

HOW DOES THE RISE OF CHINESE WATER NEEDS INFLUENCE INDIAN WATER RELATIONS WITH PAKISTAN AND BANGLADESH IN THE 21ST CENTURY?

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ABSTRACT

It is a generally acknowledged fact that water is gradually becoming one of the most important strategic resources of the 21st century. Tendencies of rising population, economic growth, more water demanding diets, as well as climate change and resulting institutional and social instability pose a threat to the balance of regional security in many corners of the world. In addition to these effects, some upstream countries increase their share of transboundary rivers by unilaterally altering their flow, affecting thus all downstream neighbors. This thesis examines one of the most important hot-spots in the world, where all these issues are combined; the Indian sub-continent. The above mentioned effects are subject to extensive scholarly debate ranging from protagonists of "water wars" to those who see water scarcity as a tool for cooperation. By comparing the humid Brahmaputra and the arid Indus river basins, the thesis scrutinizes these assumptions. It supports the argument that regional disparities within states matter, however it is not water scarcity per se that triggers conflict, but unilateral, man-made projects. Additionally, it explains why China will have a bigger impact on Indo-Bangladeshi relations as opposed to Indo-Pakistani ones, even though the river characteristics show the opposite. Furthermore, the thesis regards water issues as a facilitator of cooperation and develops a theoretical and empirical framework, which is applicable to the four researched countries, and explains their motivations for and the constraints of their collaboration.

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TABLE OF CONTENTS

Introduction	1
Chapter 1: Research background and theoretical base for water disputes.....	7
1.1 Background context.....	7
1.2 Case study justification.....	10
1.3 Methodology.....	13
1.4 Understanding and explaining water disputes	15
1.5 Water as a tool for cooperation and strategic arguments against water wars.....	17
1.6 Water as source of both intra- and international conflict	21
1.7 Transition from the theory to empirics through the Game of States Theory.....	23
1.8 Game of States Theory	25
1.8.1 Geopolitical and Geographic arguments for Chinese presence.....	27
1.8.2 Downstream institutionalization and the level of Chinese influence	28
1.8.3 China's effects on India's downstream neighbors.....	28
Chapter 2: The upstream potential and the downstream time-bomb on the Brahmaputra river	31
2.1 Game of States Theory	32
2.1.1 Geopolitical and geographic argument.....	33
2.1.2 Institutional argument.....	34
2.1.3 BATNA argument	35
2.2 Closer analysis of the downstream time-bomb.....	36
2.3 Chinese effects on the Bangladeshi BATNA	38
Chapter 3: The importance of the Indus Water Treaty and the Sino-Pakistani common interest	42
3.1 Game of States Theory	44
3.1.1 Geopolitical and Geographic argument.....	44
3.1.2 Institutional argument.....	45
3.1.3 BATNA argument	46
3.2 Pakistani struggles to decrease its water dependence on India	47
3.3 Chinese effects on the Pakistani BATNA	48
Conclusion.....	53
Bibliography	57

List of Tables and Illustrations

Figure 1: Hydrological map of the relevant river basins.....	11
Table.1: The Chinese fed Indus and Brahmaputra and relative downstream water volumes.....	12

List of Abbreviations

ADB	Asian Development Bank
BATNA	Best Alternative to a Negotiated Agreement
CEU	Central European University in Budapest
GoST	Game of States Theory
GW	Gigawatt
IWT	Indus Water Treaty
MW	Megawatt
NOC	Non Objection Certificate
TGIC	Three Gorges International Corporation
UN	United Nations
WB	World Bank

INTRODUCTION

Water is an essential resources that fuels both the economic and social functioning of countries and is a fundamental component that drives the everyday lives of their inhabitants. Water has no substitutes, additionally, it can be naturally transported across borders in the form of rivers, creating thus upstream and downstream countries. Civilizations and religions evolved around such water carriers and thus any alterations of their flow, mostly by the upstream neighbor, pose a potential hazard to regional stability.

The effects of water scarcity have sparked intensive scholarly debate, ranging from water wars to regarding water issues as a tool of cooperation. On the one hand, given its regional importance and low availability, water was supposed to trigger numerous conflicts in the Middle-East¹ and is constantly regarded as an issue that can degrade mutual relations of neighboring riparians.² On the other hand, it is historically proven that water has also been a source of cooperation between countries,³ in fact, it even managed to bridge strong political adversaries.⁴ Many cases show that cooperation can utilize the benefits from the different upstream and downstream river characteristics and be thus the optimal solution to a regional problem. Additionally, according to these scholars, a water war would be economically and strategically not viable.⁵ Other researchers deem water conflicts possible, but only on an intrastate, regional level.⁶ To assess further implications, the thesis narrows down to a region special for both water supply and demand.

¹ Peter H. Gleick and Matthew Heberger, "Water Conflict Chronology," in *The World's Water*, edited by Peter H. Gleick, (Island Press/Center for Resource Economics, 2011), 175–214.

² Jerome Delli Priscoli and Aaron T. Wolf, *Managing and Transforming Water Conflicts* (New York: Cambridge University Press, 2009), 1.

³ Ibid. p.13

⁴ Undala Alam, "Questioning the Water War Rationale: A Case Study of the Indus Water Treaty," *The Geographical Journal* 168, no. 4 (December 2002): 341–53.

⁵ Aaron T. Wolf, "Conflict and Cooperation along International Waterways," *Water Policy* 1, no. 2 (1998): 251–65.

⁶ Thomas F Homer-Dixon, *Environment, Scarcity, and Violence* (Princeton, N.J.: Princeton University Press, 1999), 18.

South-East Asia is the most populous region in the world and is faced with a constant rise in water demand. This is due to both its immense population and economic growth, which also translates into more water demanding diets. Supply-wise, the main rivers of the region are experiencing volatile flow volumes given the negative effects of climate change. But most importantly, they predominantly originate in Tibet, a territory that is under the control of the regional hegemon, China. Some of these rivers also effect the second most populous country in the world, India, the strongest competitor in the regional power-game. Furthermore, through two waterways, their rivalry also impacts India's two downstream neighbors, Bangladesh and Pakistan.

The Brahmaputra and the Indus have both been fuelling the economic, cultural, spiritual and societal development of civilizations in the Indian sub-continent for centuries. The two rivers do not share a watershed and flow in different climatic circumstances, however, both are an essential vein of agriculture, industry and cities in their corresponding regions. Decolonization and the further wave of emancipation created additional boundaries and formed two independent states on the Western (Pakistan) and Eastern (Bangladesh) edge of the subcontinent. The new borders separated most of the Muslim population from the Hindu, as they also geopolitically divided the natural watersheds of these two massive rivers. Both Pakistan and Bangladesh became the downstream neighbor of India. The former on the Indus river system, the latter on the Ganges-Brahmaputra-Meghna basin.

During the turbulent era of the second half of the 20th century the region witnessed many water disputes, but also a set of treaties meant to specify the redistribution and usage of the two rivers. These developments are crucial to the topic and will be analyzed in the thesis. However, seeing that both the Indus and Brahmaputra rivers originate in China, whose energy mix started shifting towards hydro-energy, this work examines how the rising Chinese influence has been affecting the Indian sub-continent in the past one and a half decades. Since

the beginning of the new millennium, this pressure even materialized in real events and projects. The thesis includes the most important ones, such as the: 2000/2005/2008 flash floods on both rivers, 2002, when constructions on the Great South to North Water Diversion Project started, 2003, the year when India officially accepted Tibet as a Chinese autonomous region, 2009, when India officially denounced Chinese water activities and 2010, when the Chinese, state-owned, HydroChina company announced their upcoming hydrological projects. Such events undoubtedly changed the water status-quo of the region and shifted some of the, until then, technically uncontested Indian upstream riparian position to its Northern neighbor. Given their shared watersheds, this leverage and change of regional dynamics also has a potential to affect Indo-Pakistani and Indo-Bangladeshi water relations.

The thesis describes the regional motivations and constraints for cooperation and examines how exactly China influences downstream water relations on the Indian sub-continent. It supports the argument that states should not be considered as water monoliths and that regional disparities within them matter. Additionally, as will be shown in the later chapters, it is not absolute water scarcity that causes conflicts, but it is the relative water loss, caused by manmade activities that deteriorates mutual relations of two riparian neighbors. The thesis comes to this conclusion through the Game of States Theory⁷(GoST) approach and its argumentation on geographical/geopolitical, institutional and downstream BATNA⁸ characteristics. Through this background and the two case studies the thesis disproves the following hypotheses, which it was able to set after looking at the low water availability of the more conflict prone Indus region, and the much higher water volumes on the Brahmaputra, where interstate relations are relatively moderate:

⁷ A combination of hydro-hegemony theory and game theory, derived from Ahmed Abukhater's book (Water as a Catalyst for Peace: Transboundary Water Management and Conflict Resolution) Hydro-hegemony theory connects state power with hydro-strategic position and describes how water cooperation mechanisms work. Game theory describes conflict as mistrust and threat stemming from adversarial relations, which deems cooperation impossible due to the prisoners dilemma and its "sucker's pay-off." The choice of this approach is justifiable and relevant, as will be described later, their combination will shed light on the regional hydro power-struggle.

