and China agreed to expand the period of data sharing from four to five months (June to October) and the frequency of data sent from once to twice a day (MRC 2013). China had indicated its willingness to share data during the dry season from the hydro-meteorological stations at Jinghong and Manwan, limited to only emergency conditions (MRC 2010b, MRC 2013). However, there are no agreements on sharing of data during the dry seasons, which is critical for the lower Mekong countries to prevent droughts (Biba 2016). The LMCM, China's parallel initiative to the MRC, introduced in 2015 and signed in 2016 is the first sub-regional cooperation arrangement agreed by all the six co-riparian countries of the Mekong river basin, making it a significant event (Biba 2016).

6.2.1 India's riparian behaviour on the Ganges with Bangladesh

The river Ganges has its origin or headwaters in the Gangotri glacier in the province of Uttar Pradesh in India, at an elevation of about 3139 metres above sea level, and is the thirtieth longest river in the world, having a total length of approximately 2600 kilometres; the Ganges river basin including China, Nepal, India and Bangladesh (Rahaman 2009). From its Himalayan source the Ganges traverses south and southeastward in India for about 1,400 miles, and about 11 miles below Farakka in India, the river forms the international boundary between India and Bangladesh and continues for 63 miles before finally entering Bangladesh near Rajshahi (Nishat and Pasha 2001). The Ganges flows through some of the most populated regions of India and Bangladesh, before joining the Jamuna as the Padma at Goalanda (Sarma 2005: 73). The Ganges after entering Bangladesh is known as the Padma.

The combined flow of these two rivers is now known as the Padma and flowing another 105 kilometres (Rao 1979: 77), the Padma merges with another major transboundary river, the Meghna, at Chandpur (Rahaman and Varis 2009: 61). From this confluence, the combined flow of the three rivers, the Ganges (in India), the Brahmaputra (in India) and the Meghna, is known as the Lower Meghna, and finally it empties into the Bay of Bengal as the Lower Meghna (Rahaman and Varis 2009). The Ganges river drains a total area of approximately 1,080,000 square kilometres, which includes the various tributaries joining it covering the four basin countries of China, Nepal, India and Bangladesh (Rahaman 2009). This case study is focused on transboundary water interactions between India as the upper riparian nation-state and Bangladesh as the lower riparian nation-state on the main channel of the Ganges.

The contestations of sharing of transboundary waters of the Ganges between India and Bangladesh has its origins in the partition of India in 1947, with a host of territorial and water-related issues arising as a result of the divisions and adjustments of political jurisdiction of the British colonial expanse of the Indian subcontinent (Subedi 1999). The partition of 1947 was politically a very tumultuous time for India on the one hand and Pakistan on the other, a geographically disparate nation-state, which comprised of West Pakistan and East Pakistan (Zamindar 2007). The irrigation systems comprised of canals which sustained the agricultural economy of the Indian subcontinent during the British colonial rule, were under severe contestations between India and undivided Pakistan, amidst the atmosphere of political animosity of the post-partition territorial conflicts (Subedi 1999).

The 1950s saw the plans being formulated for building the Farakka dam by India on the Ganges river just before it formed the boundary of India and then East Pakistan, the goal being to divert the waters of the Ganges to the Bhagirathi or the Hooghly river and subsequently aiding to flush the siltation from the port of Calcutta (ibid). The actual construction of the Farakka dam was started in the year 1964, which was seen as a unilateral action on the Ganges river by Pakistan. The political climate however changed drastically in the Indian subcontinent, with India aiding the Bangladesh Liberation Movement or Mukti Bahini under Sheikh Mujibur Rahman in East Pakistan (Dixit 1999, Haider 2009). The culmination of the active Indian support to the Bangladesh War of Independence in 1971 against West Pakistan, led to the successful creation of the nation-state of Bangladesh (ibid).

The motivation of India in supporting the formation of Bangladesh was on one hand to weaken Pakistan as a nation-state and have a friendly partner in Bangladesh, which by extension of that political support in strategic and territorial terms, would be subservient to India's geopolitical and economic policies and power aspirations in the region (Haider 2009). In the context of transboundary water interactions, a Joint River Commission (JRC) was established between India and Bangladesh immediately thereafter in 1972, but matters did come to a head by 1975 over the issue of a test run of the feeder canal of the Farakka project (Subedi 1999). However, Bangladesh sought to have a best possible deal with India at the given political circumstances, and the first agreement between the two countries on the Farakka was reached in 1975, basically aimed at India's operationalizing of the Farakka project (ibid).

The agreement of 1975, which led to the commissioning of the Farakka project by India, started the process of serious inter-governmental deliberations between India and Bangladesh, which was not possible before 1971 given the adverse political relationship between India and Pakistan. It took the governments of India and Bangladesh about twenty more years from 1975 until the signing of the Ganges Treaty in 1996 to work out a mutually acceptable formula in regard to sharing of the Ganges waters at Farakka (Wirsing 2008). The upper riparian and geopolitical advantage that India employed in these negotiations, and the unilateral nature of the decision to construct the Farakka barrage on the Ganges river, still looms large in many Bangladeshi minds, as the single-most conspicuous symbol of India's 'bullying' tactics and utter indifference to lower riparian water needs of Bangladesh (ibid).

However, the political leadership of India and Bangladesh attempted to make the Farakka Treaty as a mark of improved bilateral relationship between the two countries. Haftendorn (2000) elaborates that both India and Bangladesh committed themselves to a complicated formula of transboundary water sharing, wherein during the annual low-tide period of the Ganges river, from 1 January until 31 May every year, both sides are committed to sustaining a minimum water level of 35,000 cusecs, and should the available water flow drop further, then both sides be obliged to maintain this level in alternative 10 day periods. Moreover, the 1996 agreement contains a reference to the desire to have a comprehensive settlement of the transboundary water sharing issues between India and Bangladesh, under the umbrella of the South Asian Association for Regional Cooperation (SAARC), a supra-regional body (ibid).

In its post-independence history, India has chosen to hold various positions on transboundary water interactions with its riparian neighbours, especially with Pakistan, Bangladesh and Nepal. The comparison of the contours of the negotiations over the Indus Water Treaty between India and Pakistan on the one hand, and the treaty on the sharing of the waters of the Ganges between India and Bangladesh on the other, points out that India has had a mixed bag of success in water negotiations that it has undertaken as a nation-state (Mehta 2007). However, due credit must be given to a minimum basic adherence to international laws and practices by India, which has ensured peace among the co-riparians, even in the face of conflict in other related political matters, such as territory (ibid). In spite of dismembering Pakistan and helping create Bangladesh, the Indus Water Treaty was largely functioning well.

The interim period between 1975 and 1996 was a period of domestic political instability in Bangladesh, and it ended with the election of Sheikh Hasina, the daughter of Sheikh Mujibur Rahman, as the Prime Minister of Bangladesh in 1996. This saw a turn in the political scene in Bangladesh, and the high degree of consent between the top political leadership of India and Bangladesh, Prime Minister H D Deve Gowda and Prime Minister Sheikh Hasina respectively, at the time of concluding the agreement, played an important role in securing a mutually favourable deal between the two countries (Haftendorn 2000). A central consideration for India was that a successful agreement on water could assist the resolution of other outstanding political issues with Bangladesh, such as securing transit rights through Bangladesh and stemming of the flow of illegal immigrants from Bangladesh to India (ibid).

The Farakka Barrage constructed by India has had a number of downstream impacts in Bangladesh, which includes reduced navigability of the Ganges river, known as the Padma inside Bangladesh, variability in fisheries and reduced availability of fresh water supply for dry season agricultural irrigation, especially in south-western Bangladesh (Wirsing 2008). Another impact of the Farakka project is the steady deterioration of the Sundarbans, the vast coastal mangrove forest in the deltaic region of Bangladesh, due to the increased intrusion of saltwater from the Bay of Bengal, which impedes the delicate balance of saltwater and freshwater, and essential nutrients required for the sustainability of the mangroves (ibid). The failure of incorporating the requirements of the basic minimum flows of freshwater to prevent such saltwater intrusions in the Sundarbans is a major drawback of the 1996 Farakka Treaty. The dry season low flow in the Ganges proved to be a major challenge for the utilization of India and Bangladesh (Sinha 2016).

The 1996 Farakka Treaty was taken by India and Bangladesh as containing the basic principles of future transboundary water interactions between the two countries on other shared transboundary rivers, a framework treaty in addition to being a technical treaty concerning one barrage, that is the Farakka Barrage and only on one river, that is the Ganges (Subedi 1999). The treaty emphasized on the principles of equity, fairness and no harm to either party, but did not explicitly include within its provisions, for the judicial settlement of disputes arising out of its interpretations and implementation, except referring it to a Joint Committee (ibid). This is seen as a weakness in the treaty, which also reflects the hegemonic framing of power by India as the upper riparian nation-state with the unilateral nature of its operation of the Farakka Barrage, with Bangladesh to be concerned with agreed water flows.

Crow and Singh (2000) point towards what they call two myths regarding India's unilateral action on the Farakka Barrage in relation to downstream impacts on Bangladesh, which are embedded in the complex nature of the post-partition reality of the Indian subcontinent and the technical uncertainties and ambiguities of water resources development and control. The first myth is that the Farakka Barrage built by India was politically portrayed in Bangladesh as a symbol of India's evil intent towards downstream Bangladesh, owing to the technical ambiguities of the 'flushing' process of Calcutta port, and India's failure to correctly assess the downstream impacts on Bangladesh (ibid). The second myth was that India could use the Farakka Barrage to store water and release it anytime to cause widespread flooding in Bangladesh, due to natural fear of downstream countries of upstream control of rivers (ibid).

The Farakka Treaty of 1996 was specifically designed to focus on the division of dry season flows in the Ganges river flowing into Bangladesh, as a direct function of the construction of the Farakka Barrage by India upstream. The treaty negated the discussions on the augmentation of the flow, which formed a major part of the bilateral water sharing discussions between India and Bangladesh during the period 1977-82, after the first agreement on the Farakka was signed in 1975 and the barrage was commissioned (Crow and Singh 2000). The augmentation of flow issue was termed as a long-term problem, which could be discussed between India and Bangladesh on a bilateral basis in the future as contained in Article VIII, during the forty years of the operation of the Farakka Treaty, that is 1996-2026, which had provisions of periodic reviews every five years (Farakka Treaty 1996).

Towards a solution of the augmentation of dry season flows on the Ganges, India suggested diverting the waters of the Brahmaputra river by means of a canal to the Ganges through its NRLP, but Bangladesh promptly rejected the plan offered by India, fearing negative consequences for its own water system (Haftendorn 2000). However Bangladesh proposed a counter-arrangement to India's plan, which included the basin countries of Nepal and Bhutan as well, to build a dam on the upper flow of the Brahmaputra and the Ganges in order to fulfill the water requirements of the region as a whole (ibid). However, India was only open to dealing with Bangladesh on a bilateral basis, and not to engage in any multilateral transboundary water interactions combining Nepal or Bhutan (Crow and Singh 2000). India had also entered into a bilateral agreement with Nepal in the year 1996 on the Mahakali river.

The National River Linking Project of India, which aims to connect the Himalayan rivers to its peninsular rivers, is a likely aspect of contention between India and Bangladesh, going by India's proposal to meet the deficit in the dry season water flows in the Ganges river from the Brahmaputra river. It was in 1982, when the Central Water Commission of India had prepared a feasibility report on a barrage at Jogighopa in Assam and the Brahmaputra-Ganges Link Canal project, flowing through Bangladesh by gravity, as the first phase of the development and augmentation of flows of the Ganges during the dry season by diverting water of the Brahmaputra (Lok Sabha 2003:1728). The second phase of the proposal involved the construction of dams and the creation of backup storages of water on two major northern tributaries of the Brahmaputra basin, the Siang or Dihang and the Subansiri (ibid).

This feasibility report by India's Central Water Commission was during the phase, which Crow and Singh (2000) says was when the transboundary water interactions between India and Bangladesh were focused on the aspect of augmentation of water flows in the Ganges. However, Bangladesh was opposed to the concept of intermixing of river basins, and wanted to treat the Ganges and the Brahmaputra rivers as parts of separate discussions with India. This is evident from the reservations made by Bangladesh, when India put the Brahmaputra-Ganges Link Canal proposal in front of the Indo-Bangladesh Joint Rivers Commission (Lok Sabha 2003:1728). However, within domestic water resources management, India's National River Linking Project still has plans to connect rivers from the Brahmaputra basin to the Ganges basin, for instance the Manas-Sankosh-Teesta-Ganges link (Lok Sabha 2003: 4459).

6.3 Comparing the two case studies in context of Chinese and Indian riparian behaviour

The Chinese engagement on the Mekong river basin is by default embedded in an institutional interaction approach and framework, primarily due to the institutional transboundary riparian interaction behaviour of the downstream Lower Mekong countries (Bobekova et al. 2013). One of the major motivations of the institutionalist hydrocracy when the transition from the Mekong Committee to the Mekong River Commission was effected in 1995 was related to the formal admission of China and Myanmar to the institutionalist frame, though they only came in as observer members (MRC Website). The four Lower Mekong countries were seen as not aggressive enough to bring China on board the Mekong River Commission as a full member, denting MRC's basin wide institutional efficacy (Biba 2012).

The Indian engagement with Bangladesh on the Ganges river moved politically from a fractious West Pakistan-East Pakistan engagement mode between 1947-1971 to a more pronounced bilateral mode after Bangladesh was formed as a separate nation-state in 1971. The Indian hydrocracy and elite political decision-makers had concluded the Indus Water Treaty in 1960 with then undivided Pakistan, and the spirit of this treaty was meant to set the terms of the transboundary water interactions on shared rivers between and India and East Pakistan as well (Kulz 1969). Similarly, when the Farakka Treaty was signed in 1996, both the hydrocracies of India and Bangladesh asserted that it would serve as a framework treaty for understanding and cooperation on other transboundary rivers that are shared between them (Farakka Treaty 1996, Subedi 1999). However, both have proved to be one-off treaties.