⁸ Best Alternative to a Negotiated Agreement

Water induced tension is merely caused by the dryer climatic conditions and the resulting lower water availability.

China's enormous share of the Indus and considerably smaller portion of the Brahmaputra, both compared to corresponding downstream water availability, implies that China is gaining almost absolute leverage on the Indus and can only produce negligible effects on the Brahmaputra.

What is more, through the same approach the thesis assesses geopolitical relations and incentives for cooperation, by answering the following research questions:

Does decreasing water availability polarize relations or does it create incentives for cooperation in the region?

If any, which countries will it bridge from the case studies and what will be the motivation for this bond?

The thesis states that given the geopolitical, institutional and negotiation alternatives furthest downstream, a Sino-Pakistani rather than a Sino-Bangladeshi relation is forming. However as will be shown, China increases both Pakistani and Bangladeshi water leverage against India positively, which decreases the advantageous riparian position of India vis-à-vis its downstream neighbors. According to GoST, the combination of these two factors should gradually lead to an increased Indo-Pakistani and Indo-Bangladeshi cooperation. Both case studies showed that a Sino-Indian cooperation is not forming, even though it would be the only lasting solution to the regional issues.

In order to aid the claims for the two case studies, research questions and hypotheses, the thesis first devotes a chapter to a literature review on water disputes. It examines how the environment and security debate adds to the water wars concept, and explains why militaristic solutions should not be a viable option in the region. To go even further, through historic, strategic and regional arguments the work shows that rather than sparking interstate water

wars, water scarcity should serve as a tool for cooperation on the Indian sub-continent. To explain the regional cooperation mechanism in a more detailed manner, the thesis gradually narrows down its theoretical scope and justifies the use of the Games of State Theory approach. This theory base represents the best alternative for assessing the regional cooperation mechanism, given the low, equal amount of actors, whose geopolitical power is declining as we gradually go downstream. By connecting India's downstream issues with growing Chinese activity, the thesis contributes to the South-East Asian water literature, as these two topics are usually dealt separately.

Both case studies partially draw theoretical and empirical arguments from my own, previous, CEU⁹ course related work. The case studies will involve the only two rivers that originate in China and flow to India's two downstream neighbors, Bangladesh and Pakistan, namely the Brahmaputra¹⁰ and the Indus.¹¹ They will be introduced in the case study justification and within the GoST concept, but will be mainly assessed in the two empirical chapters. Their combined implications will be described in the conclusion, which will answer the research questions and hypothesizes more deliberately as well. In addition to statements of officials the thesis looks at news reports and studies of various institutions that will help draw implications from the two cases. The choice of these two special water carriers lies in their unique similarities and differences. Both rivers flow through three countries, from the geopolitically strongest to the weakest, they are key veins for regional agriculture, industry, navigation and culture and end up in countries that used to be a part of India. Additionally, they are not border rivers, but still flow through contested regions. The main differences between the two rivers lie in the climatic circumstances, their volume and unused

⁹ Central European University in Budapest

¹⁰ Oto Pisoň, "The Brahmaputra river and Indo-Bangladeshi water security in the light of shifting Sino-Indian water relations" [research paper], for the course: Transnational Environmental Politics, by Matteo Fumagalli, CEU, Winter Semester 2014.

¹¹ Oto Pisoň, "The Indus river system and Pakistan's water security in the light of shifting Sino-Indian water relations" [research paper], for the course: Environment and Security, by Stephen Stec, CEU, Winter Semester 2014.

hydrological potential. The combination of these factors will help me evaluate the leverage China can generate in the regions these two rivers flow through and assess what implications it has on the Indian subcontinent.

CHAPTER 1: RESEARCH BACKGROUND AND THEORETICAL BASE FOR WATER DISPUTES

In order to assess the two case studies separately, the first part of this chapter concentrates on important circumstances that are relevant for both the Brahmaputra and the Indus. The following underlines why Chinese pressure is considered to be on the rise and briefly highlights the differences between India and China's upstream behavior, mainly from an institutional perspective. After, the work mentions the similarities and differences between both water carriers in the Case study justification part and describes how the research will proceed in the Methodology section.

The other purpose of this chapter is to examine a broader spectrum of literature and funnel its implications into the most useful approach that could explain the empirical part of the thesis. Additionally, it intends to answer which concept would be most suitable for answering RQ1 and 2 and scrutinizing the hypotheses.

1.1 Background context

China became increasingly engaged in hydro-energy and water diversions even in the 20th century, it just did not affect India and its downstream neighbors directly. While in 1949 China had only 22 large dams, in 2011 it had more than 25000. Furthermore, their next decade's investment into water infrastructure totals 635 billion USD,¹² which highlights that the Chinese politburo is not intending to stop this pace. Additionally, not only does it have the financial sources but also a legal upper hand in its actions, as it acquired full sovereignty of the Tibetan region.

Since the tapping of Tibet's water reserves was considered technically impossible, Indian politicians deemed upstream water pressure unfeasible. Among many benefits that undoubtedly came with officially accepting Tibet as one of China's autonomous regions in

¹² Brahma Chellaney, "The World's Most 'Dammed' Country," *Stagecraft and Statecraft*, December 29, 2011, <http://chellaney.net/2011/12/29/the-worlds-most-dammed-country/> (accessed May 15, 2014).

2003, this ignorance definitely contributed to India's water in-security and is heavily criticized by Indian hydrologists.¹³ Eventually, even the government became aware of the implications and officially voiced their concerns to Beijing in 2009.¹⁴ Furthermore, the fact that Sino-Indian water cooperation is lacking, and that China opposes to enter any kind of serious agreement, it exacerbates the situation.

Legally, only water treaties could limit Chinese actions. However, it is part of no such agreement with any of its neighbors. The only relatively successful cooperation, where China is taking part at least as an observer, is the Mekong group. Even customary water law, defined by the 1992 Helsinki Convention and the 1997 UN Convention on the Law of Non-navigational Uses of International Watercourses, can hardly deem any upstream act illegal. Actors interpret the conventions solely according to their position, which leaves upstream countries extensive space to legally conduct their projects. Hence, Tibet, being the source of Asia's biggest rivers, is now under the control of a regime that has a huge hydro-electric hunger, and has every means of feeding it. Moreover, China's megaprojects involving the "The Roof of the World"¹⁵ and its international rivers are being conducted by an apparatus that has a global comparative advantage in dam building and a top-political leadership of educated hydro-engineers.¹⁶

The institutionalization of Indo-Chinese water relations is minimal, almost non-existent. Until 2002 India had to rely almost entirely on its own intelligence services for upstream hydrological data on the Brahmaputra.¹⁷ After the 2000/2005/2008 floods in Himachal Pradesh (Indus) and the 2000/2008 dam breach in Arunachal Pradesh

¹³ Brahma Chellaney, *Water: Asia's New Battleground* (Washington: Georgetown University Press, 2011), 184.

¹⁴ *Ibid*, 182.

¹⁵ *Ibid*, 95.

¹⁶ *Ibid*, 69.

¹⁷ Amit Ranjan, "India-China MoU on Transboundary Rivers" (Indian Council of World Affairs, November 2013), 1.

(Brahmaputra),¹⁸ China had to ease its policy and agreed to a set of Memorandums of Understandings concerning water sharing information.¹⁹ However, they still share this information for a fee, whereas India shares its water data with downstream neighbors for free²⁰ and has functioning treaties with both of them. As put by an Indian think tank and non-profit organization: "The present MoU [Memorandum of Understanding], though a step forward, is just a Standard Operating Procedure followed by India and China on transboundary river water issue."²¹ Although, India strongly opposed Chinese water policies, it is important to mention that such restrictive standpoints towards downstream neighbors are not unprecedented in the region. India acted the same way on the Indus and used water as a tool of leverage and sold hydrological data and water to Pakistan before the Indus treaty was signed²² and was did not share realistic water information with Bangladesh on the Ganges river before signing their treaty.²³ On the one hand, this informs us how big the institutional gaps between Indian downstream and upstream relations are. On the other, it shows that it takes decades to sooth water disputes that happen in the initial phase of water relations. With having in mind the Indo-Pakistani relations, it additionally confirms that it is possible, even in a more conflicting political environment.

Of course, the downstream cooperation mechanism also has its flaws. India has bilateral treaties overlooking their water affairs with both downstream neighbors and claims them to be very benevolent. However, the other signatories have a different opinion. Bangladeshi economists argue that Indian water projects devastate Bangladesh's economy and ecology²⁴ others that India engages in unilateral water diversions and projects,²⁵ whereas

¹⁸ Chellaney, *Water*, 133.

¹⁹ Ranjan, "India-China MoU on Transboundary Rivers," 1.

²⁰ Chellaney, *Water*. p.134

²¹ Ranjan, "India-China MoU on Transboundary Rivers," 3.

²² Ahmed Abukhater, *Water as a Catalyst for Peace: Transboundary Water Management and Conflict Resolution* (New York: Routledge, 2013), 13.

²³ *Ibid*, 12.