The basic assumption of the hydrocracy and the elite political decision makers in India regarding the Farakka project in its formative years was that it will not have any adverse downstream impacts in Bangladesh. Prime Minister Jawaharlal Nehru had stated in 1961, assuring that any river development infrastructure or activities by India on shared transboundary rivers will not have any 'real injury' or adverse impacts downstream on its neighbours (Crow and Singh 2000). The Indian hydrocracy was clear that any progress in talks and cooperation with Pakistan, on the issue of the Farakka project will have to be based on the principle of 'reciprocity' (Kulz 1969). The initial strategy of the Indian hydrocracy was to engage in hydrological data sharing activities, and six meetings were held between 1960-69 involving technical experts from both sides, but failed to make any headway (ibid).

In a similar vein, the Chinese hydrocracy regards its development and utilization of the upstream waters and hydropower resources of the Lancang or the Mekong river, in a frame of appropriate, orderly, sustainable and harmonious approach, keeping in mind the interests of China and also the lower riparian countries, with a focus on river conservation (MoWR China 2015). It stresses a high level of importance to the cooperation between China and the Mekong River Commission, and its riparian nation-state members, and emphasizes that great achievements have been made in water related fields ever since such cooperation began in the year 1996 (ibid). The Chinese hydrocracy highlights the unblocked information communication and exchange channels with the MRC and its member countries in order to strengthen cooperation in flood control and disaster mitigation in the downstream countries.

China has been described as the 'upstream superpower' of Asia (Nickum 2008), with a dominant 'upstream strategy' enabling its position to act unilaterally, utilize the resources of its shared transboundary rivers, and transfer the negative externalities to the downstream co-riparian nation states (Ho 2016). China's relations with the MRC must be seen as a function of Chinese foreign policy, and Chinese foreign policy at the time of the conclusion of the 1995 MRC Agreement was resistant in general to regional multilateral initiatives (Hirsch et al. 2006). It was until the mid-1990s, China's international negotiations' behaviour was likened to that being of an 'adamant bilateralist', on issues both central and peripheral to its interests (ibid). China's stance towards multilateralism, especially in transboundary water interactions, is based on core national interests and mutual trust and engagement (Ho 2016).

In the context of transboundary water interactions between India and Bangladesh, the former is seen as an upstream hegemon, be it in the Ganges or the Brahmaputra river system, and this behaviour can be factored in the contemporary political history of South Asia. The partition of India which happened in 1947, is termed as a continuous and long partition (Zamindar 2007), and the fact that India was instrumental in the formation of Bangladesh in 1971, makes such attitudes even more entrenched in the minds of the political elites in India. India's dominance in the South Asian Association of Regional Cooperation (SAARC), for example, is based on its size, location and economic might, and thus India has an ingrained perception of hegemony in South Asian economic and political affairs (Bhasin 2008). The riparian hegemony of India in South Asia is a natural extension of such political hegemony.

India's policy on transboundary water interactions in South Asia is based on bilateralism, and the justification of this is in terms of simplicity in negotiations, the negation of opposing coalitions within South Asia and preserving its bargaining power (Crow and Singh 2000). The hydrocracy of India has made bilateralism as the dominant strategy, which is reflected in the National Water Policy of India 2012, which says that the negotiations on sharing and management of water of international rivers should be done on a bilateral basis in consultative association with co-riparian nation-states, and that India's national interest must be of paramount importance (MoWR 2012). A strong emphasis is laid on the bilateral exchange of hydrological data sharing to serve as the base of such bilateral consultative association and international agreements with co-riparians by the hydrocracy of India (ibid).

The Chinese behaviour on the Mekong has two distinctive parts, one being China's engagement with the institutional framework of the Mekong River Commission, thereby recognizing the dominant River Basin Organization (RBO) in the Lower Mekong basin. The second part is to engage the constituents of the MRC, that is the four countries of Laos, Thailand, Cambodia and Vietnam at varying combinations and forums at the regional level. China's behaviour and engagement with the various institutional forums relating to cooperation on the Mekong has been described as 'forum shopping', where Beijing picks and chooses forums, or creates new ones which are conducive to its interests, and in the process, bypassing existing institutions and RBOs, such as the MRC and its legally binding rules (Hensengerth 2009). The formation of the LMCM by China is an instance of forum shopping.

The general perception on the preponderance and unilateralist attitude of China in the Mekong river basin (Waterbury 2002) is witnessing a policy shift, which involves signing hydrological data exchange agreements, confidence building exercises with co-riparians in the dialogue meetings of the MRC and multinational negotiations with co-riparians in a framework of regional institutions (Onishi 2007). The forum shopping behaviour of China in the Mekong river basin has in a way led to improved dialogue among the upper Mekong basin interests and the lower Mekong basin interests. The increased linkages among the co-riparians in terms of political and economic interdependencies offset the advantages that China has enjoyed in terms of riparian position, and the shift towards institutional multilateralism is to bridge the upstream-downstream divide in the Mekong river basin (ibid).

The general perception of India as a regional water hegemon in South Asia, given its unilateral actions on the Ganges river basin, has also seen a policy shift towards a multilateral engagement, albeit that has been described as tentative in nature (Crow and Singh 2000). The efforts required of the Indian hydrocracy beyond bilateralism, something termed as 'regionally appraised bilateralism', which embeds multilateral exchange patterns within the ambit of bilateral diplomacy (ibid). However, this has not been able to translate in the context of the Ganges river basin, as India fails to substantively follow the spirit of a larger consultative process, which is mentioned in its National Water Policy of 2012 (MoWR 2012). This has resulted in a fractured sense of engagement by India, for instance with Nepal and Bangladesh on the Ganges river basin, unable to regionally appraise both bilateral processes.

India had abstained from voting and Bangladesh had voted in favour of the Convention on the Law of the Non-Navigational Uses of International Watercourses when the United Nations General Assembly adopted it on 21 May 1997. When it came into force in 17 August 2014, neither India or Bangladesh were part of it, or for that matter any other South Asian country (United Nations Treaty Collection 2014). This reflects a change in the attitude of Bangladesh, who had voted in favour of the Convention in 1997, on the premise that its emphasis on fundamental and procedural principles for solving water disputes equitably (Islam 2004). This change in attitude of Bangladesh comes from other intractable water disputes with India, for instance the Teesta, the agreement stymied at India's sub-national level, with West Bengal playing hardball on the river negotiations (Asthana and Jacob 2017).

China was one of the three countries, which had voted against the 1997 UN Watercourses Convention, and it holds that position till the date of coming into force of the Convention (United Nations Treaty Collection 2014). China regards its own national level Water Law of 2002 as adequately equipped to handle the challenges and dynamics related to its transboundary water interactions with its neighbouring countries (Fry and Chong 2016). The transboundary water interactions of China with specific countries and institutional arrangements such as the MRC is strongly influenced by the international water law regime, and the management of its transboundary rivers for domestic uses through its Water Law of 2002 falls within the broad parameters of not causing significant harm to co-riparians (ibid). This arrangement allows China to maintain indisputable territorial sovereignty on its rivers.

The link between cooperation on territoriality and transboundary water interactions can be exemplified by the signing of the land border treaty between China and Vietnam in the year 2000, under which all outstanding issues regarding the land border between the two countries were resolved (China Vietnam Land Border Treaty, MOFA 2000). In a subsequent joint statement in the same year, China and Vietnam, among other aspects, agreed to work together to intensify information sharing and cooperation on environmental protection, prevention and relief of disasters, meteorology, hydrology and the development of the Mekong river basin (China Vietnam Joint Statement, MOFA 2000). The successful land border agreement in the context of China and Vietnam had positive spillover effects on cooperation on transboundary water interactions, with active measures taken up bilaterally to reduce downstream impacts. This is evident from the bilateral joint statement immediately issued after the land border agreement was signed.

In the case of India and Bangladesh, the sense of stability in bilateral relations brought about by the Farakka Treaty of 1996, and the functioning of the Indo-Bangladesh Joint Rivers Commission (JRC), how inadequate and underachieving they both might be, has contributed to the atmospherics of the successful agreement on the Land Boundary Agreement reached in the year 2015. The discussions on the long-pending land boundary issue and the Farakka project issue were taken up with renewed purpose with newly created Bangladesh at around the same time in 1974-75 (India-Bangladesh Land Boundary Agreement, MEA n.d). The Land Boundary Agreement presents a structural positive outcome in the bilateral relationship between India and Bangladesh taking along the sub-national units (Ferdoush 2017). This land boundary agreement between India and Bangladesh can bring positive spillover effects on the ongoing Teesta river water sharing negotiations, which is stuck in objections by sub-national units (West Bengal) in India.

The reason behind India keeping its transboundary water interactions in the bilateral realm in its official policies, is to maintain ambivalence and deal with water related issues based on the actual tone and content of overall political and strategic relations with the co-riparian at that given point in time. When the Farakka dispute was raised at the United Nations General Assembly in 1976, India had reiterated that it wanted to solve the issue with Bangladesh within the bilateral relationship, and any attempt to internationalize it will complicate the situation further (Kawser and Samad 2016). The Farakka Treaty involves only a single issue and only a particular portion of the Ganges, and not the entire watercourse, and this limited and non-committal nature of cooperation is the defining character of the hydrocracy of India vis-à-vis its co-riparians, with narrow outcomes for the cooperative efforts (Kliot et al. 2001).

The reprioritizing of regional calculations in the Mekong basin cooperation, given the six-party consensus on the Chinese-led LMCM, comes in the backdrop of China's ambitious 'one belt, one road' (OBOR) infrastructure development goals in the larger region, of which the MRC countries form an integral part. Regional cooperation and solidarity as emphasized by China through the LMCM process is directed to spin off strategic benefits for the OBOR initiative, and Vietnam's participation and engagement is of particular importance, given the maritime contestations in the South China Sea, which has remained unsolved. The current engagement of China with Cambodia and Vietnam is related to concessions on water related livelihood concerns such as agricultural production and fisheries' sustainability, creating a sense of goodwill, which brings positive spillovers to other issue areas regionally.

6.4 Analysis of Broad Indicators for the Yarlung Tsangpo-Brahmaputra Case Study

The above comparison of China's behaviour on the Mekong river basin with the Mekong River Commission countries and India's behaviour on the Ganges river basin with Bangladesh provides important indicators for the Yarlung-Tsangpo-Brahmaputra case study and points towards a regional precedent of transboundary water interaction and behaviour. The broad indicators are related to the behaviour of the respective national hydrocracies of China and India and the choice by their respective political elite decision-makers between bilateralism and multilateralism in their dealings with neighbouring co-riparian nation-states. The indicators relating to adherence to the basic principles of international law governing transboundary water interactions and the linkages between territory and transboundary rivers in the overall political relationship

are also found in the context of the Sino-Indian case study. The following sections analyses the indicators for the Sino-Indian case study from the comparisons made above.

6.4.1 Indicators for the Sino-Indian Case Study: Behaviour of Hydrocracies

The common indicator to the behaviour of the Chinese and Indian hydrocracies is their reliance on technical knowledge construction on water resources and associated hydraulic interventions, which is rooted in the history of dealing with rivers within the domestic boundaries of their respective sovereign territories. The emphasis of the Indian hydrocracy to create a cadre of apolitical engineering experts to carry forward its hydraulic mission paradigm (Swayamprakash 2014), and China's long history of engagement with technical interventions signifying national strength and civilizational pride in its rivers (Ball 2017), point towards evidence of this commonality. This behaviour is reflected in China's SNWDP and India's NRLP, both grand water diversion projects and the series of hydropower dams that both China and India are planning and building on various tributaries of the Yarlung Tsangpo-Brahmaputra river basin, in the Tibetan Autonomous Region (TAR), China and Arunachal Pradesh, India respectively.

The manner in which the respective hydrocracies of India and China calibrate their organizational behaviour of reliance on the hydraulic mission paradigm with the developmental aspirations of their respective domestic political constituencies and economic growth needs, will determine the future of transboundary water interactions. The nature of interactions between the Indian and the Chinese hydrocracies will depend on the balance of hydraulic interventions and management that each of them brings to the Yarlung Tsangpo-Brahmaputra river basin. At present, the respective hydrocracies are asserting their absolute territorial rights to develop the water resources of the Yarlung

Tsangpo-Brahmaputra river, which has set the parameters of riparian engagement to a sense of matching each other's material capabilities in the context of hydraulic interventions. However, the competitive jostling of hydraulic interventions on the river basin can lead to entrenched positions taken up by the Indian and Chinese hydrocracies.

The Chinese and Indian hydrocracies accord a high priority to hydrological data sharing in transboundary water interactions, as is seen in Chinese institutional cooperation with the MRC on the Mekong, and India's bilateral cooperation with Bangladesh on the Ganges. This is an important indicator to the Yarlung Tsangpo-Brahmaputra case study as the current level of cooperation between India and China is based on hydrological data provision by China to India, and the primary goal has been to assist in flood forecasting and disaster mitigation downstream. This points towards a regional precedent in both Chinese and Indian behaviour on transboundary water interactions, and the hydrocracies see this as a necessary confidence-building measure to deepen the content of cooperation in the future. The Farakka Treaty between India and Bangladesh is an example of a result of mutual confidence built over time based on hydrological data sharing, which has led to an overall sense of stability and cooperation in transboundary riparian engagements.

The hydrological data provision by China to India on the one hand and the hydrological data provision by China to Bangladesh on the Yarlung Tsangpo-Brahmaputra river has important divergences in terms of attitudes of the Chinese hydrocracy in particular. The Chinese hydrocracy has given this hydrological data free of cost to Bangladesh, while India has to pay for the same. This attitude can be contextualized in the aspect that China views India as a middle-power in the river basin given its economic potential, while Bangladesh falls in the Least Developed Countries (LDC) category of economic

development. This has to be necessarily seen in the context that both China and India have to jointly partake in material capabilities and costs of hydrological data generation in the river basin, and assume a role of riparian leadership. The role of hydrological data sharing in the river basin in terms of strengthening riparian trust and cooperation is immense, and the development of technological expertise in this has to be jointly taken.

In the above context, the aspect 'absolute territorial sovereignty' of upper riparian China to utilize the water resources in its territory vis-à-vis the 'absolute territorial integrity' of lower riparian India to not have to suffer significant harm from upper riparian hydraulic interventions by China, becomes important to examine. Such a framing of the upper riparian-lower riparian power asymmetry and geopolitical reality results in the casting of aspersions on hydrological data provided by China to India. The location and control of the hydrological data stations on the upper reaches of the Yarlung Tsangpo rests within China's sovereign territory, and what India receives from China always has a baggage of inherent trust deficit resulting from the experience of past relations with China. This trust deficit is a function of the essentially anarchic nature of international relations. India has to verify and monitor the hydrological data China provides (Sinha 2016), and compare with its own hydrological data collected on the lower reaches of the Brahmaputra river.

The improvement of technological capability of hydrological data stations and its collection methods will provide India a significant strategic edge, as India will not have to completely rely on the hydrological data provided by China, till a more comprehensive legally bound treaty framework between India and China comes into place (Jacob 2015). This will lead India to have a substantive basis to desecuritize transboundary water interactions with China, leading to confidence building on the river.

In a reply to a question in India's lower house of parliament, the Lok Sabha, the Ministry of Space of the Government of India emphasized that it was constantly engaged in surveillance and monitoring through satellite data analysis, of the hydraulic interventions on the Yarlung Tsangpo-Brahmaputra by China in Tibet (Lok Sabha 2011:5628). This points towards the efficacy of technological capabilities by India to keep monitoring any water diversion and other hydropower dam building activities by China in the upstream.

6.4.2 Indicators for the Sino-Indian Case Study: Bilateralism-Multilateralism

In the context of the choices made by the political elite decision makers regarding bilateralism and multilateralism on transboundary water interactions, the common factor is the traditional aversion to multilateralism (Ho 2016), and therefore bilateralism is preferred. This can be better contextualized by examining China's grand strategy of adopting a multilateralist stance with smaller neighbours and strategic partnerships with major powers (ibid). India's preference of bilateralism is well entrenched in its main policy document, the National Water Policy of 2012. In the context of the Yarlung Tsangpo-Brahmaputra, India is a major power in South Asia, and China's stance is shaped in the form of a larger strategic partnership, within which limited cooperation on transboundary waters can happen. This is reflected in the Sino-Indian case study TWINS analysis of cooperation, which is based on the formation of common goals, limited to hydrological data sharing as a strategic response to prevent downstream flood disasters.

India's riparian behaviour is of a limited and narrow bilateral cooperation on the Ganges river basin, concentrating on a single issue and only a small part of the larger river (Kliot et al. 2001) and unilateral hydraulic interventions such as the Farakka Barrage. The Chinese riparian behaviour is of limited institutionalized multilateral cooperation,

preference of bilateral engagement and unilateral approach in hydraulic interventions such as the Upper Mekong basin Lancang Jiang Cascade dams (Ho 2016). The commonalities in bilateral preference and unilateral hydraulic interventions in the larger perspective of important regional rivers such as the Mekong and the Ganges, points towards a similar trend in the Yarlung Tsangpo-Brahmaputra as well. The terms of transboundary water interactions has been limited to bilateralism, and unilateral hydraulic interventions have been carried out by both China and India on the river basin. However, there are avenues for exploring multilateral engagement by China and India.

In the above context, there are certain conditions under which the existing bilateral engagement between India and China can shift towards a multilateral engagement. The primary condition is the change in intent seen in the respective hydrocracies towards multilateral engagement on transboundary water interactions. This requires a lot of time and effort as is evident from the Mekong River Commission example, which had a long process of engagement under the aegis of the Mekong Committee before the actual MRC was formed in the year 1995. One significant factor in this multilateral engagement was the push given by external international donor agencies, which brought the Mekong cooperation to such a level that it could engage China in a multilateral framework. The formation of the LMCM in 2016 and the participation of all the six riparian countries of the Mekong river basin in this multilateral framework of engagement is an evidence of a long drawn process and efforts which was set in motion almost sixty years ago in 1957.

Multilateral riparian engagement on the Yarlung Tsangpo-Brahmaputra river basin can take two distinct forms, one having all the four riparian countries in one framework of engagement, and the other being a coalition-building of the lower riparian countries of

India, Bhutan and Bangladesh and then engage with China as a negotiating block. The latter arrangement is something similar to the Mekong River Commission example. The overall political relations between India, Bhutan and Bangladesh are conducive for bringing them together in a block, but the important missing link is the history of multilateral riparian engagement within this particular block. The past experience in the larger riparian neighbourhood demonstrating that building trust and cooperation levels on a multilateral form of transboundary water interactions is an essentially gradual and steady process, as in the Mekong case. This basic understanding from such regional precedents of multilateral engagements is an important indicator to the Sino-Indian case.

In the above context of a gradual and steady process, the importance of track-two dialogue forums in promoting multilateral engagement between China and India needs to be underlined. For instance, the official position of the Indian hydrocracy as detailed in its National Water Policy of 2012, is of bilateral engagement, but the hydrocracy sends its representatives to be part of track-two dialogue forums. This act by the Indian hydrocracy demonstrates its proclivity to a larger platform of transboundary riparian interactions, albeit not at an official level. Any hydrocracy which is well entrenched in its historical tradition of functioning and policy orientation, needs a certain measure of socialization into alternative discourses on the same issue area, and the role of initiating such socialization is fulfilled by the track-two dialogue forums. A large part of such track-two dialogue forums are driven by the support of international donor agencies, something similar to what had happened in the context of cooperation in the Mekong.

The long and steady process of spadework at various levels, which is initiated and continued by the track-two dialogue process, makes for the critical mass and the

springboard to move transboundary riparian interactions from a bilateral to a multilateral framework of engagement. This process brings the hydrocracy to a new form of socialization, and also brings sub-national units such as provinces and other stakeholders into the process, an amalgamation of institutions and practitioners from various levels. The track-two initiatives can be quite large, have multiple issue areas on board, for instance the Bangladesh-China-India-Myanmar (BCIM) sub-regional cooperation forum and the Bangladesh-Bhutan-India-Nepal (BBIN) sub-regional cooperation forum, which among other things, also include discussions on transboundary water issues. Others can be very limited with specific issue-areas to deal with, such as the Brahmaputra Dialogue process, which involves track-two discussions specific to the Brahmaputra river basin.

The BCIM forum, for example, has three countries of China, India and Bangladesh of the Yarlung Tsangpo-Brahmaputra river basin, but the progress in discussions on transboundary waters and its management has not been substantial. Additionally, it has been stymied by a number of external economic and trade related conditions such as the BCIM Economic Corridor negotiations. The BBIN forum, which again includes three countries of the Brahmaputra river basin, that is Bangladesh, Bhutan and India, can reflect the process of formation of multilateral block to collectively engage with China in transboundary water interactions. However, these processes have a lot issues on the table, which does not allow for a focused discussion on the issue area of transboundary water management. These multilateral forums were set up with larger economic and trade consideration in mind, and therefore the hierarchy of the issue-areas will be determined in the same way, with transboundary water interactions being less prominent.

However, the Brahmaputra Dialogue process, which is led by the South Asia Consortium for Interdisciplinary Water Resources Studies, based in Hyderabad, India, has all the four riparian countries of the Yarlung Tsangpo-Brahmaputra river basin in its dialogue platform. It is focused on the specific issue-area of a multilateral engagement on the river basin, moving away from a bilateral focus. The usefulness of such a track-two dialogue process is in its ability to socialize the hydrocracy in a steady manner, including the provincial level hydrocracies in India, such as Assam and Arunachal Pradesh, and perform the task of cross-socialization with institutions and elements of the hydrocracy from the other riparian countries of China, Bangladesh and Bhutan. The Brahmaputra Dialogue has taken a layered-cake approach in dealing with the track-two interactions, starting at the domestic level in India first, then steadily extending to Bangladesh, then Bhutan and China, allowing for responses and a sense of organic growth in the process.

The changing landscape of transboundary water interactions and the various issue-linkages that come along with such discussions, require a measured and necessary mix of bilateralism and multilateralism. It necessarily does not have to be an 'either-or' situation, it can coexist simultaneously and make for the building blocks of transboundary riparian cooperative engagement over time. This is similar to what Mirumachi (2015) talks about in the simultaneous nature of conflict and cooperation and its coexistence, which has been described in Chapter 3 and analyzed in the context of Sino-Indian transboundary water interactions in Chapter 4 and Chapter 5 of this thesis. It is in this context that track-two dialogue processes such as the Brahmaputra Dialogue can carry forward the multilateral track while the hydrocracies in their official engagements carry forward the bilateral track of transboundary riparian interactions on the Yarlung Tsangpo-Brahmaputra, and both can inform each other on the trajectories.

The traditional composition of the hydrocracy in India and China, which mostly consists of technical personnel and engineers, also needs to undergo certain changes for them to be able to absorb such socialization effectively, and translate them to their decision-making. For instance the Mihir Shah Committee set up by India in 2016 to look into improving water governance in India, recommended the inclusion of social scientists to the Central Water Commission of India (Shah 2017). This was directed at enabling the hydrocracy to retain their core technical competencies in project design and implementation of hydraulic interventions, and enhance their capacity by exposure to the economic, political and social aspects of water management (ibid). The inclusion of social scientists, and particularly experts from the field of international relations, will enable the hydrocracy to bring strategic dimensions to their decision-making and policies, be prepared for an engagement with international water management practices.

6.4.3 Indicators for the Sino-Indian Case Study: International Legal Mechanisms

In the context of international legal mechanism and adherence to international law, both India and China have attributed a strong emphasis on their respective national water policies, as being sufficient for their respective domestic hydraulic interventions and water management and their international transboundary water interactions. The principle of 'absolute territorial sovereignty' while talking on shared transboundary waters has marked the strategic responses of both the Indian and Chinese hydrocracies and political elite decision-makers. This is evidenced in the case of how China have been dealing with the four Mekong River Commission countries on the Mekong river basin in an institutional framework, and also how India has been dealing with Bangladesh on the Ganges river basin on a bilateral basis. The indicators for the Yarlung Tsangpo-

Brahmaputra river basin from the comparative case studies is that both China and India are unlikely to move away from such stated 'absolute territorial sovereignty' positions.

The number of hydropower dam projects underway or at the planning, design and implementation stages evidences the unilateral nature of hydraulic interventions by China and India in their respective stretches of the Yarlung Tsangpo-Brahmaputra river. The hydropower dam projects by China directly impacts the lower riparian countries of India and Bangladesh, while the hydropower projects by India directly impacts Bangladesh. Another aspect of this hydraulic intervention is the hydropower dams built with the assistance of India, by Indian hydropower companies as well, in Bhutan, which directly impacts lower riparian Bangladesh as well as parts of Assam and West Bengal provinces in India, which fall in the lower riparian stretches of Bhutan. The lower riparian concerns of India in respect to the upper riparian hydraulic interventions by China are articulated in a mix of securitization and desecuritization terms, given the lack of a proper institutionalized mechanism or a treaty framework between India and China.

Given that India is placed as a middle-riparian country in the Yarlung Tsangpo-Brahmaputra river basin, it can assume a two-pronged approach in its transboundary riparian interactions. The first is what it is currently pursuing, of asserting its own lower riparian rights vis-à-vis China's unilateral hydraulic interventions upstream, and assuaging Bangladesh that India's hydraulic interventions in Arunachal Pradesh and in Bhutan will not have any adverse impact on downstream Bangladesh. This, at first seems inherently contradictory, as one cannot have different yardsticks to measure the upstream-downstream riparian impact of hydraulic interventions, of China to India on one hand, and of India to Bangladesh on the other hand. To say that India's national

water policies will take care to not cause significant harm or damage to Bangladesh's downstream interests, and to have securitized apprehensions about China's national water policies to not take into account India's downstream interests is a contradiction.

These contradictions in articulating riparian interests are in the backdrop of non-accession to the UN Watercourses Convention of 1997 by both China and India, and the lack of an institutionalized treaty based framework of cooperation between the two countries. The second approach that India can pursue in context of its middle-riparian position in the Yarlung Tsangpo-Brahmaputra river basin is that of assuming a role of riparian leadership in the larger region. This will involve taking a leadership role in facilitating a multilateral engagement in the river basin, and balancing its national interests for the larger goal of sustainable water resources management in the region. It has to get itself out of the contradictions that its current approach put it into, and be more benevolent to the riparian concerns of downstream Bangladesh. India is in an excellent position to assert its riparian hegemony in a more benevolent manner, which will in turn help it build effective coalitions among the lower riparian countries through soft power.

India's leadership in any future multilateral framework in the Yarlung Tsangpo-Brahmaputra river basin, even if it means having a block of lower-riparian Bangladesh, Bhutan and India vis-à-vis upper riparian China, will depend not on its political, economic and material power and capabilities alone, but also the image of its benevolence and soft power articulation in the river basin. This cannot come through unilateral actions and hydraulic interventions asserting its power and material capabilities, but by building upon the bilateral political gains it has made in the past with its smaller neighbours, Bhutan and Bangladesh. China has on the other hand reached out

directly to Bangladesh, by offering it hydrological data on the Yarlung Tsangpo-Brahmaputra river basin. China is asserting its economic capabilities in Bangladesh by significant investments in infrastructure development, with a deep-sea port at Sonadia (Reuters 2016) and a rail-cum-road bridge over the river Padma (Indian Express 2016).

The strategic contestations between China and India in Southeast Asia and South Asia, which they consider their traditional spheres of foreign policy influence respectively, is spilling over to the domain of transboundary water interactions and coalition building. Therefore, India has to assert its power in South Asia by simultaneously taking forward its bilateral synergies with Bhutan and Bangladesh, and convert it into a platform of multilateral engagement on shared transboundary waters. This can be done by what Crow and Singh (2000) term as appraising the bilateral gains from the past interactions on transboundary waters to a regional level in South Asia. India has to devise a pragmatic strategy to counter the power play by China in its strategic neighbourhood through an array of economic incentives to countries such as Bangladesh and Nepal. This is essential in order to take forward a meaningful leadership role that it envisages for itself in South Asia, based on an adequate balance of hard and soft power manifestations.