²⁴ Zulfiquer Ahmed Amin, "Damming a River," *Bangladesh Economic News*, September 9, 2014, <http://bangladesheconomy.wordpress.com/2009/09/14/damming-a-river/>. (accessed May 26, 2014).

Indian researchers argue that it has always "abided by the terms and conditions of the treaty, at times even at the expense of its own water requirements."²⁶ Pakistan, on the other side, accuses India of using water as a leverage and draining their country,²⁷ while India regards the Indus Water Treaty as too advantageous in favor of its downstream neighbor.²⁸ As will be shown in the case studies, this creates friction between India and its downstream neighbors, which gets exacerbated by the rising Chinese influence.

1.2 Case study justification

For the purpose of assessing how and to what extent China impacts India and its downstream water relations, I have chosen to elaborate on two case studies that will shed light on the Indus and the Brahmaputra. Both water carriers have a number of key similarities and differences, which will help me explain the leverage China has in the region, the possibilities of India as the middle-riparian country, and lastly what the two downstream countries mean for the geopolitical influence of the two Asian behemoths. These are the only two rivers that directly flow through these three countries. Additionally, only with their comparison, is the thesis able to examine the stated hypotheses and the proposed research questions.

Both rivers flow through three countries, from the geographically strongest to the weakest. In both relations the first two upstream countries in order are China and India, while the Brahmaputra continues to Bangladesh and the Indus to Pakistan, where they both enter the Indian Ocean. In addition both countries furthest downstream used to be a part of India. None of the rivers are border rivers, yet both of them flow through contested territory. The Indus

²⁵ Roy Pinaki, "Issue bilateral, action unilateral," *The Daily Star*, March 1, 2012,

<http://archive.thedailystar.net/newDesign/news-details.php?nid=224514>. (accessed May 26, 2014).

²⁶ Dhanasree, Jayaram, "India-Bangladesh River Water Sharing: Politics over Cooperation," *International Policy Digest*, December 20, 2013, <http://www.internationalpolicydigest.org/2013/12/20/india-bangladesh-river-water-sharing-politics-cooperation/> (accessed May 26, 2014).

²⁷ Uttman Kumar Sinha, "Water and Energy: A Flashpoint in Pakistan-India Relations?," *Journal of Energy Security*, December 14, 2010, http://www.ensec.org/index.php?option=com_content&id=271:water-and-energy-a-flashpoint-in-pakistan-india-relations&catid=112:energysecuritycontent&Itemid=367 (accessed May 26, 2014).

²⁸ IDSA Task Force, *Water Security for India: The External Dynamics* (New Delhi: Institute for Defence Studies and Analyses, 2010), 39.

runs through the Kashmir region, to which China, India and Pakistan claim rights, the Brahmaputra through Arunachal Pradesh, a disputed area between India and China. Both rivers are the most important water carriers in their corresponding region, while the spiritual importance of both is essential for the cultures using them.

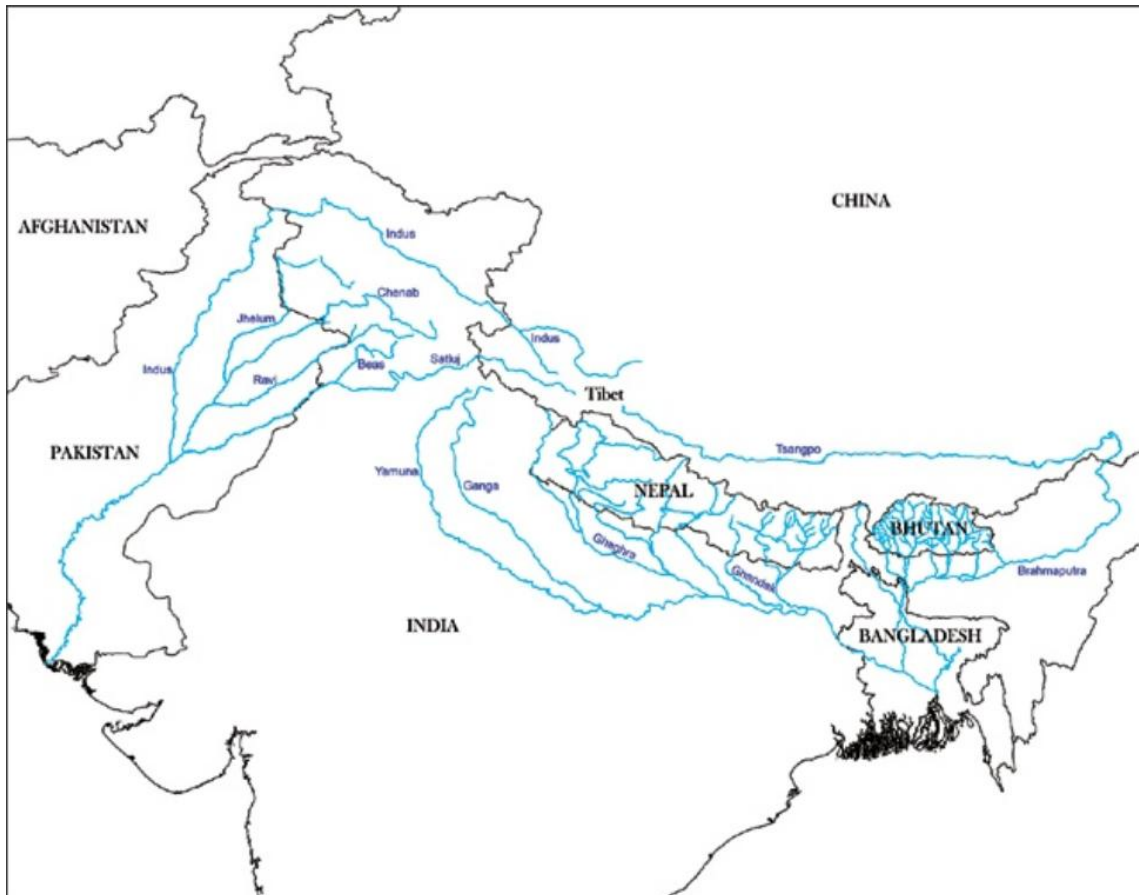


Illustration 1: Hydrological map of the relevant river basins²⁹

Source: IDSA, Water Security for India, 2010

²⁹ Ibid, 13.

To highlight the most important differences, we have to take a closer look at regional water capacities and their relative amount these two rivers represent in their corresponding region.

Rivers	Indus case study	Brahmaputra case study
Annual water discharge from China to India (on the researched river)	181,62 km ³	165.40 km ³
Annual water discharge from India to downstream neighbor (on the researched river)	232,48 km ³ (given the treaty only 170 km ³ are reserved for Pakistan)	537, 24 km ³
Annual discharge from India to downstream country in addition to the researched rivers	11 km ³ additional through Eastern rivers	573 km ³ (mostly Ganges and Meghna)

Table.1: The Chinese fed Indus and Brahmaputra and relative downstream water volumes ^{30, 31}
Source: FAO, Aquastat, 2011

It is thus visible that when crossing their first border, both rivers have a relatively similar water capacity. However, in the case of the Indus, China "produces" a much bigger relative share compared to the water volume the river gathers before passing to Pakistan. Even if we compare it to the entire water discharge from India to Pakistan, this share is still around 100%. Compared to it, the Chinese fed Brahmaputra discharge seems far less significant. It gathers 3,25 times less water, than on the Indian part. And compared to the entire Indian discharge to Bangladesh its share represents a 6,72 times smaller volume. This is also why the Indus river basin has an arid climate, while the Brahmaputra's basin is more humid. Additionally, we may see that in the case of the Indus, there are no major alternatives for water supplies, while in the Brahmaputra case we can see that there are additional rivers that "fuel" Bangladesh's economy and society. What adds to the situation is that the Indus region,

³⁰ Aquastat, "Ganges-Brahmaputra-Meghna Basin," FAO, 2011, <http://www.fao.org/nr/water/aquastat/basins/gbm/index.stm>. (accessed March 25, 2014,)

³¹ Aquastat, "Indus river Basin," FAO, 2011, <http://www.fao.org/nr/water/aquastat/basins/indus/index.stm>. (accessed March 25, 2014,)

the more arid case, is home to more antagonistic downstream relations. Pakistan and India had three open, armed conflict since their partition in 1947. The Indo-Bangladeshi relations can be considered more moderate, in addition to the more water-abundant climate.

What is, however, very important to add, is that the Brahmaputra has a far greater hydroelectric potential than the Indus. Additionally, compared to each other, China could benefit much more from the Brahmaputra, due to its geographic location. Given the low population density and economic activity on the Indus river as well as distance from the Chinese heartland, regional water projects would bring it limited benefits. This is an important element, which justifies my further investigation.

1.3 Methodology

Since the thesis deals with river characteristics, it is inevitable to include not only qualitative research, but quantitative data as well. The case studies will include water-volume data that highlights the regional importance of the two rivers, which helps visualize the positions and possibilities of the researched countries in both relations. Before getting to the empirical part of the paper, the thesis looks at literature on water disputes. It will be followed by a short evaluation on why the mentioned approaches cannot completely answer my research question and why the GoST can. Together with the empirical chapters, it will aim to answer the following questions:

RQ1: Does decreasing water availability polarize relations or does it create incentives for cooperation in the region?