6.4.4 Indicators for the Sino-Indian Case Study: Territory-Water Linkages

The linkage between territory and transboundary water interactions is a complicated aspect in the overall bilateral relations between India and China, moving from highly securitized perspectives to desecuritization attempts. The securitization aspect is the unresolved boundary dispute between India and China, particularly Arunachal Pradesh, where hydraulic interventions have been announced by India as a measure of strategic presence. India is following a two-pronged strategy in Arunachal Pradesh, one of

building hydraulic infrastructure to claim riparian first-user rights on the Yarlung Tsangpo-Brahmaputra river basin. This is driven by an overwhelmingly large hydraulic mission paradigm of signing agreements to build about 168 hydropower dams of varying sizes in the various tributaries of the Brahmaputra. The second strategy by hydraulic interventions on the river by India is to strongly assert its sovereignty in Arunachal Pradesh, claimed by China as part of the Tibetan Autonomous Region, as South Tibet.

China has a land boundary dispute with both India and Bhutan, which is playing out in regular claims and incursions by China along the Line of Actual Control in Arunachal Pradesh. India has embarked on a policy of directly countering China's building of hydropower dams on the Yarlung Tsangpo in Tibet, by announcing its own set of big, medium and small hydropower dams on various tributaries of the Brahmaputra downstream. Additionally, India has helped Bhutan in building dams in its many tributaries, which are part of the Brahmaputra river basin. Borrowing from the concept of the territorial forward policy adopted by Prime Minister Jawaharlal Nehru in the run-up to the 1962 Sino-Indian war, this dam-building spree announced by India in Arunachal Pradesh can be termed as a new forward policy on its transboundary rivers interactions. India's hydraulic intervention based forward policy downstream in response to China's dam-building activities upstream securitizes the overall transboundary water interactions.

The separation of the unresolved territorial boundary dispute and the common goals based cooperation between China and India is the ideal situation for cooperation between the riparians in the overall Yarlung Tsangpo-Brahmaputra river basin. However, the two does often get mixed given the political nature of the territorial disputes and the consequent mirroring of riparian contestations. The upper riparian position of China vis-

à-vis lower riparian position of India is a major contributing factor for this political mirroring and mixing of territorial and riparian contestations. The securitization events on the Yarlung Tsangpo-Brahmaputra in 2000 and 2002 were seen from the prism of China's territorial claims on Arunachal Pradesh. The major desecuritization attempt was when China declared officially in 2010 that it was building the Zangmu hydroelectric project on the main channel of the Yarlung Tsangpo river, a run-of-the-river dam project, which did not involve any diversion of water upstream of the river in Tibet (Biba 2014).

The positive outcomes in the Sino-Vietnam and Indo-Bangladesh contexts of settlement of the land boundary disputes show a bearing on transboundary water interactions. In the context of the Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra, the continued framing of desecuritized cooperation on transboundary water interactions, and keeping it away from the territorial contestations is needed. The continuance and success of any multilateral track-two dialogue process on transboundary waters in which both China and India are involved depends on such a desecuritized framing of the water issue. India and China collectively can enlarge the discourse on transboundary water interactions in the Yarlung Tsangpo-Brahmaputra river basin beyond the existing bilateralism to an ecology-based multilateral domain, taking the Himalayas as a cooperation zone. The shared Himalayan ecological landscape provides China and India an alternative cooperation framework, referred as Himalayan hydropolitics (Sinha 2016).

In a larger perspective of the region, China and India can take the lead to highlight the Himalayan ecosphere as a cooperation unit among all South Asian and Southeast Asian countries sharing transboundary rivers, the Yarlung Tsangpo-Brahmaputra, the Ganges, the Mekong, taking lead from the emerging trends of regionalism and sub-regionalism.

Borrowing from Dent's definition of 'political regionalism' (Dent 2002), the concept of 'river regionalism' refers to integral formations of transnational government and policy networks and the expression of shared political, economic and development interests among the basin riparians and stakeholders. It involves advancement in policy coordination and enterprises, and the creation of regional level institutions to manage the common 'river basin interest'. The framing of the rivers that flow from the Himalayan region in a collective 'river regionalism' framework can enable the sovereign riparian nation-states to break away from the limiting modes of existing cooperation on its rivers.

Chapter 7

Conclusion

7.1 Revisiting the Research Problem(s)/Question(s), Hypotheses, Timeline

This section summarizes and collates the analysis and findings of the earlier chapters. The research questions and hypotheses are revisited for this purpose, and the analysis put forward in the fourth, fifth and the sixth chapters of this thesis are referred in the process. The TWINS framework to understand and analyze conflict and cooperation patterns in transboundary water interactions between nation-states sharing a river basin, taken together with the comparative case study method of understanding past riparian behaviour of China and India and broad regional indicators, in a specific timeline of water events and regional riparian behaviour, has helped answer the research questions. The utility of the timeline (1990-2015) employed to select cases and water related events is discussed later in this section, demonstrating variance in the content and level of engagement in transboundary water interactions between China and India, and their engagement in the Yarlung Tsangpo-Brahmaputra, Mekong and the Ganges river basins.

The title of this thesis which started as 'Waters of Conflict or Waters of Cooperation?: Geopolitics of Sino-Indian transboundary water management in the Yarlung Tsangpo and the Brahmaputra', has undergone a fundamental re-contextualization, given the analysis done using the TWINS framework. The basic premise of the TWINS framework of understanding transboundary water interactions according to Mirumachi (2015) is the coexisting and simultaneous nature of conflict and cooperation between nation-states or actors in the river basin. The incidence and outcomes of conflict and cooperation can occur at the same time determining interdependence between nation-states (McMillan

1997), and in specific contextual terms, conflict can be witnessed within cooperative relationships, and cooperation can be seen in conflicting relationships (Vasquez 1995). The dynamic nature and the complex frames in which the politics of transboundary water interactions are put forward by the TWINS framework explain riparian interdependence.

Taking the above thread from the TWINS framework of explaining transboundary water interactions between nation-states, the question of conflict or cooperation between China and India in the Yarlung Tsangpo-Brahmaputra river basin is not an 'either-or' question, but essentially an 'and' statement of riparian interaction reality. The analysis provided in Chapter 4 and 5, especially the interaction pattern demonstrated by the four-by-five TWINS matrix, shows a kind of a back and forth of securitized and opportunitized conflictive and cooperative interactions, a sort of 'ping-pong' interaction on the transboundary river, largely directed to maintain a strategic status quo on the river basin. The water-related events and speech acts between China and India which have been analyzed and plotted on the TWINS matrix, demonstrate that conflict and cooperation in the context of their transboundary water interactions is dynamic and has essentially coexisted, not set in a linear trajectory of conflict following cooperation and vice versa.

The assertive verbal speech act of the year 2002 between China and India relating to the signing of the MoU on the provision of hydrological data on the Yarlung Tsangpo-Brahmaputra by China to India, happened when there was a conflictive situation already existing owing from the directive non-verbal speech act of the year 2000, which related to the flash floods in Arunachal Pradesh and Himachal Pradesh on the Siang and the Sutlej respectively. The directive verbal speech act of the year 2002, relating to China's announcement of the SNWDP, which was a conflictive situation, which happened when

simultaneously in the same year as the assertive verbal speech act relating to the MoU, which was a cooperative situation. The assertive verbal speech act of the year 2006, which referred to the setting up of the Expert Level Mechanism on transboundary rivers between China and India, was a cooperative situation in the simultaneous presence of the continuing conflictive situation of the directive verbal speech act of China's SNWDP.

The analysis using the TWINS framework in Chapter 4 and Chapter 5 underlines the historical, socio-economic and political background in which the respective hydrocracies of China and India function and the dispositions and roles of the elite political decision-makers of both countries in the specific context of their transboundary water interactions. The focus on the hydrocracy helps unpack the government machinery and avoids homogenization, and the focus on agency of the elite political decision-makers unravel the dynamics of how the nation-state enforces decisions and policies on transboundary water interactions (Mirumachi 2015). In the context of China and India, the focus on their respective hydrocracies and elite political decision makers' orientations and behaviour specific to the Yarlung Tsangpo-Brahmaputra helps the research understand the factors affecting transboundary water interactions, understanding and management. The hydraulic mission paradigm is central to the riparian engagement of China and India.

The analysis in Chapter 4 and Chapter 5 affirms the hypothesis that the lack of formal institutionalized cooperation between China and India is leading to riparian contestations, and the conflictive water-related events on the Yarlung Tsangpo-Brahmaputra were a result of the lack of effective bilateral information channels. The directive non-verbal speech act of the year 2000 and the directive verbal speech act of the year 2002, which were both conflictive water-related events, were securitized

because of the lack of effective bilateral information channels between China and India. The atmosphere of mutual distrust and apprehensions of future water conflicts were a direct result of the lack of such institutionalized cooperation between the two countries on transboundary water management. The current level of riparian interaction is limited to MoUs and an Expert Level Mechanism, which are in the realm of inter-governmental understanding between China and India, but not legally binding by a treaty framework.

The lack of an institutional and treaty framework between China and India on its transboundary riparian interactions leads to a shallow type of cooperation. The reliance of both countries on their respective national water laws and policies to take care of the legal ramifications of their domestic water management and transboundary water interaction, makes cooperation subject to the content and nature of the overall political relationship between China and India at any given point of time. The dichotomy between the power-based approach and the international law based approach to transboundary water management and cooperation exemplifies the Sino-Indian transboundary riparian relationship. Given the lack of legally binding cooperation, the information mechanisms and flows are not seen as reliable, and this makes for a great level of uncertainty in the river basin dynamics. It is this very uncertainty concerning hydraulic interventions and water diversion plans that securitizes the Sino-Indian transboundary water interactions.

The analysis in Chapter 4 and Chapter 5 underlines the political nature of the transboundary water interactions between China and India, in which the hydrocracies of both the countries and the elite political decision-makers have based their policies and interventions on the river, on their respective discursive power and material capabilities. The entire territory of Arunachal Pradesh falls in the Yarlung Tsangpo-Brahmaputra

river basin, and it is claimed by China as being part of its larger territory of Tibet. The policies of the Indian hydrocracy in Arunachal Pradesh, which holds all the hydropower potential of the Yarlung Tsangpo-Brahmaputra river basin on the Indian side, is dictated by a overwhelmingly large hydraulic mission paradigm. The hydrocracy and the elite political decision makers in India takes the building of huge hydropower dams in Arunachal Pradesh as a measure of strategic presence of the Indian nation-state in its border region with China, and for asserting its riparian first-user rights in the river basin.

The securitization aspects demonstrated in the directive non-verbal speech act of the year 2000 and the directive verbal speech act of 2002 were primarily because of the fact that this was happening in a strategic frontier region, along the Line of Actual Control between India and China, given the unresolved boundary dispute in Arunachal Pradesh. This happened in the backdrop of largely unstable Sino-Indian bilateral relations and the lack of effective information channels on shared transboundary rivers. The aspersions of damming the waters of the Yarlung Tsangpo-Brahmaputra and its possible diversion by China is seen from a political and strategic viewpoint, with the unresolved territorial issues between the two countries in mind. The dam building by India in Arunachal Pradesh can also be seen as a strategic forward policy to counter the dams that are being built by China in the upstream. The dams that are being built with the assistance of India in Bhutan are significant as China also has an unresolved boundary dispute with Bhutan.

The analysis in Chapter 6 demonstrates that a favourable territorial based agreement can lead to deepening the cooperation levels in transboundary water interactions, for instance between China and Vietnam in the Mekong river basin case study. Similarly, a favourable transboundary water treaty can lead to spillover effects in resolution of a

territorial border dispute, for instance between India and Bangladesh in the Ganges river basin case study. Therefore it can be inferred that a positive institutionalization of the Sino-Indian transboundary riparian interactions can have positive spillover effects on the land boundary dispute, especially in the eastern sector in Arunachal Pradesh. A positive political solution to the land boundary dispute can have positive spillover effects on the content of transboundary riparian interactions between China and India. Conversely, increased securitization by China and India on either territoriality or transboundary riparian interactions can have stalling and negative implications on the other issue area.

The analysis in Chapter 6 provides an insight into China's upper riparian behaviour with the four lower riparian Mekong river Commission countries of Laos, Thailand, Cambodia and Vietnam on the Mekong river basin. It provides an insight into India's upper riparian behaviour with lower riparian Bangladesh on the Ganges river basin. The respective riparian behaviour of China and India are inferred as indicative of the political motivations and strategic outlook of their respective hydrocracies and elite political decision-makers. The selection of case studies which includes at least three riparian countries of the Yarlung Tsangpo-Brahmaputra river basin, that is China (Mekong), India (Ganges) and Bangladesh (Ganges) helps the research find a reference point to locate the respective riparian behaviour of China and India. This reference point further helps substantiate and frame the analysis provided in Chapter 4 and Chapter 6 by the TWINS framework on the Sino-Indian case study of the Yarlung Tsangpo-Brahmaputra.

The employment of the comparative case study method helps compare the riparian behaviour of China and India on the Mekong and the Ganges river basins respectively, and provide reference points to reference points of their regional riparian behaviour. The

reference points that come out of this comparison of riparian behaviour of China and India are clearly delineated in four parts, and are analyzed in Chapter 6. These are the behaviour of the respective hydrocracies in its institutional functioning and hydrological data sharing motivations and attitudes, the choice of bilateralism and multilateralism as riparian engagement strategies, their adherence to principles of international law, and the linkages between territoriality issues and water sharing issues. The comparison of past regional riparian behaviour is important as the reference points have the broad function of predicting the riparian behaviour of China and India, and how are likely to go about their transboundary water interactions on the Yarlung Tsangpo-Brahmaputra river basin.

The reference points demonstrate that the transboundary riparian relationship between China and India is in a limited cooperation phase of sharing technical and hydrological data, which is aimed at confidence building and mutual trust. These are indicators, which can deepen the cooperation in the future, going by the historical precedents in the Mekong and the Ganges case study. The ability of the hydrocracies of China and India to move beyond bilateralism to multilateral engagement, will depend a lot on its readiness to leave space, modify its respective institutional rigidity and outlook, bring in diversity and interdisciplinarity in its institutional composition, apart from its core technical and hydraulic competencies. The growing relevance of interdisciplinary policies, in terms of foreign affairs, economic and social development, livelihood concerns and ecological sustainability, transboundary interdependencies among nation-states, will drive hydrocracies towards multilateral engagement frameworks, away from unilateral actions.