RQ2: If any, which countries will it bridge from the case studies and what will be the motivation for this bond?

By looking at the rising tendencies of Chinese water demand, financial and legal possibilities and water projects, we can assume that it will indeed have impacts on Indian water relations towards downstream neighbors. If we look at the differences between the two

case studies, mainly at their relative water volumes compared to corresponding downstream water availability, we can draw the following hypotheses:

H1: Water induced tension is merely caused by the dryer climatic conditions and the resulting lower water availability.

H2: China's enormous share of the Indus, and considerably smaller portion of the Brahmaputra, both compared to corresponding downstream water availability, implies that China is gaining almost absolute leverage on the Indus river and can only produce negligible threat on the Brahmaputra.

This assumption resembles the approach of pro "water war" scholars. Simply the potential to use the water as a tool, combined with downstream scarcity would imply that the hypotheses are true. If the first hypothesis does not get confirmed and the second is proven to be the complete opposite, it would mean that water scarcity per se does not trigger water disputes. It would imply that man-made projects are those that spark tension, which would confirm the teachings of Wolf and Delli Priscoli, active protagonists that regard water as a tool for cooperation. In order to answer both research questions and hypotheses the theories will first have to explain the general picture. The most suitable theory will be the one that can explain the specifics in RQ2 and H2 as well.

In order to draw further conclusions and implications the thesis looks at the literature on water disputes, to get a more general overview, and continues with the Games of State theory approach to explain the situation in a more detailed manner. The two case studies will use this theoretical background and look closer at both rivers both in terms of water volumes, regional constraints and motivations for cooperation.

1.4 Understanding and explaining water disputes

To start off the debate on water wars/cooperation it is important to mention that connections between water scarcity and acute conflicts still needs to be assessed, while according to historic evidence clean water supplies heavily correlate with political stability.³² This implies that environmental issues, also those caused by decreased water supplies, have an effect on regional stability and security. The environment and security debate is extensive and cannot be fully integrated into the paper. However, it will be mentioned briefly, since it can lead to a better understanding of the threat itself that countries have to face, and to which they have to react.

This part is meant to show, if military retaliation on these issues does make sense at all. The thesis argues that it does not. According to Richard Ulman: "A threat to national security is an action or a sequences of events that 1) threatens drastically and over a relatively brief period of time to degrade the quality of life for the inhabitants of a state; or 2) threatens significantly to narrow the range of policy choices available to a state or private, nongovernmental entities (persons, groups, corporations) within a state." Since it affects core elements of survival or welfare of a state a centrally coordinate responses in needed to mitigate or reverse these effects.³³

This does not directly imply that environmental security threats should be countered with military retaliation, even if they would, according to Richard Matthews it may not be the best alternative. Based on his ideas, scarcity can lead to innovations as well, but the common military apparatus may not acknowledge it- "environmental factors can and should be integrated into traditional security affairs insofar as environment change threatens national interests, hence, becomes relevant to the conventional mandates of military and other related apparati." However, environmental change affect societies differently. Somewhere it might

³² Miriam R. Lowi and Brian R. Shaw, *Environment and Security*, (London: Macmillan Press LTD, 2000) p. 123

³³ Ibid, p. 149

enhance cooperation and lead to technological innovations. "Traditional security institutions may not be equipped to identify the possibilities and promote [it]". If security institutions would deal exclusively with environmental problems and their consequences it would "limit severely the range of possibilities for, and efficacy of, response strategies."³⁴

Given both the negative and positive consequences of scarcity and the acuteness of military interventions in transboundary environmental degradation, including water issues, a debate has sparked whether to include environmental security in the basic concept of security. Those who argue for, like Myers, say that environmental insecurity is an emerging threat, which lies beyond the scope of current international relations and to which solutions need to "become embedded within overall strategic planning [of nations]."³⁵ Those who argue against, like Deudney, primarily mention that national security is persistently defined by interstate violence, which has "little in common with environmental problems and solutions"³⁶

Both Pakistan and Bangladesh heavily rely on agriculture, which is known to be the biggest water-consuming economic sector. Thus the degradation of their water sources can lead to unsustainable urbanization, unemployment and resulting social unrest. This elevates their perception of threat to higher levels, gives a reasoning for Ulman's definition. To an extent it supports Myers's approach as well, however the link to a militaristic solution is vague, especially if upstream countries are geopolitically stronger. So in addition to Deudney's arguments, the geopolitical situation simply demotivates the downstream countries to use force simply for environmental/scarcity causes. A notion that Matthews theory would welcome, since the countries may lose opportunities for technological advancement if the military apparatus would take care of their water scarcity. What is even more relevant for this thesis, is the research of Sandra Postel, an expert on the food water nexus. Her list of

³⁴ Ibid, 4.

³⁵ Norman Myers, "Environmental Security: What's New and Different?," in *Background Paper for The Hague Conference on Environment, Security and Sustainable Environment*, 2004, 8.

³⁶ Daniel Deudney, "The case against linking environmental degradation and environmental security," *Millennium - Journal of International Studies* 19, no. 3 (Dec. 1990), 461-476.

countries that heavily rely on agriculture and whose water reserves are threatened by deteriorating water quality and water quantity, among others, include all four researched countries, namely: China, India, Pakistan, Bangladesh.³⁷ This means that a mere land or water grab would not contribute to regional peace and that deeper institutionalization, improved water infrastructure and more advanced sanitation could increase the pie that all countries are sharing.

By briefly assessing the motivations for military interventions on environmental issues, we can conclude that in the region it is unlikely to happen. To further elaborate on water scarcity itself, the study will look into the water war discourse and mention the aspects most relevant for this topic. After our cooperative mindset, it continues with arguments against the concept of water wars and later get to theories that support the notion of water being the "casus belli" of conflicts.

1.5 Water as a tool for cooperation and strategic arguments against water wars

With the population growth of the two already most populous countries of the world and their changing, more demanding water diets, combined with climatic changes, water sources in the Indian subcontinent are already under increasing pressure. This does not only impact quality and quantity of regional national and international rivers, but the timing of their flows as well where the caused extremes have a severe impact on regional sustainability. Additionally, as will be shown in the empirical part of the thesis, water diversion and the geographical altering of the river basins themselves is heavily supported concept. Such physical changes will affect "the ability of nations and states to peacefully manage and resolve conflicts over distributed water sources... [and they]... will increasingly be at heart of both stable and secure international relations and of political stability within many

³⁷ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 17.

countries."³⁸ However, according to Wolf and Delli Priscoli, even this pressure should not trigger "water wars" between states - The war itself, just on the basis of water capture "is neither strategically rational, hydrographically effective, nor economically viable"³⁹

To support this argument, they bring up historical evidence based on the Transboundary Freshwater Dispute Database.⁴⁰ Out of 1831 interaction between two or more nations over water in the period of 1950-2000, where water was the driver of the events, as a scarce/or consumable resource or as a quantity to be managed⁴¹, 507 were conflict related and 1228 cooperative. Out of all cases 37 involved violence, from which 30 cases occurred between Israel and its neighbors. There were only five non-Middle-Eastern conflicts.⁴² This research also includes the spam between fierce, verbal rhetoric of politicians and their actual actions. "Almost two-thirds of all events are only verbal events, out of them, more than two-thirds are reported s having no official sanction at all."⁴³ Other findings include, that violence was triggered only by two factors: conflicts over infrastructure (10% of all violent cases) and water quantity (90% of all violent cases) while issues like flood control, hydropower generation, economic development, water quality did not trigger military offensives.⁴⁴ Thus Priscoli's opinion on water "humanity's great learning ground for building community"⁴⁵ is more than justified. Additionally, even political adversaries could resolve their water disputes peacefully, however, it is important to note that differences could decrease good political relations between countries.⁴⁶

³⁸ Ibid, 1.

³⁹ Wolf, "Conflict and Cooperation along International Waterways," 261.

⁴⁰ A project of the Oregon State University Department of Geo-sciences, in collaboration with the Northwest Alliance for Computational Science and Engineering

⁴¹ Excluding: events where water was incidental to the dispute (fishing rights, access to ports, transportation, river boundaries) or where it was a tool, target, or victim of armed conflicts.

⁴² Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 12.

⁴³ Ibid, 13.

⁴⁴ Ibid, 14.

⁴⁵ Wolf, "Conflict and Cooperation along International Waterways," 261.

⁴⁶ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 13.

One could say, that historical evidence of water disputes being usually solved in cooperative means is not enough. To elaborate further, the following four points named by Wolf will provide additional reasoning why "water wars" as such should not occur. First, they are strategically not viable. The only aggressor that would engage in such pressure, would have to be an unsatisfied downstream riparian that is a regional power. It would have to engage in full territorial occupation and depopulation of the watershed to minimize any retribution, since its water sources would be heavily exposed. If the conflicting project was an upstream dam, its bombing would send a flood-wave downstream, if it was an industrial complex polluting waters, a military attack would only increase downstream exposure to degraded water quality.⁴⁷ Second, shared interests, based on numerous international treaties show that cooperation has many lucrative benefits that pay off more than any kind of aggression. Hydrological projects on the headwaters provide valuable hydro energy, while they can also regulate water flow do downstream riparian for agricultural purposes. Additionally they have a lesser environmental impact since upstream they affect only smaller areas, while downstream bigger areas would require flooding.⁴⁸ Third, institutional resilience stemming from treaty bound cooperation tends to add to stability to international watersheds even between hostile riparians waging conflicts over other issues.⁴⁹ And finally, an economic argument, which is best defined by a quote by an Israeli Defense Forces analyst: "Why go to war over water? For the price of one week's fighting, you could build up five desalination plants. No loss of life, no international pressure, and a reliable supply you do not have to defend in hostile territory."⁵⁰

However, even opponents of "water wars" see how hydro politics can affect regional stability. The authors mention that the main reason that causes disputes is the spillover of

⁴⁷ Wolf, "Conflict and Cooperation along International Waterways" 259.

⁴⁸ Ibid, 260.

⁴⁹ Ibid, 260.

⁵⁰ Ibid, 260.

unilateral projects, that are first only internal to the country. Mostly, such action are done by the regional power, regardless of its riparian position. In addition to the negative externalities like pollution and water quality, the other divide is the physical use of rivers. Upstream countries usually release waters from reservoirs in winter, to generate energy. Downstream countries, however, need the water in summer, during the dry season. Upstream, mountainous countries, have a huge opportunity to generate CO2 emission-free hydro energy, with relatively low effect on population dislocation, while downstream neighbors may want to build reservoirs to evenly spread water supply, even at the cost of relatively higher internal displacement. A cooperation on these terms indeed serves as facilitator for lasting development.⁵¹ If not supported by agreements or treaties, such different purposes of water use can create discrepancies in bilateral, multilateral or sub-regional relations.

Subnational level security issues are also very important and relevant, as "if there is a history of water related violence, and there is, it is a history of incidents at the sub-national level, generally between tribes, water-use sectors, or states/provinces."⁵² Additional research has shown that there is a negative correlation between the scale of the region and the likelihood and intensity of violence.⁵³ Since rivers, and watersheds, dams, diversions and other projects affect narrower regions, combined with ethnic and religious division and political sub-groups, it can induce regional stress, which can only be solved when the broader political dispute is settled.⁵⁴

⁵¹ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 15.

⁵² Ibid, 16.

⁵³ Ibid, 16.

⁵⁴ Mark Zeitoun and Naho Mirumachi, "Transboundary Water Interaction I: Reconsidering Conflict and Cooperation," *International Environmental Agreements: Politics, Law and Economics* 8, no. 4 (December 2008),4.

1.6 Water as source of both intra- and international conflict

To remain with the notion of intra-national conflicts, it is important to the work of Thomas Homer-Dixon. According to him, water scarcity is caused for three reasons. The most obvious is decreased supply, which is caused by a gradual quantitative or qualitative depletion of a resource. The other is increasing demand, which is affected not only by population growth, but its more demanding water diets as well as rising economic productivity.⁵⁵ The third aspect is maldistribution, which he calls structural scarcity. He describes it as "a severe imbalance in the distribution of wealth and power that results in some groups in a society getting disproportionately large slices of the resource pie, whereas, others get slices that are too small to sustain their livelihoods." He also adds that it is "a key factor in virtually every case of scarcity contributing to conflict."⁵⁶ For this reason he argues, that water scarcity is a regional issue between social groups and that "environmental [in this case water] scarcity is mainly an indirect cause of violence, and this violence is mainly internal to countries."⁵⁷

In 1999 he mentions that "In reality, wars over river water between upstream and downstream neighbors are likely only in a narrow set of circumstances."⁵⁸ He says that the highly water dependent country has to be directly threatened with restricted river flow by a lasting political adversary that additionally is a militarily much weaker country. The main motivation for the downstream country is to decrease this "resource leverage" and if feeling threatened enough it can believe that a military intervention is a justifiable solution to its problem.⁵⁹

However, according to his earlier publication, Homer-Dixon could be listed among scholars in support of the water war concept. In 1994 concluded that "the renewable resource

⁵⁵ Homer-Dixon, *Environment, Scarcity, and Violence*, 15.

⁵⁶ *Ibid*, 15.

⁵⁷ *Ibid*, 18.

⁵⁸ *Ibid*, 139.

⁵⁹ *Ibid*, 139.

most likely to stimulate interstate resource wars is river water."⁶⁰ So, his intrastate approach, under certain circumstances, can be transferred to interstate. Simply, rational choice can "directly stimulate one country to try to seize the resources of another."⁶¹

This brings us to scholars such as Gleick,⁶² Westling,⁶³ Amery,⁶⁴ that belong to protagonists of the water war concept. They support their arguments based on the fact that water has no alternatives, is becoming scarce and that its user-base is constantly growing. Water-stress, water-poverty and growing competition over freshwater, mainly in the Middle-East are the most debated triggers of potential armed conflicts that could qualify as "water wars". They blame the lacking legal and institutional background for fueling such conflicts, since they are unable to specify allocation rights of the resource. In addition, according to them, most of the water treaties lack a clear enforcing mechanism, which exacerbates the situation and does little to mitigate aggression.⁶⁵ What is more, the doctrine of prior appropriator, under which the first appropriator (user) of the river waters gains a priority right in customary international law, may actually serve as an invitation to resource capture, especially by the more powerful. "Resource capture, in turn, helps build greater political leverage over co-riparian states."⁶⁶

⁶⁰ Lowi and Shaw, *Environment and Security*, 125.

⁶¹ Ibid, 15.

⁶² Peter H. Gleick, "Water and conflict: Fresh water resources and international security," *International Security* 18, no1, (1993) 79–112.

⁶³ Arthur H. Westing, *Global resources and international conflict: Environmental factors in strategic policy and action*, (New York, Oxford University Press 1986)

⁶⁴ Hussein A. Amery, "Water wars in the Middle East: A looming threat," *Geographical Journal* 168, no 4, (2002) 313–323.

⁶⁵ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 11.

⁶⁶ Brahma Chellaney, *Water, Peace, and War: Confronting the Global Water Crisis* (Lanham: Rowman & Littlefield, 2013), 65.

1.7 Transition from the theory to empirics through the Game of States Theory

By looking back at the previous literature, we can discard the "water war" concept. It may answer all research questions and confirm the hypotheses, however, the parties involved are too big, both in terms of population and territory. Additionally except Bangladesh they are all nuclear powers, moreover "water wars" tend to form and be referred to as mostly a Middle-Eastern phenomenon, while in terms of strategy and historical precedence, they are not viable either. According to this approach Indo-Pakistani water relations should be maximally polarized, however, in reality they have one of the most successful water treaties today. Homer-Dixons societal, interstate notion of water conflicts could serve as a guideline, for the Brahmaputra case study. The next chapter argues that increasing water scarcity induces illegal Muslim migration to India, and thus also has a negative, researchable international spillover. However, it would have more limitations on the Pakistani scenario, where the last chapter examines the financing of dams. Wolf and Delli Priscoli's arguments on cooperation explain the general notion of RQ1 and H1, they even come close to answering my more elaborate question, RQ2 and H2. However, they do not provide a framework that would allow me to evaluate the situation. Using the environment and security debate, we would get a similar outcome. It only shows if the military is useful tool for countering environmental scarcity at all.

To bridge the theoretical and the empirical part of my thesis I have chosen the GoST approach, which will be justified in the following paragraphs. It supports not only the choice of my case studies, but allows me to compare two geo-politically equally important rivers, that differ in their physical parameters and show that rather relative, artificial water loss triggers conflicts as opposed to water scarcity per se. Additionally it allows me to examine the regional cooperation mechanism, which answers RQ2. Subsequently, it will also allow me to approve or discard H2.

According to Wolf and his findings drawn from the spatial database of the geographic information system (GIS), physical parameters of countries are not statistically significant in sparking water conflicts. In addition to climatic circumstances, these parameters include also population density, economic performance, geographic proportions and political setting.⁶⁷ He suggests that the "[t]he red-flag for water related tension between countries and/or across jurisdiction is not water stress per se, as it is within countries, but the unilateral exercise of domination of an international river, usually by a regional power."⁶⁸

So on the one hand, his findings support the concept of the thesis by elevating new dam and diversion projects to conflict triggers. Furthermore, it implies that it does not matter if a region is arid or humid, since water scarcity per se does not necessarily spark conflict. Moreover, as size of countries evidently does not matter, the thesis can further investigate why there are security issues in Bangladesh and in India at the same time. On the other hand, he downgrades the importance of relative richness and population density. This analysis argues that both are important. Population density, for the reason of justifying upstream projects and covering up possible downstream perceptions of them as of threatening political tools. Economic performance for being able to impose such projects and have tools to control relations in the region. Since he mentions that unilateral domination of a regional power will be the source of conflicts, the thesis includes a mechanism that would explain it, based mostly on the Hydro-hegemony and the Game Theory concept, GoST.

Additional research that does not regard climate as a major variable in water disputes and sees man made activities as a trigger of conflicts is that of Mendel. He also adds, that the lower number of parties involved does not have to lead to an easier solution of water disputes and that issues on border rivers spark more tension than water quality per se. The latter two also fit into the concept, since the amount of actors in both cases is identical and none of the

⁶⁷ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 18.