The utility of the timeline used for the research, which is 1990-2015, is in the content and variance of transboundary water interactions between the co-riparian nation-states in

the three river basins examined, which is the Yarlung Tsangpo-Brahmaputra, the Mekong and the Ganges. The timeline employed can be divided into four distinct phases in order to demonstrate transboundary riparian interaction activity, that is 1990-1999, 2000-2005, 2006-2010 and 2011-2015. The phase between 1990-1999 was marked by a gradual rapprochement between China and India in their bilateral political, economic and strategic relationship. China became an observer member of the Mekong River Commission in 1996, and the same year, India signed the Farakka Treaty and the Mahakali Treaty with Bangladesh and Nepal respectively. China was getting involved in multilateralism in the Mekong river basin, while India was keeping to its preferred choice of bilateralism in its transboundary water interactions in the Ganges river basin.

The UN Watercourses Convention of 1997 was a landmark event during this phase, which China voted against and India abstained from, demonstrating their lack of adherence to international law in context of managing their transboundary water resources. The phase between 2000-2005 saw significant water related events between China and India on the Yarlung Tsangpo-Brahmaputra river basin, as demonstrated by the analysis in Chapter 5, with increased securitization of their bilateral transboundary water interactions. This included flash floods in 2000 and China's SNWDP announcement in 2002. The same period was marked by desecuritization in the China-Vietnam bilateral relationship, with the resolution of their land border dispute in the year 2000, and subsequent joint declaration the same year, agreeing to work together to intensify information sharing and cooperation on environmental protection, prevention and relief of disasters, hydrology and the overall development of the Mekong river basin.

The period between 2006-2010 saw some amount of desecuritization in the Sino-Indian transboundary water interactions with the setting up of the Expert Level Mechanism (ELM) in 2006, and China announcing that it was indeed building the Zangmu dam in 2010. This led to some amount of confidence building between China and India, with India regularly emphasizing to its domestic constituency that China's projects were run-of-river ones and not cause any significant harm to India's downstream riparian interests. The period between 2011-2015 saw a mix of confidence building measures and securitization in the Sino-Indian transboundary riparian interactions. A MoU on 'Strengthening Cooperation on Trans-Border Rivers' was signed between China and India in 2013, and the Zangmu dam was commissioned in the year 2015, the first medium-sized hydropower project by China on the main channel of the Yarlung Tsangpo. The latter led to renewed securitization fears over China's other planned dams.

7.2 Conclusion and Policy Recommendations

The expected outcomes of this research have been fulfilled by the analysis in Chapter 4, Chapter 5 and Chapter 6, as summarized in the section above. This section makes a few concluding observations in the form of policy recommendations in the context of transboundary riparian interactions between China and India. The hydrocracies of China and India need to work in their respective capacities towards streamlining policy formulation, implementation and impact assessment on the basis of the core factors affecting transboundary water understanding and management in context of the Yarlung Tsangpo-Brahmaputra. This helps strengthen the emphasis on riparian cooperation. There must be policy attention to the linkages between the transboundary riparian interaction dynamics on the Yarlung Tsangpo-Brahmaputra and the unresolved

contentious boundary dispute between China and India. The ability to build on linkages between territory and water issues in a structured positive manner enhances cooperation.

Adequate policy attention must be paid by the Chinese and the Indian hydrocracies to emphasize on building upon the existing framework of bilateral cooperation, laying the roadmap towards establishing a formal/legal treaty framework on transboundary water sharing and management on the Yarlung Tsangpo-Brahmaputra. This can be based on the indicators provided by past Chinese and Indian riparian engagement and behaviour on Mekong and Ganges respectively. The broad riparian engagement and behaviour of China and India on regional rivers in Asia, and their respective tendency/intent towards bilateralism and multilateralism on shared transboundary river basins, creates the ideal conditions for both China and India to be able to demonstrate riparian leadership. The outcomes of this research can inform the various government and non-government stakeholders in South and Southeast Asia on the broad parameters of Chinese and Indian riparian engagement and behaviour, and its linkages to strategic aspects of territoriality.

The Yarlung Tsangpo-Brahmaputra river basin in the context of transboundary riparian interactions between China and India at the same time can be an ecological, economic, political and catalytic river, borrowing from the typology detailed in Chapter 2 given by Sadoff and Grey (2002). The analysis of this research demonstrates that China and India can cooperate towards securing the ecology of the larger Himalayan region as a means of going beyond the bilateralism mode seen at present, making it a ecological river. The improved use of technology and cooperation in terms of social and livelihood aspects of river basin management, which includes floods and disaster prevention through sharing of hydrological data, can bring economic benefits to the river basin, making it an

economic river. The political costs incurred due to securitization on water issues can be offset by improved cooperation through confidence building mechanisms such as joint research and river basin development by China and India, thus making it a political river.

The positive spillover effects on the unresolved boundary dispute between China and India is one instance of catalytic change through cooperation on the river, bringing benefits beyond the river, making it a catalytic river. The strengthening and deepening of cooperation between China and India on their transboundary riparian interactions on the Yarlung Tsangpo-Brahmaputra will enable to them to break away from being prisoners of securitization and uncertainty on the river basin. The rapid economic progress that China and India have seen over the past two decades, have given both economic, technological and material capabilities to intervene in the river basin, and the content and nature of such interventions will depend on how both countries frame their riparian terms of engagement. The political, economic and ecological significance and development of rivers shared by China and India, instead of hegemonic ambitions and resources capture strategies, depends on their individual and/or collective riparian leadership in the region.

7.3 Limitations of the Study and Scope for Future Research

This section discusses the limitations of the present research and identifies the scope for future research on this topic. The limitations of this research are related to the inherent nature of the transboundary riparian interactions between China and India, and a function of the behaviour and attitudes of the hydrocracies and elite political decision-makers. The securitized nature of the transboundary riparian interactions on the Yarlung Tsangpo-Brahmaputra between China and India means that the discussions between the respective hydrocracies and elite political decision-makers have been kept a closely

guarded secret. The hydrocracies are selective in what they bring out in the public domain, and lack of contextual data on negotiations was a limitation. The relative lack of English writings from China on the specific Yarlung Tsangpo-Brahmaputra case study was another limitation. The information and reports available on the official website of the respective hydrocracies and MoUs were heavily relied upon for the research analysis.

This research serves as a primer for analyzing transboundary water interactions between China and India, and is limited to the use of the TWINS framework for the Sino-Indian case study and the comparative case studies of the Mekong and the Ganges river basins. A wider interdisciplinary focus from the current political science and international relations framework on the case studies presented here will bring more indicators for predicting the nature of transboundary riparian interactions between China and India. An in-depth focus to apply the TWINS method to the India-Bangladesh case study will benefit understanding on the larger Yarlung Tsangpo-Brahmaputra case study as well. This research has focused solely on the respective hydrocracies and elite political decision-makers under the TWINS framework, and more research focusing on other domestic, sub-national units, national and international NGOs and donor agencies, which also influence transboundary water interactions, will add context to the present research.

References

- Acharya, A. and K. Ramsay (2013), "The Calculus of the Security Dilemma", *Quarterly Journal of Political Science*, 8 (2): 183-203.
- Alam, U. et al. (2009), "The benefit-sharing principle: Implementing sovereignty bargains on water", *Political Geography*, 28 (2): 90-100.
- Allan, J.A. (2001), *The Middle East Water Question: Hydropolitics and the Global Economy*, London: I.B. Tauris.
- Allan, J.A. and N. Mirumachi (2010), "Why negotiate? Asymmetric endowments, asymmetric power and the invisible nexus of water, trade and power that brings apparent water security", in A. Earle, A. Jagerskog and J. Ojendal (eds.) *Transboundary Water Management: Principles and Practice*, London: Earthscan.
- Amarasinghe, U. et al. (2009), *India's water future: Scenarios and issues: Strategic analyses of the National River Linking Project (NRLP) of India Series 1*, Colombo: International Water Management Institute.
- Anderson, J. (1995), "The Exaggerated Death of the Nation-State", in J. Anderson, C. Brook and A. Cochrane (eds.) *A Global World?*, London: Oxford University Press.
- Ashton, P. (2000), "Southern African Water Conflicts: Are they Inevitable or Preventable?", The African Dialogue Lecture Series, Pretoria University, South Africa, 24 February 2000.
- Asthana, A. and H. Jacob (2017), "The Growing Power of States in India's Foreign Policy", *International Negotiation*, 22: 1-27.
- Austin, J.L. (1962), *How to Do Things with Words*, Oxford: Clarendon Press.
- Axelrod, R.M. (1984), *The Evolution of Cooperation*, New York: Basic Books.

- Axelrod, R.M. and R.O. Keohane (1985), "Achieving cooperation under anarchy: Strategies and institutions", *World Politics*, 38(1): 226-254.
- Axelrod R.M. and R.O. Keohane (1993), "Achieving Cooperation under Anarchy: Strategies and Institutions", in David Baldwin (ed), *Neorealism and Neoliberalism: The Contemporary Debate*, New York: Columbia University Press.
- Ayoob, M. (1991), "The Security Problematic of the Third World States", *World Politics*, 43.
- Ayoob, M. (1997), "Defining Security: A Subaltern Realist Perspective", in K. Krause and M.C. Williams (eds.) *Critical Security Studies: Concepts and Cases*, London: UCL Press.
- Backer, E.B. (2007), "The Mekong River Commission: Does it work, and how does the Mekong basin's geography influence its effectiveness", *Journal of Current Southeast Asian Affairs*, 26(4): 32-56.
- Ball, P. (2017), *The Water Kingdom: A Secret History of China*, Chicago: University of Chicago Press.
- Bandyopadhyay, J. (1995), "Water management in the Ganges-Brahmaputra basin: Emerging challenges for the 21st century", *Water Resources Development*, 11(4): 411-442.
- Bansal, S. (2014), "National River Linking Project: Dream or disaster?", India Water Portal, [Online: web] Accessed 21 July 2017, URL: http://www.indiawaterportal.org/articles/national-river-linking-project-dream-or-disaster
- Barnett, J. (2000), "Destabilizing the environment-conflict thesis", *Review of International Studies*, 26: 271-288.

- Basrur, R. and B. Kartik (2011), "The India-China Nuclear Relationship", *Strategic Analysis*, 35 (2): 186-193.
- Bates, T.R. (1975), "Gramsci and the Theory of Hegemony", *Journal of the History of Ideas*, 36 (2): 351-366.
- Benson, D. et al. (2015), "Water Governance in a Comparative Perspective: From IWRM to a 'Nexus' Approach?", *Water Alternatives*, 8 (1): 756-773.
- Bhasin, M. (2008), "India's role in South Asia- perceived hegemony or reluctant leadership?", Global India Foundation, [Online: web] Accessed 21 July 2017, URL: https://www.globalindiafoundation.org/MadhaviBhasin.pdf
- Bhutani, S. (2004), *A Clash of Political Cultures: Sino-Indian Relations 1957-1962*, New Delhi: Roli Books.
- Biba, S. (2012), "China's Continuous Dam-building on the Mekong River", *Journal of Contemporary Asia*, 42 (4): 603-628.
- Biba, S. (2014), "Desecuritization in China's Behavior towards its Transboundary Rivers: the Mekong River, the Brahmaputra River and the Irtysh and the Ili Rivers", *Journal of Contemporary China*, 23 (85): 21-43.
- Biba, S. (2016), "China drives water cooperation with Mekong countries", The Third Pole, [Online: web] Accessed 21 July 2017, URL: https://www.thethirdpole.net/2016/02/01/china-drives-water-cooperation-with-mekong-countries
- Biswas, A.K. (1993), "Management of International Water: Problems and Perspective", *Water Resources Development*, 9 (2): 117-125.
- Blaikie, P.M. and J.S.S. Muldavin (2004), "Upstream, Downstream, China, India: The Politics of Environment in the Himalayan Region", *Annals of the Association of American Geographers*, 94 (3): 520-548.

- Bobekova, E. et al. (2013), "Rivers of Peace: Institutionalised Mekong River Cooperation and the East Asian Peace", *European Journal of East Asian Studies*, 12: 7-34.
- Booth, K. (1999), "Security and Emancipation", *Review of International Studies*, 17 (4): 313-326.
- Breslin, S. (2008), "Democratising One-Party Rule? Political Reform, Nationalism and Legitimacy in the People's Republic of China", Working Paper 67, FRIDE, [Online: web] Accessed 21 July 2017, URL: http://fride.org/download/wp67_china_one_party_eng2_sep08.pdf
- Brugnach, M. et al. (2008), "Toward a relational concept of uncertainty: About knowing too little, knowing too differently, and accepting not to know", *Ecology and Society*, 13 (2): 30.
- Bull, H. (1977), *The Anarchical Society: A Study of Order in World Politics*, London: Macmillan.
- Buzan B. (1991), *People, states and fear: An agenda for international security studies in the post-Cold War era*, London: Harvester Wheatsheaf.
- Buzan, B. et al. (1998), *Security: A New Framework for Analysis*, Boulder: Lynne Rienner Publishers.
- Cannon, Kathleen A. (2006), "Water as a Source of Conflict and Instability in China", *Strategic Analysis*, 30 (2): 310-328.
- CGIAR Research Program on Water, Land and Ecosystems (n.d), Mekong River Facts, [Online: web] Accessed 21 July 2017, URL: https://wle-mekong.cgiar.org/mekong-river-facts/
- Chandran, R. (2017), "Environmentalists oppose plan to link Indian rivers", *Reuters*, Mumbai, 18 May 2017.

- Chansoria, M. (2011), "China's Infrastructure Development in Tibet: Evaluating Trendlines", Manekshaw Paper, No. 32, New Delhi: Centre for Land Warfare Studies.
- Checkel, J.T. (1998), "The Constructivist Turn in International Relations Theory", *World Politics*, 50 (2): 324-348.
- Checkel, J.T. (1999), "Social construction and integration", *Journal of European Public Policy*, 6 (4): 545-560.
- Chellaney, B. (2011), "Water is the new weapon in Beijing's armoury", *Financial Times*, London, 30 August 2011.
- Chellaney, B. (2012), *Water: Asia's New Battleground*, Washington DC: Georgetown University Press.
- Chen, H. and R.B. Wenger (2014), "Water diversion projects in China", in R.M. Clark and S. Hakim (eds.) *Securing water and wastewater systems, protecting critical infrastructure 2*, Cham: Springer.
- China Daily (2011), "China to set up water facilities construction", *China Daily*, Beijing, 11 July 2011.
- China Three Gorges Corporation Website (n.d), [Online: web] Accessed 21 July 2017, URL: http://www.ctgpc.com/en/index/index.html
- China-Vietnam Joint Statement (2000), "Joint Statement on All-round Cooperation in the New Century between the People's Republic of China and the Socialist Republic of Vietnam", Ministry of Foreign Affairs, Government of the People's Republic of China, 26 December 2000, Beijing, China.
- China-Vietnam Land Border Treaty (2000), "China and Vietnam sign Land Border Treaty", Ministry of Foreign Affairs, Government of the People's Republic of China, 15 November 2000, Hanoi, Vietnam.