⁶⁸ *Ibid*, 20.

rivers form a frontier between any of the researched countries.⁶⁹ Additionally, since there are only three countries directly involved in each relation and flow through countries in the same geopolitical order, GoST is highly applicable. The low amount of actors ensures that a high amount of implications can be incorporated into my arguments and outcomes.

To be objective, one cannot forget to mention research built on water scarcity as a driver of conflicts. Although most of the scholarly work concentrates on the Middle-East and generally on arid regions, it could be applicable for the Pakistani situation as well. Brahma Chellaney says that increasing water stress leads to bolder solutions as states become more desperate.⁷⁰ What, however, needs to be added to this approach is the fact that arid regions have different water demand and experience with solving such issue, which is also reflected in the institutionalization of their solution mechanism.⁷¹ This also means that humid areas, like Bangladesh, will deal harder with decreased supply, even though, their water availability would be far above that of Pakistan. Another important aspect of scarcity is that it forms an ingenuity gap and increases motivation for better logistical, infrastructural and technological solutions. It helps increase the resilience of institutions and provides possibilities in gaining experience from troubleshooting,⁷² an aspect crucial for justifying the following concept.

1.8 Game of States Theory

As seen above, the different climatic circumstances and water volumes themselves, should not have a decisive role in regional conflict escalation. This means that the tension should trickle down in both case to manmade projects. In order to impose them, we have to take a closer look at the regional geopolitical cooperation mechanism and power game, while considering the most relevant characteristics of the regions.

⁶⁹ Ibid, 18.

⁷⁰ Chellaney, *Water, Peace, and War*, 57.

⁷¹ Delli Priscoli and Wolf, *Managing and Transforming Water Conflicts*, 19.

⁷² Homer-Dixon, *Environment, Scarcity, and Violence*, 181.

In the first chapter of his book, Ahmed Abukhater develops a linkage between Hydro-hegemony theory and Game theory, by referencing Isaac, Wolf and Lowi, which is presented and discussed in this paragraph.⁷³ According to his reasoning a militarily stronger state will start to grab resources, [water] if it sees them as scarce, since it wants to maximize its utility. This shifts the water balance in its favor, leaving the downstream neighbor with a disproportionate share. The stronger state would gain the least by cooperation and will be thus minimally interested in any negotiations. Weaker states have limited BATNA⁷⁴ so their only chance is to form a coalition and try to engage in cooperation. However, even if the stronger state agrees to cooperate on the given issue, the weaker states will have to offer too big trade offs in other spheres, which will make cooperation dysfunctional. Another tool used by the stronger state is data manipulation and distortion of water usage in order to justify their policies.⁷⁵ The situation gets more fragile if we add game theory and its prisoners dilemma approach, where mutual distrust and the threat of the "suckers pay off" will make cooperation hardly possible. This means that the more antagonistic the relations between countries are, the less they will cooperate.⁷⁶ For the purpose of the thesis, I will call this whole concept Game of States Theory (GoST), a term also mentioned by Ahmed Abukhater.

Therefore, according to GoST, the new situation caused by the rise of China and the damming of the Brahmaputra and Indus rivers within their border, as well as other circumstances affecting water flows, should be a reason for at least a slight increase in water cooperation between Bangladesh and India on the former and between India and Pakistan on the latter. On the one hand, in order to do so, the urge of India to use its stronger position has to decrease. Additionally, the two downstream countries have to prove that their alliance would be beneficial to India as well, in order to be lasting. On the other hand, Pakistan and

⁷³ Abukhater, *Water as a Catalyst for Peace*, 21

⁷⁴ Best Alternative To a Negotiated Agreement

⁷⁵ Pison, "The Brahmaputra river" , Pison *The Indus river system*

⁷⁶ Abukhater, *Water as a Catalyst for Peace*, 21.

Bangladesh have to increase their leverage against India to open up more beneficial agreement alternatives for themselves, or else they will suffer the most given the geopolitical circumstances in the long run. Given the Game Theory part we can further assume that an Indo-Pakistani cooperation is harder to achieve, due to distrust stemming from their antagonistic relations. Indo-Bangladeshi ties are more moderate and so cooperation can form more easily.

In order to bring in the Chinese influence and answer the thesis, the work looks at the following arguments, based on GoST. They are meant to describe the regional circumstances, motivation and constrains and assess how and to what extent China affects water tensions between its downstream neighbors. The following summary of arguments is also an outline for the two case studies that will be discussed in the following chapters.

1.8.1 Geopolitical and Geographic arguments for Chinese presence

Compared to Bangladesh, Pakistan is more accessible to Chinese influence. This is due to Pakistan's higher geopolitical strength and more hostile relations with India. Bangladesh on the other hand is almost an Indian enclave, completely dependent on Indian water sources, with low geopolitical importance and more moderate hostility towards India. This implies that India has more levers to sooth relations with Bangladesh, and geopolitically, China has higher motivation to aid relations with Pakistan.

More importantly, given the characteristics of the rivers, China has higher motivation to build water projects on the Brahmaputra, thus directly affecting Bangladesh, and is more reluctant to alter the flow of the Indus river, that would, in the end, decrease Pakistan's water supplies. The reason being: the Brahmaputra has higher hydro electric potential and is subject to planned water diversion. Building additional dams and diversions on the Indus river would be economically ineffective given low industrial activity, population density and geographical distance of Western Tibet from the hearth of China. It also implies that by tapping the Indus

river even more, China would cause a more justifiable downstream outrage compared to similar actions on the Brahmaputra. The equation in this relation is: Chinese benefits (Indus) < Chinese benefits (Brahmaputra) and Relative Downstream loss (Indus) > Relative Downstream loss (Brahmaputra)

1.8.2 Downstream institutionalization and the level of Chinese influence

According to Rogers mathematical Game Theory India and Bangladesh would be best off if they started cooperation based on a commonly funded mechanism,⁷⁷ which, given the logic of the game theory approach, is also true for India Pakistani relations. Indo-Pakistani relations are bound by a treaty that kept the parties from fighting in the past 50 years, and the arid circumstances made institutional work more resilient. Topped by the low water demand of China on the Indus river, the upstream country will affect Indo-Pakistani relations only marginally. In the Indo-Bangladeshi relation the water institutions are not that evolved. In addition, China has more demand for the waters of the Brahmaputra river, which means that its influence will have a bigger impact on Indo-Bangladeshi water relations.

1.8.3 China's effects on India's downstream neighbors

On the one hand, Bangladesh by itself has very limited benefits to offer to India. However, it "threatens its big brother" with uncontrollable illegal migration that would heavily increase with decreased water supplies, which are also affected by the rising Chinese water demand. This motivates India not to neglect Bangladeshi water issues. On the other hand, since China has low benefits from water projects on the Indus river and is more motivated to improve ties with a stronger player in the geopolitical power-game, it influences downstream water relations with Pakistan only indirectly, not through the Indus river. China-

⁷⁷ Peter Rogers, "A Game Theory Approach to the Problems of International River Basins", *Water Resource Research* 5, no. 4, (Harvard University, 1969), 760.

Pakistani ties started materializing in financial aid on dam building, which decreases India's leverage and serves as a signal for India to increase cooperation with Pakistan.

This chapter was aimed to provide contextual and theoretical background for the empirical part of the paper and help assess the leverage China has on its downstream neighbors on the Indian subcontinent. By applying concept of GoST the thesis shows why the influence of China should be only marginal on the Indus and why it expects to be more direct on the flows of the Brahmaputra. Concerning the research questions, GoST was able to clarify constrains and motivations and thus explain the regional cooperation mechanism in a more detailed manner. Further elaboration will be made in the empirical chapters.

The environment and security debate served as an introduction to the water war discourse and was aimed to explain why threat from water induced degradation should not be enough to escalate existing conflicts. The water war discourse itself was meant to examine the ways how water scarcity, which is undoubtedly affecting the region, can influence countries in their policy choices. It showed that historic arguments support water cooperation and that strategic arguments do not support the concept of interstate water wars. Neither does the enormous scale of the disputed water basins. If we were to search for water insurgencies, we would have to look at a sub-national level. And as pro water war protagonists discussed mostly the Middle-East as the cradle of water wars, the Indian subcontinent is unlikely to witness such conflicts, solely for the purpose of mere resource capture. However, the leverage is an active part of their relations that can divide their common efforts if they proceed unilaterally.

This brings us to the empirical part, where the thesis compares the two previously mentioned case studies and intends to answer the "How?" question in a more detailed manner. In order to do so, the following chapters include water volumes, and concrete water projects from the 21st century that shifted a part of the water status-quo from Indian to Chinese hands.

In addition to statements of officials the research looks at news reports and studies of various institutes that will help compare the two cases and answer the puzzle mentioned in the methodological part.

CHAPTER 2: THE UPSTREAM POTENTIAL AND THE DOWNSTREAM TIME-BOMB ON THE BRAHMAPUTRA RIVER⁷⁸

To start off with the empirical part, this chapter will first look the more humid region. According to the first hypothesis, given its climatic conditions, the region should be subject to relatively lower threat stemming from water issues. H2 assumes that since China "controls" 6,72 times less water compared to the entire water discharge from India to Bangladesh, China will only have a marginal effect on Indo-Bangladeshi relations.⁷⁹ This chapter scrutinizes this assumption. As was previously mentioned in the summary of arguments relevant to GoST, the situation should be different due to the geopolitical cooperation mechanism, level of institutionalization and rising downstream BATNA. Moreover, the chapter will also examine what increases this Bangladeshi BATNA and will look at concrete examples of how China affects it.

At the entry point to India, the Chinese fed Brahmaputra has an annual flow of 165,40 km³. The river gains additional volume in India and discharges 537,24 km³ of water to Bangladesh per annum. Furthermore, the Ganges supplies India's downstream neighbor with a similar amount, 525.02 km³ of water per year, while the Meghna river adds an additional 48.36 km³/year to this amount. "This gives a total annual Ganges-Brahmaputra-Meghna river basin inflow into Bangladesh from India of 1 110.6 km³/year."⁸⁰ Additionally, this water volume also amounts for 91,33% of all Bangladeshi renewable freshwater reserves.⁸¹ Therefore, we can see that compared to the entire water discharge from India to Bangladesh, the Chinese fed Brahmaputra collects 6,72 times less water.⁸² Not to say that decreased flows on the Brahmaputra should be disregarded, but both the Ganges and the Meghna river as well as

⁷⁸ material partially based on previous work: Pison, "The Brahmaputra river"

⁷⁹ Both hypothesises are relative to the situation on Indus river.

⁸⁰ Aquastat, *Ganges-Brahmaputra-Meghna Basin*, in FAO, 2011, <http://www.fao.org/nr/water/aquastat/basins/gbm/index.stm> (accessed March 25, 2014).

⁸¹ Chellaney, *Water*, 144.

⁸² Pison, "The Brahmaputra river," 2.

other tributaries of the Brahmaputra could serve as substitutes to counter Chinese externalities towards Bangladesh.

To assess the impacts of Chinese influence on Bangladesh and see how it affects Indo-Bangladeshi water relations the study cannot examine a "Brahmaputra treaty", since it does not exist. However, it is important to mention that there is institutional water cooperation between the two downstream countries, even if it is not so developed. They agreed on the Joint Committee of Experts (1972) that supervises all of their 54 transboundary rivers.⁸³ In addition, to the committee, they have a bilateral Ganges treaty since 1996 and are active in dialogues on water sharing.

As for the Chinese impact. The Brahmaputra river flows through the Indian Arunachal Pradesh region, an area claimed by China as Southern Tibet. This affects regional tension between the two countries, in addition it also gets reflected in the Sino-Indian dam race. This however has negative impacts on downstream Bangladesh, which is a source of proven illegal migration to India. What adds to the urgency of deeper institutionalization is also a set of enormous projects planned by China on this river.

2.1 Game of States Theory

As previously outlined in the theoretical chapter, this section will contain set of three arguments. Their purpose is to set the background for regional geopolitics, institutionalization and the Bangladeshi position. Subsequently, the latter will serve as a platform for further investigation and assessment of the Chinese impact.

⁸³ IDSA Task Force, *Water Security for India*, 52.

2.1.1 Geopolitical and geographic argument

Bangladesh is highly dependent on India and is of relatively low geopolitical importance. Hence, it is not that accessible to China and provides less benefits from cooperation. For this reason, China will value its project more on the Brahmaputra. The untapped hydro-electric potential of the Great Bend of the Brahmaputra and planned future projects add to this argument. China needs the projects to make CO₂ free energy sustain its economy. Additionally the water diversion that will be mentioned later on could solve its water issues. Their projects are thus more justifiable from the Indian and Bangladeshi perspective. Downstream countries can have negative perceptions, however the projects are not aimed to be an outright tool of leverage.

There is not enough cooperation forming between India and China, even though it would be the only lasting solution. Both have increasing demand and planned hydroprojects, however, without any institutional backing. Furthermore, international actors are very unlikely to intervene, since the issue concerns a bilateral dispute of two gigantic countries, which is additionally connected to territorial disputes. Moreover, it is possible to rule out any other regional alliances, solely based on cooperation on the Brahmaputra itself. Since the river does not directly flow through Nepal and Bhutan, these two actors are not dealt with in this thesis. This poses a limitation to my thesis, since both affect the flows of the Ganges and tributaries of the Brahmaputra, and thus the water availability in India and Bangladesh. Additional research would be welcomed to shed more light on the entire Ganges-Brahmaputra-Meghna basin and describe the relations between all countries that share this watersheds.

2.1.2 Institutional argument

Water abundance in the region causes over-population and an overdependence on supply-side water management. This through time leads to a lacking demand side water management, which gets reflected into lacking water infrastructure.⁸⁴ This inefficiency, in addition to the missing incentives to deepen institutionalization, makes both India and mostly Bangladesh vulnerable to changes in water level.

The Ganges treaty, being the most important document in terms of Indo-Bangladeshi water relations, will serve as the most relevant reference for the argument. It was signed under auspices of fairness and no harm to either party. It divides the rivers roughly in half, and contains regulations on irregular water flows as well. Additionally it includes circumstances how the river will be divided in case of extreme irregularities.⁸⁵ Among its shortcomings we could list that it was made from a political rather than a technocratic perspective. This led to the withholding real data by India, creating thus a divide between signatories. So even moderate political ties had tendencies to affect water relations negatively. However, officially it has not been put up for revision even by the most right wing Bangladeshi government.⁸⁶ Hence, we can say that after a decade it enhanced diplomatic relations. What, however, needs to be added is that so far the treaty was not put under a severe test.⁸⁷

Due to the fact that there is no Brahmaputra treaty, and that the Indo-Bangladeshi water relations are not that resilient, given their climatic circumstances, the rise of Chinese water demand will influence them in a significant way. In addition, the deepening of Indo-Bangladeshi water ties on the river will also have to consider Chinese projects, that were deemed impossible a decade ago.

⁸⁴ Abukhater, *Water as a Catalyst for Peace*, 54.

⁸⁵ Ibid, 56.

⁸⁶ IDSA Task Force, *Water Security for India*, 53.

⁸⁷ Abukhater, *Water as a Catalyst for Peace*, 56.

2.1.3 BATNA argument

GoST assumes that lasting cooperation will only be possible if weaker countries increase their BATNA and stronger countries stop enjoying their superior position. This will only work when the cooperation will also benefit the stronger party. Since the Ganges and the Brahmaputra provide a relatively similar water volume to Bangladesh, it is highly probable that they have very similar effects on the Bangladeshi economy and society. This argument allows me to assess that manmade decreased water supply on the Brahmaputra will have similar affects as the Farrakka barrage had on the Ganges. The barrage was built to divert waters to Indian Calcutta and the Ganges treaty to guarantee water to downstream Bangladesh. However, the expected water-flow was overrated,⁸⁸ which led to scarcity and increased migration into India.⁸⁹ This is my key argument that elevates on one side Bangladesh's role in the whole equation as well as motivation for India to look at the needs of its downstream neighbor.

This increased illegal Muslim Bangladeshi migration into Hindu communities in Eastern India,⁹⁰ represents a factor that decreases the advantage of the upstream Indian position. Additionally, it is also exacerbated by China water demand, which means that the further the situation goes, the more constrained India will be and the more likely cooperation is to form between India and Bangladesh.

⁸⁸ PRIO report, "Water Scarcity in Bangladesh" *Peace Research Institute*, December, 2013, 41.

⁸⁹ Wolf, "Conflict and Cooperation along International Waterways," 255.

⁹⁰ Pison, "The Brahmaputra river," 3.

2.2 Closer analysis of the downstream time-bomb

To go even deeper into the problematic, with the rest of this chapter the thesis aims to show how realistic the rising Bangladeshi BATNA is. It first looks at the situation itself, describes the negative effects it has on India and explains what triggers such migration. After, it describes Chinese projects and mentions the Sino-Indian dam race to underline that Bangladeshi BATNA is indeed on the rise.

Migration from Bangladesh to India is the largest in the developing world. In 2013 India hosted 3,2 million migrants, according to UN data.⁹¹ With a closer look at any map, this is not surprising, since Bangladesh is almost an Indian enclave. The fact of legal migrants itself is not alarming. However, many more flow into India through the almost 4000km long, hardly controllable, porous borders. To counter this issue, reportedly, India has increased border control and started constructing a 3000 km fence.⁹² Additionally, according to more conservative reports, India is home to almost 10 million illegal immigrants from Bangladesh.⁹³ Another burden that affects the Hindu community is that the mostly Muslim illegal migrants are reportedly taking part in local elections, by obtaining fake residence permits.⁹⁴ This not only delegitimizes their outcome, but results tend to form along ethnic lines, which destabilizes the Indian, Hindu communities. Bangladesh is a predominantly Muslim country and further influx to India could affect not only politics in their Eastern region, but could spark religious and ethnic tension. As was mentioned in the theoretical part,

⁹¹ United Nations, "International Migration 2013: Migrants by origin and destination," *Population Facts*, March 2013, http://www.un.org/en/ga/68/meetings/migration/pdf/International%20Migration%202013_Migrants%20by%20origin%20and%20destination.pdf (accessed May 5, 2014).