- Cohen, S.P. (1971), "Review: India's China War and After: A Review Article: The Battle of NEFA by G.S. Bhargava", *The Journal of Asian Studies*, 30 (4): 847-857.
- Collier, D. (1993), "The Comparative Method", in Ada. W. Finifter (ed) *Political Science: The State of the Discipline II*, Washington D.C: American Political Science Association.
- Collins A. (1996), "The Security Dilemma", in J. Davis (ed), *Security Issues in the Post-Cold War World*, Cheltenham: Edward Elgar.
- Craig, J.G. (1993), *The Nature of Co-operation*, New York: Black Rose Books.
- Crow, B. and Singh, N. (2000), " Impediments and innovation in international rivers: the waters of South Asia", *World Development*, 28 (11): 1907-1925.
- Dahl, R.A. (1957), "The Concept of Power", *Behavioral Science*, 2 (3): 201-215.
- Dalby, S. (2009), *Security and Environmental Change*, Cambridge: Polity Press.
- Das, G. and C.J. Thomas (2016), "Introduction", in G. Das and C.J. Thomas (eds.) *Look East to Act East Policy: Implications for India's Northeast*, New York: Routledge.
- Delli Priscoli, J. (1998), "Public involvement; conflict management; and dispute resolution in water resources and environmental decision-making", in J.L. Creighton et al. (eds.) *Public Involvement and Dispute Resolution: A Reader on the Second Decade of Experience at the Institute for Water Resources*, IWR Report 98-R-5, Alexandria, USA: Institute for Water Resources, US Army Corps of Engineers.
- Dent, C.M. (2002), "Introduction: Northeast Asia- a region in search of regionalism?", in C.M. Dent and D.W.F Huang (eds.), *Northeast Asian Regionalism, Learning from the European Experiences*, London and New York: Routledge-Curzon Press.

- Dinar, S. (2009), "Power asymmetry and negotiations in international river basins", *International Negotiation*, 14 (2): 329-360.
- Dinar, S. and A. Dinar (2000), "Negotiating in international watercourses: Diplomacy, conflict and cooperation", *International Negotiation*, 5: 193-200.
- Ding, S. (2008), "To Build A 'Harmonious World': China's Soft Power Wielding in the Global South", *Journal of Chinese Political Science*, 13 (2): 193-213.
- Dixit, J.N. (1999), *Liberation and Beyond: Indo-Bangladesh Relations*, New Delhi: Konark Publishers.
- Dixit, J.N. (2001), *Indian Foreign Policy and its Neighbours*, New Delhi: Gyan Publishing House.
- Dore, J. and K. Lazarus (2009), "De-Marginalizing the Mekong River Commission", in F. Molle, T. Foran and M. Kakonen (eds.), *Contested waterscapes in the Mekong region: Hydropower, livelihoods and governance*, London: Earthscan.
- Duffy, G. and B. Frederking (2009), "Changing the rules: A speech act analysis of the end of the Cold War", *International Studies Quarterly*, 53 (2): 325-347.
- Economy, E. C. (2007), "The Great Leap Backward?", *Foreign Affairs*, 86 (5): 1-12.
- Falkenmark, M. (1989), "The massive water scarcity now threatening Africa: why isn't it being addressed", *Ambio*, 18(2): 112-118.
- Farakka Treaty (1996), *Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganga/Ganges waters at Farakka.*
- Ferdoush, M.A. (2017), "Seeing Borders Through the Lens of Structuration: A Theoretical Framework", *Geopolitics*, DOI: 10.1080/14650045.2017.1341406, 1-21.
- Finnemore, M. (1996), *National Interests in International Society*, Ithaca, NY: Cornell University Press.

- Frederking, B. (2003), "Constructing post-Cold War collective security", *The American Political Science Review*, 97 (3): 363-378.
- Frey, F.W. (1993), "The political context of conflict and cooperation over international river basins", *Water International*, 18: 54-68.
- Fry, J.D. and A. Chong (2016), "International Water Law and China's Management of its International Rivers", *Boston College International and Comparative Law Review*, 39 (2): 227-266.
- Furlong, K. (2006), "Hidden theories, troubled waters: International relations, the 'territorial trap', and the Southern African Development Community's transboundary waters", *Political Geography*, 25: 438-458.
- Galtung, J. (1996), *Peace by Peaceful Means: Peace and Conflict, Development and Civilization*, International Peace Research Institute, Oslo, London: Sage Publications.
- Gehring, T. (1996), "Integrating Integration Theory: Neo-functionalism and International Regimes", *Global Society*, 10 (3): 225-253.
- Gerlak, A.K. and K.A. Grant (2009), "The correlates of cooperative institutions for international rivers", in T.J. Volgy et al. (eds.) *Mapping the New World Order*, Malden MA: Wiley-Blackwell.
- Giddens, A. (1985), *The Nation-State and Violence: Volume Two of A Contemporary Critique of Historical Materialism*, California: University of California Press.
- Gilpin, R. (1983), *War and Change in World Politics*, Cambridge: Cambridge University Press.
- Giordano, M. et al. (2002), "The geography of water conflict and cooperation: internal pressures and international manifestations", *The Geographical Journal*, 168 (4): 293-312.

- Gleick, P.H. (1993), "Water and Conflict: Fresh water resources and international security", *International Security*, 18 (1): 79-112.
- Goh, E. (2004), "China in the Mekong River Basin: The Regional Security Implications of Resource Development on the Lancang Jiang", Working Paper No. 69, Institute of Defence and Strategic Studies, Singapore: Nanyang Technological University.
- Goldstein, M.C. (1997), *The Snow Lion and the Dragon: China, Tibet and the Dalai Lama*, California: University of California Press.
- Gupta, S. (2001), "Made in China", *India Today*, New Delhi, 25 June 2001.
- Gupta, S. (2014), *The Himalayan Face-off: Chinese Assertion and the Indian Riposte*, New Delhi: Hachette India.
- Gupta, A.K. and H. Wang (2009), *Getting China and India Right: Strategies for Leveraging the World's Fastest Growing Economies for Global Advantage*, New Delhi: Jossey-Bass.
- Haftendorn, H. (2000), "Water and International Conflict", *Third World Quarterly*, 21 (1): 51-68.
- Haider, Z. (2009), "A Revisit to the Indian Role in the Bangladesh Liberation War", *Journal of Asian and African Studies*, 44 (5): 537-551.
- Hanasz, P. (2014), "Power Flows: Hydro-hegemony and Water Conflicts in South Asia", *Security Challenges*, 10 (3): 95-112.
- Hasenclever, A. et al. (1997), *Theories of International Regimes*, Cambridge: Cambridge University Press.
- Hensengerth, O. (2009), "Transboundary River Cooperation and the Regional Public Good: The Case of the Mekong River", *Contemporary Southeast Asia*, 31(2): 326-349.

- Hirsch, P. et al. (2006), "National Interests and Transboundary Water Governance in the Mekong", in collaboration with The University of Sydney and Danish International Development Assistance, Sydney: Australian Mekong Research Centre.
- Hisschemoller, M. and R. Hoppe (2001), "Coping with intractable controversies: The case for problem structuring in policy design and analysis", in M. Hisschemoller et al. (eds.) Knowledge, Power, and Participation in Environmental Policy Analysis, *Policy Studies Review Annual*, 12: 47-72, New Brunswick, NJ: Transaction Publishers.
- Ho, S. (2014), "River Politics: China's policies in the Mekong and the Brahmaputra in comparative perspective", *Journal of Contemporary China*, 23 (85): 1-20.
- Ho, S. (2016), "Big Brothers, Little Brothers: Comparing China's and India's Transboundary River Policies", *Water Policy*, 18 (S1): 32-49.
- Hopf T. (1998), "The Promise of Constructivism in International Relations Theory", *International Security*, 23(1): 171-200.
- Humanitarian Futures Programme, King's College London et al. (2010), *The Waters of the Third Pole: Sources of Threat, Sources of Survival*, London: King's College London.
- HydroChina Corporation Website (n.d), [Online: web] Accessed 21 July 2017, URL: http://www.chincold.org.cn/chincold/zt/first/others/webinfo/2009/09/1281417028801307.htm
- Ikenberry, G.J. and A. Moravcsik (2004), "Liberal Theory and the Politics of Security in Northeast Asia", Ford Foundation Project on Non-Traditional Security, Seoul, South Korea.
- India Bangladesh Land Boundary Agreement (n.d), *Land Boundary Agreement between India and Bangladesh*, Ministry of External Affairs (MEA), Government of

India, [Online: web] Accessed 21 July 2017, URL: https://www.mea.gov.in/Uploads/PublicationDocs/24529_LBA_MEA_Booklet_final.pdf

- Indian Express (2016), "China to build $ 4.44 billion rail line on Bangladesh bridge", *The Indian Express*, Beijing, 11 August 2016.
- Islam, M.N. (2004), "Environmental Impacts of the Ganges Water Diversion and its International Legal Aspects", in Monirul Qader M.M. (eds.) *The Ganges Water Diversion: Environmental Effects and Implications*, Water Science and Technology Library vol. 49, Dordrecht: Springer.
- Iyer, R.R. (2012), "River Linking Project: A Disquieting Judgment", *Economic and Political Weekly*, XLVII (14): 33-40.
- Jacob, J.T. (2015), "Brahmaputra water diversion: India must go with the flow on this", *Hindustan Times*, New Delhi, 16 October 2015.
- Jacobs, J.W. (2002), "The Mekong River Commission: transboundary water resources planning and regional security", *The Geographical Journal*, 168 (4): 354-364.
- Janku, A. (2016), "China: A hydrological history", *Nature*, 536: 28-29.
- Jervis, R. (1978), "Cooperation Under the Security Dilemma", *World Politics*, 30 (2): 167-214.
- Kawser M.A. and M.A. Samad (2016), "Political History of Farakka Barrage and its effects on environment in Bangladesh", *Bandung Journal of the Global South*, 3 (16): 1-14.
- Keohane, R. O. (1984), *After hegemony*, Princeton: Princeton University Press.
- Keohane, R.O. and L.L. Martin (1995), "The Promise of Institutionalist Theory", *International Security*, 20(1): 39-51.

- Keohane, R.O. and J.S. Nye (1977), *Power and Interdependence: World Politics in Transition*, Boston: Little Brown.
- Keskinen, M. et al. (2008), "Transboundary cooperation vs. internal ambitions: The role of China and Cambodia in the Mekong region", in N. Pachova et al. (eds.) *International water security: domestic threats and opportunities*, Tokyo and New York: United Nations University Press.
- Kindleberger, C.P. (1981), "Dominance and Leadership in the International Economy: Exploitation, Public Goods and Free Rides", *International Studies Quarterly*, 25: 242-254.
- Kistin, E.J. (2012), "Critiquing Cooperation: Transboundary water governance and adaptive capacity in the Orange-Senqu Basin", *Journal of Contemporary Water Research and Education*, 149 (1): 41-55.
- Kliot, N. et al. (2001), "Institutions for management of transboundary water resources: their nature, characteristics and shortcomings", *Water Policy*, 3: 229-255.
- Klotz, A. and C. Lynch (2007), *Strategies for Research in Constructivist International Relations: International Relations in a Constructed World*, Armonk, NY: M.E. Sharpe.
- Kondapalli, S. (1998), "China's response to Indian nuclear tests", *Strategic Analysis*, 22 (3): 493-494.
- Koshy, J. and S. Bansal (2016), "Interlinking of rivers: an idea with flaws", *The Hindu*, New Delhi, 7 May 2016, updated on 12 September 2016.
- Krasner, S.D. (1983), *International Regimes*, Cornell: Cornell University Press.
- Kulz, H.R. (1969), "Further Water Disputes between India and Pakistan", *International and Comparative Law Quarterly*, 18 (3): 718-738.

- Laine, J.P. (2016), "The Multiscalar Production of Borders", *Geopolitics*, 21 (3): 465-482.
- Lamsang, T. (2017), "Worries beyond China", *The Indian Express*, New Delhi, 29 July 2017.
- Lauridsen, P.E. (2004), "Transboundary Water Management in the Mekong: River of Controversy or River of Promise?", in J. Boesen and H.M. Ravnborg (eds.) *From Water 'Wars' to Water 'Riots'?: Lessons from Transboundary Water Management, Proceedings of the International Conference, December 2003, DIIS, Copenhagen*, Copenhagen: Danish Institute for International Studies.
- Laustsen, C.B. and O. Waever (2000), "In defence of religion: Sacred referent objects for securitization", *Millennium- Journal of International Studies*, 29 (3): 705-739.
- Lijphart, A. (1971), "Comparative Politics and Comparative Method", *American Political Science Review*, 65: 682-693.
- Lin, G.C.S. (2017), "Water, technology, society and the environment: interpreting the technopolitics of China's South-North Water Transfer Project", *Regional Studies*, 51 (3): 383-388.
- Liu, T. (2001), "The hydrological characteristics of the Yarlung Zangbo River", in Daming, H. et al. (eds.) *Towards Cooperative Utilization and Co-ordinated Management of International Rivers*, New York: Science Press New York and The United Nations University.
- Liu, B. and R. Speed (2009), "Water Resources Management in the People's Republic of China", *International Journal of Water Resources Development*, 25 (2): 193-208.

- Lok Sabha (2002:3804), Foreign Minister's Visits to China, Unstarred Question No: 3804, Answered on 17 April 2002 by the Ministry of External Affairs, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2002:544), MoU with China on Brahmaputra River, Unstarred Question No: 544, Answered on 4 March 2002 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2003:1728), Linking of Brahmaputra River with Farakka, Unstarred Question No: 1728, Answered on 3 March 2003 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2003:30), Agreement with China on Flood Control, Unstarred Question No: 30, Answered on 21 July 2003 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2003:4459), Linking of Brahmaputra River with National Rivers, Unstarred Question No: 4459, Answered on 21 April 2003 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2005:505), Agreement between India and China on Flood Control, Unstarred Question No: 505, Answered on 2 May 2005 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2007:3754), Indo China Water Disputes, Unstarred Question No: 3754, Answered on 10 September 2007 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2008:1012), Rational Use of Water Resources by China, Unstarred Question No: 1012, Answered on 5 March 2008 by the Ministry of External Affairs, Government of India, New Delhi: Parliament of India.

- Lok Sabha (2009:1008), Construction of Dam on River Brahmaputra by China, Unstarred Question No: 1008, Answered on 25 November 2009 by the Ministry of External Affairs, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2010:4199), Dam on Brahmaputra, Unstarred Question No: 4199, Answered on 21 April 2010 by the Ministry of External Affairs, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2011:281), Construction of Dam by China on Brahmaputra, Unstarred Question No: 281, Answered on 23 February 2011 by the Ministry of External Affairs, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2011:2909), Dam on the Brahmaputra, Unstarred Question No: 2909, Answered on 18 August 2011 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2011:5628), Construction on Brahmaputra, Unstarred Question No: 5628, Answered on 7 September 2011 by the Ministry of Space, Government of India, New Delhi: Parliament of India.
- Lok Sabha (2013:766), Joint Mechanism of Brahmaputra River, Unstarred Question No: 766, Answered on 8 August 2013 by the Ministry of Water Resources, Government of India, New Delhi: Parliament of India.
- Lok Sabha Questions Database, Parliament of India, Lok Sabha, House of the People, URL: 164.100.47.194/Loksabha/Questions/Qtextsearch.aspx.
- Lopes P.D. (2012), "Governing Iberian Rivers: from bilateral management to common basin governance?", *International Environmental Agreements*, 12 (3): 251-268.
- Lowi, M.R. (1993), *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*, Cambridge and New York: Cambridge University Press.

- Makim, A. (2002), "The changing face of Mekong resource politics in the post-Cold War era: re-negotiating arrangements for water resource management in the Lower Mekong River Basin (1991-1995)", Working Paper No. 6, Australian Mekong Resource Center.
- Malik, J.M. (2004), "India and China: Bound to Collide", in P.R. Kumaraswamy (ed.) *Security beyond Survival: Essays for K. Subrahmanyam*, New Delhi: Sage Publications.
- Marty, F. (2001), *Managing International Rivers: Problems, Politics and Institutions*, Bern: Peter Lang.
- Mathou, T. (2005), "Tibet and Its Neighbors: Moving toward a New Chinese Strategy in the Himalayan Region", *Asian Survey*, 45 (4): 503-521.
- Maxwell, N. (1970), *India's China War*, New York: Pantheon Books.
- McMillan, S.M. (1997), "Interdependence and Conflict", *Mershon International Studies Review*, 41 (1): 33-58.
- Mearsheimer, J.J. (1995), "The False Promise of International Institutions", *International Security*, 19 (3): 5-49.
- Mehta, Jagat S. (2007), *Negotiating for India: Resolving problems through Diplomacy*, New Delhi: Manohar Publishers.
- Mekong River Commission (1995), Agreement on the cooperation for the sustainable development of the Mekong river basin, [Online: web] Accessed 21 July 2107, URL: http://www.mrcmekong.org/assets/Publications/policies/agreement-Apr95.pdf
- Mekong River Commission (2010a), Hua Hin Declaration "Meeting the Needs, Keeping the Balance: Towards Sustainable Development of the Mekong River Basin", [Online: web] Accessed on 21 July 2017, URL:

http://www.mrcmekong.org/assets/Publications/Events/MRCSummit2010/MRC-Hua-Hin-Declaration-05-Apr-10.pdf

- Mekong River Commission (2010b), "China ready to share data on Mekong water levels ahead of regional river summit", [Online: web] Accessed on 21 July 2017, URL: http://www.mrcmekong.org/news-and-events/news/china-ready-to-share-data-on-mekong-water-levels-ahead-of-regional-river-summit/
- Mekong River Commission (2013), "Mekong River Commission and China boost water data exchange", [Online: web] Accessed 21 July 2017, URL: http://www.mrcmekong.org/news-and-events/news/mekong-river-commission-and-china-boost-water-data-exchange/
- Menga, F. (2016), "Domestic and International Dimensions of Transboundary Water Politics", *Water Alternatives*, 9 (3): 704-723.
- Menniken, T. (2007), "China's Performance in International Resource Politics: Lessons from the Mekong", *Contemporary Southeast Asia*, 29 (1): 97-120.
- Miao, C. et al. (2015), "China's Policy on Dams at the Crossroads: Removal or Further Construction?", *Water*, 7(5): 2349-2357.
- Milner, H. (1992), "International Theories of Cooperation among Nations: Strengths and Weaknesses", *World Politics*, 44 (3): 466-496.
- Ministry of External Affairs (MEA), India (2004), Panchsheel, External Publicity Division, Ministry of External Affairs, Government of India, [Online: web] Accessed 21 July 2017, URL: www.mea.gov.in/Uploads/PublicationDocs/191_panchsheel.pdf
- Ministry of External Affairs (MEA), India (2012), India-China Bilateral Relations, Ministry of External Affairs, Government of India, [Online: web] Accessed 21 July 2017, URL: https://www.mea.gov.in/Portal/ForeignRelation/China-January-2012.pdf

- Ministry of Water Resources (MoWR), Official Website (n.d), Government of the People's Republic of China, URL: www.mwr.gov.cn/english
- Ministry of Water Resources (MoWR), Official Website (n.d), Government of the Republic of India, URL: www.wrmin.nic.in
- Ministry of Water Resources (MoWR), China (2002), Water Law of the People's Republic of China, [Online: web] Accessed 21 July 2017, URL: www.npc.gov.cn/englishnpc/Law/2007-12/12/content_1383920.htm
- Ministry of Water Resources (MoWR), People's Republic of China (2015), International Cooperation on Trans-boundary Rivers between China and its Neighbouring Countries, [Online: web] Accessed 21 July 2017, URL: www.mwr.gov.cn/english/mainsubjects/201604/P020160406513798903048.pdf
- Ministry of Water Resources (MoWR), Government of India (2012), National Water Policy 2012, Government of India, [Online: web] Accessed 21 July 2017, URL: www.wrmin.nic.in/writereaddata/NationalWaterPolicy/NWP2012Eng6495132651.pdf
- Mirumachi, N. (2007). "Fluxing relations in water history: Conceptualizing the range of relations in trans-boundary river basin", in *Pasts and Futures of Water: Proceedings from the 5th International Water History Association Conference*, Tampere, Finland, 13–17 June 2006.
- Mirumachi, N. (2015), *Transboundary Water Politics in the Developing World*, Abingdon and New York: Earthscan.
- Mirumachi, N. and J.A. Allan, (2007) "Revisiting transboundary water governance: power, conflict, cooperation and the political economy", CAIWA conference paper, [Online: web] Accessed 21 July 2017, URL: http://www.newater.uni-

osnabrueck.de/caiwa/data/papers%20session/F3/CAIWAFullPaperMirumachiAllan25Oct07submitted2.pdf.

- Moisio, S. and A. Paasi (2016), "Beyond State-Centricity: Geopolitics of Changing State Spaces", *Geopolitics*, 18 (2): 255-266.
- Molle, F. et al. (2009), "Hydraulic bureaucracies and the hydraulic mission: Flows of water, flows of power", *Water Alternatives*, 2 (3): 328-349.
- Mollinga, P.P. (2008), "Water, politics and development: Framing a political sociology of water resource management", *Water Alternatives*, 1 (1): 7-23.
- Mollinga, P.P. (2010), "The material conditions of a polarized discourse: Clamours and silences in critical analysis of agricultural use in India", *Journal of Agrarian Change*, 10 (3): 414-436.
- Moore, S. (2009), "Climate Change, Water and China's National Interest", *China Security*, 5 (3): 25-39.
- Mukerji, C. (2003), "Intelligent uses of engineering and the legitimacy of state power", *Technology and Culture*, 44: 655-676.
- Mukherjee, P. (2014), Speech by the President of India, Shri Pranab Mukherjee at the Jawaharlal Nehru Memorial Lecture on Jawaharlal Nehru and the making of Modern India, 13 November 2014, President's Secretariat, Press Information Bureau, Government of India, [Online: web] Accessed 21 July 2017, URL: www.pib.nic.in/newsite/printrelease.aspx?relid=111479
- Mustafa, D. (2007), "Social construction of hydropolitics: The geographical scales of water and security in the Indus Basin", *Geographical Review*, 97 (4): 484-501.
- Neumann, I.B. (1998), "Identity and the Outbreak of War: On Why the Copenhagen School of Security Studies Should Include the Idea of 'Violisation' in its Framework of Analysis", *International Journal of Peace Studies*, 3 (1): 1-10.

- Newig, J. et al. (2005), "The role of public participation in managing uncertainty in the implementation of the Water Framework Directive", *European Environment*, 15 (6): 333-343.
- Newman, D. (2010), "Territory, Compartments and Borders: Avoiding the Trap of the Territorial Trap", *Geopolitics*, 15 (4): 773-778.
- Nguyen, H.N. et al. (2007), "Flooding in Mekong River Delta, Vietnam", in Human Development Report 2007/2008, Fighting climate change: Human solidarity in a divided world, Human Development Report Office Occasional Paper, 2007/53, United Nations Development Programme.
- Nickum, J.E. (2008), "The upstream superpower: China's international rivers", in O. Varis et al. (eds.) *Management of Transboundary Rivers and Lakes*, Berlin: Springer.
- Nishat, A. and M.F.K. Pasha (2001), "A Review of the Ganges Treaty of 1996", paper presented on *Globalization and Water Resources Management: The Changing Value of Water*, AWRA/IWLRI- University of Dundee International Specialty Conference 6-8 August 2001, Dundee, Scotland: University of Dundee.
- Nye, J. (1990), *Bound to Lead: The changing nature of American power*, New York: Basic Books.
- O'Neill, K. et al. (2004), "Actors, norms and impact: Recent international cooperation theory and the influence of the agent-structure debate", *Annual Review of Political Science*, 7 (1): 149-175.
- Ohlsson, L. (1995), *Hydropolitics: Conflicts over water as a development constraint*, (ed.), London: Zed Books.
- Ohlsson, L. and A. Turton (1999), "The turning of a screw: social resource scarcity as a bottleneck in adaptation to water scarcity", SOAS Water Issues Study Group,

School of Oriental and African Studies/King's College London (Occasional Paper 19).

- Onishi, K. (2007), "Interstate negotiation mechanisms for cooperation in the Mekong river basin", *Water International*, 32 (4): 524-537.
- Pant, H.V. (2006), "Indian Foreign Policy and China", *Strategic Analysis*, 30 (4): 760-780.
- Pepper, S. (1978), *Civil War in China: The Political Struggle, 1945-49*, Berkeley: University of California Press.
- Phillips, D. et al. (2006), Trans-boundary water co-operation as a tool for conflict prevention and broader benefit sharing, [Online: web] Accessed 21 July 2017, URL: https://lwrg.files.wordpress.com/2014/12/phillips-et-al-benefit-sharing-smfa-2006.pdf
- Pietz, D. (2014), *The Yellow River: The problem of water in modern China*, Cambridge, MA: Harvard University Press.
- Piper, K. (2017), "Modi's damning plans: India's controversial plans for clean water", *Asia and the Pacific Policy Society*, APPS Policy Forum, 29 March 2017, [Online: web] Accessed 21 July 2017, URL: https://www.policyforum.net/modis-damning-plans/
- Poast, P. (2013), "Issue linkage and international cooperation: An empirical investigation", *Conflict Management and Peace Science*, 30 (3): 286-303.
- Prime Minister's Office (PMO), Government of India (2013), Joint Statement- A vision for future development of India-China strategic and cooperative partnership, Press Information Bureau, 23 October 2013, [Online: web] Accessed 21 July 2017, URL: www.pib.nic.in/newsite/PrintRelease.aspx?relid=100198

- Przeworski, A. and H. Teune (1970), *The Logic of Comparative Social Inquiry*, New York: Wiley-Interscience.
- Raghavan, S. (2010), *War and Peace in Modern India: A Strategic History of the Nehru Years*, New Delhi: Permanent Black.
- Rahaman, M.M. (2009), "Principles of Transboundary Water Resources Management and Ganges Treaties: An Analysis", *Water Resources Development*, 25 (1): 159-173.
- Rahaman, M.M and O. Varis (2009), "Integrated water management of the Brahmaputra basin: Perspectives and hope for regional development", *Natural Resources Forum*, 33: 60-75.
- Ramachandran, S. (2016), "The trouble with India's projects in Myanmar", *The Diplomat*, 21 September 2016, [Online: web] Accessed 21 July 2017, URL: www.thediplomat.com/2016/09/the-trouble-with-indias-projects-in-myanmar/
- Rao, K.L. (1979), *India's Water Wealth*, New Delhi: Orient Longman Limited.
- Reuss, M. (2004), "Historians, Historical Analysis, and International Water Politics", *The Public Historian*, 26 (1): 65-79.
- Reuters (2016), "China to sign $24 billion in loans to Bangladesh, overtakes PM Modi's $2 billion credit line", Dhaka/Beijing, *The Indian Express*, 14 October 2016.
- Ringius, L. (2001), *Radioactive Waste Disposal at Sea: Public Ideas, Transnational Policy Entrepreneurs, and Environmental Regimes*, Cambridge, MA: MIT Press.
- Ruggie, J.G. (1975), "International responses to technology: Concepts and trends", *International Organization*, 29 (3): 557-583.
- Ruggie, J.G. (1992), "Multilateralism: The Anatomy of an Institution", *International Organization*, 46 (3): 561-598.

- Sadoff, C.W. and D. Grey (2002), "Beyond the river: the benefits of cooperation on international rivers", *Water Policy*, 4: 389-403.
- Salehin, M. et al. (2011), "Opportunities for Trans-boundary Water Sharing in the Ganges, The Brahmaputra and The Meghna Basins", *India Infrastructure Report*, Infrastructure Development Finance Company, New Delhi: Oxford University Press.
- Samaranayake, N. et al. (2016), *Water Resources Competition in the Brahmaputra River Basin: China, India and Bangladesh*, Arlington, USA: CNA Strategic Studies.
- Sarma, J. N. (2005), "An overview of the Brahmaputra river system", in V.P. Singh et al. (eds.) *The Brahmaputra Basin Water Resources*, The Netherlands: Kluwer Academic Publishers.
- Sartori, G. (1984), *Social Science Concepts: A Systematic Analysis* (ed.), Beverly Hills, CA: Sage.
- Schmeier, S. (2013), *Governing International Watercourses: River Basin Organizations and the Sustainable Governance of Internationally Shared Rivers and Lakes*, London: Routledge.
- Searle, J.R. (1969), *Speech Acts: An Essay in the Philosophy of Language*, Cambridge: Cambridge University Press.
- Selby, J. (2003), "Dressing up domination as 'cooperation': The case of the Israeli Palestinian water relations", *Review of International Studies*, 29: 121-138.
- Shah, T. (2017), "Institutional reforms: Building a 21st century institutional architecture for water governance", *The Indian Express*, New Delhi, 20 July 2017.
- Singh, S. (2011), "Paradigm Shift in India-China Relations: From Bilateralism to Multilateralism", *Journal of International Affairs*, 64 (2): 155.
- Sinha, U.K. (2016), *Riverine Neighbourhood: Hydro-politics in South Asia*, New Delhi: Pentagon Press in association with Institute of Defence Studies and Analyses.

- Skocpol, T. and M. Somers (1980), "The Uses of Comparative History in Macrosocial Inquiry", *Comparative Studies in Society and History*, 22: 174-197.
- Sneddon, C. and C. Fox (2006), "Rethinking transboundary waters: A critical hydropolitics of the Mekong basin", *Political Geography*, 25 (2): 181-202.
- Sperling, E. (2004), *The Tibet-China Conflict: History and Polemics*, Policy Studies No. 7, Washington D.C.: East-West Center.
- Starr J.R. and D.C. Stoll (1998), "Water for the year 2000", in Starr J.R and Stoll D.C (eds.) *The Politics of Scarcity: Water in the Middle East*, Boulder CO: Westview.
- Stobdan, P. (2009), "China should not use water as a threat multiplier, *IDSA Comment*, New Delhi, 23 October 2009, Institute for Defence Studies and Analyses.
- Stone, M. (2009), "Security according to Buzan: A Comprehensive Security Analysis", Security Discussion Papers Series 1, Groupe d'Etudes et d'Expertise "Securite et Technologies" GEEST 2009, Spring.
- Storey, I. (2010), "China's 'charm offensive' loses momentum in Southeast Asia", Part I and II, *China Brief*, 10 (9): 7-10 (Part I) and 10(10): 7-10 (Part II).
- Stritzel, H. (2007), "Towards a theory of securitization: Copenhagen and beyond", *European Journal of International Relations*, 13 (3): 357-383.
- Subedi, S.P. (1999), "Hydro-Diplomacy in South Asia: The Conclusion of the Mahakali and Ganges River Treaties", *The American Journal of International Law*, 93 (4): 953-962.
- Supreme Court of India (2012), "In Re: Networking of Rivers", Writ Petition (Civil) No. 512 of 2002 with Writ Petition (Civil) No. 668 of 2002, 27 February 2012, Civil Original Jurisdiction, Bench: S.H Kapadia, A.K. Patnaik, Swatanter Kumar, Supreme Court of India Judgment.

- Swayamprakash, R. (2014), Water Control in 19th and 20th century Asia, Proceedings from the panel held at the 2012 Society for the History of Technology Annual Meeting, Copenhagen: Department of History, The Ohio State University, in A. Mulvany (ed.) Water control in South Asia: An Introduction, *Water History* (2014), 6: 115-118.
- Tang, J. (2002), Speech by Foreign Minister Tang Jiaxuan at the ASEAN-China Dialogue at Bandar Seri Begawan, Ministry of Foreign Affairs of the People's Republic of China, [Online: web] Accessed 21 July 2017, URL: http://www.fmprc.gov.cn/mfa_eng/wjb_663304/zzjg_663340/gjs_665170/gjzzyhy_665174/2612_665212/2614_665216/t15321.shtml
- Taylor, P.J. (1994), "The State as Container: Territoriality in the Modern World-System", *Progress in Human Geography*, 18 (2): 151-162.
- Thampi, M. (2007), "India and China: Colonial Encounters", Envisioning Asia, A Symposium on changing relationships between India, China and Japan, *Seminar*, No. 573, May 2007.
- Tir J. and D. Stinnett (2011), "The institutional design of riparian treaties: the role of river issue", *Journal of Conflict Resolution*, 55 (4): 606-631.
- Tortajada, C. and U. Saklani (2016), "India and Bhutan: Cross-Country Power Connectivity", *The Diplomat*, 30 June 2016, [Online: web] Accessed 21 July 2017, URL: www.thediplomat.com/2016/06/india-and-bhutan-cross-country-power-connectivity/
- Tuomela, R. (2000), *Cooperation: A Philosophical Study*, Dordrecht and Boston, MA: Kluwer Academic Publishers.

- Uitto, J.I. and A.M. Duda (2002), "Management of transboundary water resources: lessons from international cooperation for conflict prevention", *The Geographical Journal*, 168 (4): 365-378.
- United Nations (2017), "World Population Prospects: Key findings and advance tables, 2017 Revision", Department of Economic and Social Affairs, Population Division, ESA/P/WP/248, New York: United Nations.
- United Nations Development Programme (UNDP) (1994), Human Development Report 1994: New Dimensions of Human Security, [Online: web] Accessed 21 July 2017, URL: www.hdr.undp.org/en/content/human-development-report-1994
- United Nations Development Programme (UNDP) (2006), Human Development Report 2006: Beyond scarcity: Power, poverty and the global water crisis, [Online: web] Accessed 21 July 2017, URL: www.hdr.undp.org/en/content/human-development-report-2006
- United Nations Development Programme (UNDP) (2016), Report on Vietnam: Drought and Saltwater Intrusion Situation Update No. 3, United Nations Development Programme Publications, [Online: web] Accessed 21 July 2017, URL: http://www.un.org.vn/images/stories/pub_trans/Viet_Nam_Drought_and_Saltwater_Intrusion_SitRep_3_-_15_June_2016.pdf
- United Nations Treaty Collection (2014), Convention on the Law of the Non-Navigational Uses of International Watercourses, Chapter XXVII, Environment, [Online: web] Accessed 21 July 2017, URL: www.legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf
- Vajpayee, A.B. (2003), "Prime Minister Shri Atal Bihari Vajpayee's Speech at the launching of Freshwater Year-2003", 5 February 2003, Prime Minister's Office

Archives of Speeches, Government of India, [Online: web] Accessed 21 July 2017, URL: www.archivepmo.nic.in/abv/speech-details.php?nodeid=9011

- van Schendel, W. (2013), "Afterword: Making the most of sensitive borders", in D.N. Gellner (ed.) *Borderland Lives in Northern South Asia: Non-State Perspectives*, Durham and London: Duke University Press.
- van Wyk, A. (1998), "Towards water security in southern Africa", *African Security Review*, 7(2): 59-68.
- Vasquez, J.A. (1995), "Why global conflict resolution is possible: Meeting the challenges of the new world order", in J.A. Vasquez et al. (eds.) *Beyond Confrontation: Learning Conflict Resolution in the Post-Cold War Era*, Ann Arbor: University of Michigan Press.
- Venkatachalam, K.S. (2017), "Why China is fuming over the Dalai Lama's visit to Tawang", *The Diplomat*, 4 April 2017, [Online: web] Accessed 21 July 2017, URL: www.thediplomat.com/2017/04/why-china-is-fuming-over-the-dalai-lamas-visit-to-tawang/
- Waever, O. (1995), "Securitization and Desecuritization", in R.D. Lipschutz (ed.) *On Security*, New York: Columbia University Press.
- Waever, O. (2009), "Waltz's Theory of Theory", *International Relations*, 23 (2): 201-222.
- Waltz, K.N (1979), *Theory of International Politics*, University of Michigan: Addison-Wesley Publishing Company.
- Wang, W. (2006), "Water Resources and the Sino-Indian Strategic Partnership", *China Rights Forum*, 45 (1): 19-21.
- Warner, J. (2004), "Water, wine, vinegar, blood: On politics, participation, violence and conflict over the hydrosocial contract", *Proceedings of the Workshop on Water*

and Politics: Understanding the Role of Politics in Water Management, Marseille, 26-27 February 2004, (ed.) World Water Council, pp. 7-18.

- Warner, J. (2005), "Multi-stakeholder platforms: Integrating society in water resource management?", *Ambiente and Sociedade*, 8 (2): 4-28.
- Warner, J.F. (2006), "More sustainable participation? Multi-stakeholder platforms for integrated catchment management", *Water Resources Development*, 22 (1): 15-35.
- Warner J. (2008), "Contested hydro-hegemony/hydraulic control and security in Turkey", *Water Alternatives*, 1 (2): 271-288.
- Warner, J. (2011), *Flood Planning: The Politics of Water Security*, London: I.B. Tauris.
- Warner J. and N. Zawahri (2012), "Hegemony and asymmetry: multiple-chessboard games on transboundary rivers", *International Environmental Agreements*, 12 (3): 215-229.
- Warner, J.F. and M. Zeitoun (2008), "International relations theory and water do mix: A response to Furlong's troubled waters, hydro-hegemony and international water relations", *Political Geography*, 27: 802-810.
- Warner, J.F. et al. (2014), "How 'soft' power shapes international transboundary water interaction", in R.Q. Grafton et al. (eds.) *Global Water: Issues and Insights*, ANU Press, The Australian National University, Canberra, Australia.
- Waterbury, J. (2002), *The Nile Basin: National Determinants of Collective Action*, New Haven, CT: Yale University Press.
- Webber, M. et al. (2017), "The South-North Water Transfer Project: remaking the geography of China", *Regional Studies*, 51 (3): 370-382.

- Wendt, A. (1992), "Anarchy is what states make of it: the social construction of power politics', *International Organization*, 46 (2): 391-425.
- Wendt, A. (1999), *Social Theory of International Politics*, Cambridge and New York: Cambridge University Press.
- Wester, P. (2008), *Shedding the Waters: Institutional Change and Water Control in the Lerma-Chapala Basin, Mexico*, Wageningen University, cited in N. Mirumachi (2015), *Transboundary Water Politics in the Developing World*, Abingdon and New York: Earthscan.
- Wirsing, R.G. (2008), "Rivers in Contention: Is there a Water War in South Asia's Future?", Heidelberg Papers in South Asian and Comparative Politics, Heidelberg: University of Heidelberg, [Online: web] Accessed 21 July 2017, URL: http://www.sai.uni-heidelberg.de/SAPOL/HPSACP.htm
- Wittfogel, K.A. (1957), *Oriental Despotism: A Comparative Study of Total Power*, New Haven: Yale University Press.
- Wolf, A.T. (1998), "Conflict and cooperation along international waterways", *Water Policy*, 1 (2): 251-265.
- Wolf, A.T. (2002), "Conflict Prevention and Resolution in Water Systems", in A.T. Wolf (ed.) *The Management of Water Resources*, Cheltenham, UK: Elgar Publishing Inc.
- Wolf, A.T. et al. (2003), "International waters: identifying basis at risk", *Water Policy*, 5 (1): 29-60.
- Wolf, A.T. et al. (2005), "Managing water conflict and cooperation", in World Watch Institute (ed.) *State of the World 2005: Redefining Global Security*, Washington D.C.: World Watch Institute, pp. 80-95.

- Wouters, P. et al. (2004), "The new development of water law in China", *University of Denver Water Law Review*, 7 (2): 243-308.
- Yoffe, S. et al. (2003), "Conflict and Cooperation over International Freshwater Resources: Indicators of Basins at Risk", *Journal of the American Water Resources Association*, 39 (5): 1109-1126.
- Zamindar, V.F.Y. (2007), *The Long Partition and the Making of Modern South Asia: Refugees, Boundaries, Histories*, New York: Columbia University Press.
- Zawahri, N.A. (2008), "Capturing the nature of cooperation, unstable cooperation, and conflict over international rivers: The story of the Indus, Yarmouk, Euphrates, and Tigris Rivers", *International Journal of Global Environmental Issues*, 8 (3): 286-310.
- Zawahri, N. and S. Mitchell (2011), "Fragmented Governance of International Rivers: Negotiating Bilateral versus Multilateral Treaties", *International Studies Quarterly*, 55 (3): 835-858.
- Zeitoun, M. (2007), "Violations, Opportunities and Power along the Jordan River: Security Studies Theory Applied to Water Conflict", in H. Shuval and H. Dweik (eds.) *Water Resources in the Middle East: Israel-Palestinian Water Issues From Conflict to Cooperation*, Berlin, Heidelberg, New York: Springer-Verlag, pp. 213-224.
- Zeitoun, M. and N. Mirumachi (2008), "Transboundary water interaction I: Reconsidering conflict and cooperation", *International Environmental Agreements: Politics, Law and Economics*, 8 (4): 297-316.
- Zeitoun, M. and J. Warner (2006), "Hydro-Hegemony: A Framework for Analysis of Trans-boundary Water Conflicts", *Water Policy*, 8 (5): 435-460.

- Zeitoun et al. (2011), "Transboundary water interaction II: Soft power underlying conflict and cooperation", *International Environmental Agreements: Politics, Law and Economics*, 11: 159-178.
- Zhang, L. et al. (2015), "Major Power Diplomacy with Chinese Characteristics", Carnegie-Tsinghua Centre for Global Policy, Beijing, 27 November 2015, [Online: web] Accessed 21 July 2017, URL: www.carnegietsinghua.org/2015/11/27/major-power-diplomacy-with-chinese-characteristics-event-5078
- Zhou, M. (2016), "China and the Mekong Delta: Water Savior or Water Tyrant?", *The Diplomat*, 23 March 2016, [Online: web] Accessed 21 July 2017, URL: http://thediplomat.com/2016/03/china-and-the-mekong-delta-water-savior-or-water-tyrant/