⁹² Raveena Aulakh, "Driven from Their Homes by Poverty and Climate Change, Bangladeshis Are Heading to India, but Are Being Blocked by a 3,000-Km Fence," *The Toronto Star*, April 1, 2013, http://www.thestar.com/news/world/2013/04/01/hundreds_of_bangladeshis_getting_killed_at_border_with_india.html (accessed May 5, 2014).

⁹³ Mayank Singh, "Illegal Immigration from Bangladesh Has Turned Assam Explosive," *Niti Central*, October 31, 2012, <http://www.niticentral.com/2012/10/31/illegal-immigration-from-bangladesh-has-turned-assam-explosive-16664.html> (accessed May 5, 2014).

⁹⁴ Nidhi Surendranath, "Steady Influx of Illegal Immigrants into City Raises Concern," *The Hindu*, July 4, 2013, <http://www.thehindu.com/news/cities/Kochi/steady-influx-of-illegal-immigrants-into-city-raises-concern/article4878162.ece> (accessed May 5, 2014).

the smaller the regional scope the more likely insurgencies tend to occur. Further illegal migration could indeed be caused by decreased water supply, since Bangladesh's population and economy strongly relies on agriculture, which is globally known to be responsible for the highest water withdrawal.

In fact, 84% of the Bangladeshi population depends on agriculture,⁹⁵ which represents 17,5% of the country's GDP.⁹⁶ Bangladeshi scientist have calculated, that "even a 10% reduction in the water flow by India could dry out great areas of farmland for much of the year," which would have devastating effects.⁹⁷ According to Homer-Dixon, environmental scarcity caused by water shortages, will not trigger any international conflict, and that disputes will be contained within the borders.⁹⁸ In the case of Bangladesh, this scenario is likely to form. On the one hand, it can hardly threaten upstream India and demand more water rights. On the other, increased water scarcity in Bangladesh can be harmful for Eastern India from a demographic perspective, as was the case with the Ganges and the Farrakka barrage. "This 'hostage situation' makes the dispute indirectly international, while it still fits under the scope of the non-violent nature of water scarcity in international merits."⁹⁹ I consider it as the most relevant threat, coming from downstream Bangladesh that would be caused by decreased water supply due to upstream, Chinese water machinations.

"UN projections indicate that a sea level rise of 0.5 meters could see Bangladesh lose approximately 11 per cent of its land by 2050, which would affect around 15 million people."¹⁰⁰ Thanks to the Indo-Bangladeshi porous borders mentioned before, this indicates

⁹⁵ IDSA Task Force, *Water Security for India*, 52.

⁹⁶ "Bangladesh Economy Profile 2013." http://www.indexmundi.com/bangladesh/economy_profile.html (accessed May 7, 2014).

⁹⁷ John Vidal, "China and India 'Water Grab' Dams Put Ecology of Himalayas in Danger," *The Guardian*, August 10, 2013, sec. Global development, <http://www.theguardian.com/global-development/2013/aug/10/china-india-water-grab-dams-himalayas-danger> (accessed May 7, 2014).

⁹⁸ Homer-Dixon, *Environment, Scarcity, and Violence*. p.15

⁹⁹ Pison, "The Brahmaputra river," 5.

¹⁰⁰ Manish Vaid, "The Changing Climate of Bangladeshi Migration to India," *East Asia Forum*, March 23, 2013, <http://www.eastasiaforum.org/2013/03/23/the-changing-climate-of-bangladeshi-migration-to-india/> (accessed May 7, 2014).

that climate change should also trigger migration to India. However, it still does not provide a rationale for India to withhold Bangladeshi water supplies. By not recognizing the need for cooperation, India would just speed up the process and achieve unprecedented illegal migration before climate change would start affecting Bangladesh. Additional research that would separate climatic migrants from "blue water" migrants could enhance this argument, however, assessing this difference does not fall within the scope of this research.

2.3 Chinese effects on the Bangladeshi BATNA

The constructions on the first major dam on the Brahmaputra started in 2009, at Zangmu. It has only a capacity of 510 MW, but was built for flood control and irrigation purposes, which means that its reservoir has a considerable capacity.¹⁰¹ It is located in the Central Tibetan region, before the Brahmaputra flows into the Great Bend, in Tibet's Eastern part. Here the river not only turns Southward, but gains most of its hydro-electric potential by entering steep slopes. These characteristics motivated the state-owned HydroChina corporation to plan a set of new dams on the river. To highlight their location, the company published a map in 2010, which sparked much controversy.¹⁰²

The first dam, just after the Great Bend should be the Metog (Mutuo) dam. It should generate 38 GW of electricity, which roughly equals India's entire hydro electric production today.¹⁰³ Even though it will be a run-of-the-river dam, its immense capacity would still affect the river flow. According to the published map, it should be followed by a 18 GW, later a 26 GW a 23 GW and a 28 GW and a 42 GW dam as we go downstream. For scale, the current record-holder dam is another Chinese dam, the Three-Gorges-dam on the Yellow river, it

¹⁰¹ Himanshu Thakkar, "Can India be firm with China on Brahmaputra dams ? - An article by Himanshu Thakkar" , December 20, 2010, <http://www.indiawaterportal.org/articles/can-india-be-firm-china-brahmaputra-dams-article-himanshu-thakkar> (accessed May 7, 2014).

¹⁰² Chellaney, "The World's Most 'Dammed' Country." also available on http://www.hydrochina.com.cn/zgsd/images/ziyuan_b.gif

¹⁰³ "Hydro Energy in India | Potential and Future of Hydro Energy in India, Small Hydro Projects, Large Hydro Projects, - EAI.in," <http://www.eai.in/ref/ae/hyd/hyd.html> (accessed May 9, 2014).

produces 18 GW of electricity.¹⁰⁴ What is noteworthy to mention, is that all of these projects are approved proposals that can be directly linked to the Chinese politburo. Determining how feasible these plans are, does not fall within the scope of this thesis. However, what is beyond doubt, is that the Brahmaputra river is already dammed in its Chinese parts and that new projects are currently being built.

So far, nothing except the immense energy harvesting intentions can be seen as controversial. But the map reveals another fact. All projects downstream from the Metog dam are planned to be built in the Indian Arunachal Pradesh region. It was not a secret that China has territorial claims in the region, the announcement just confirmed it. Moreover, there is another link, China claims the region as Southern Tibet. It thus seems, that accepting Tibet in 2003 as a Chinese autonomous regions has not only hydrological implications, but gave the Chinese politburo an extra argument and legitimacy to engage with Arunachal Pradesh. Even if we deemed the Arunachal Pradesh projects impossible, the Metog dam and other upstream damming projects will affect Sino-Indian water relations and subsequently water availability in Bangladesh.

However, it is not only territory that Bangladesh's two upstream neighbors are competing about. Currently, the upstream countries (India, China) are claiming first user, senior appropriator rights are engaged in a dam race in the region. An official from the HydroChina corporation described the situation followingly: "a delay would allow India to tap these resources and prompt major conflict. We should build a hydropower plant in Motuo ... as soon as possible because it is a great policy to protect our territory from Indian invasion and to increase China's capacity for carbon reduction."¹⁰⁵ His statement was not unjustified

¹⁰⁴ Mara Hvistendahl, "China's Three Gorges Dam: An Environmental Catastrophe?" *Scientific American*, March 25, 2008 <http://www.scientificamerican.com/article/chinas-three-gorges-dam-disaster/> (accessed May 10, 2014).

¹⁰⁵ Jonathan Watts, "Chinese Engineers Propose World's Biggest Hydro-Electric Project in Tibet," *The Guardian*, May 24, 2010, sec. Environment, <http://www.theguardian.com/environment/2010/may/24/chinese-hydroengineers-propose-tibet-dam> (accessed May 10, 2014).

since currently there are 292 planned Indian dams that would harness Himalayan water,¹⁰⁶ which could serve the same purpose.

The other equally important project that would affect the flow of the Brahmaputra is the Chinese Great South to North Water Diversion Project, where constructions started in 2002.¹⁰⁷ Compared with the previous projects, It would have even more severe implications concerning decreased water volumes. The combined costs of the entire diversion should total at 62 billion USD.¹⁰⁸ For scale, the previously mentioned Three Gorges Dam, cost 37 billion USD.¹⁰⁹ It was also revealed that the western route is planned to divert 200 km³ of water annually from the Mekong, Salween and Brahmaputra to the Chinese Yellow river, and that the Brahmaputra should contribute one fourth of this amount.¹¹⁰ Now, this makes up even less than 5% of water inflow from India, half the amount of the "cataclysmic" 10% mentioned before. What can additionally disclaim Indian and Bangladeshi fears that it is that the Yellow river has a capacity of 58 km³¹¹¹ and could hardly sustain such an increase without alterations. The project itself comes with technological barriers that make it very cost inefficient.¹¹² Also, its due date is just symbolic, the project should be ready by 2050.

It is thus visible that the mere threat of diversion and the slightly more realistic dam projects and also existing ones, in combination with territorial claims and disputed water rights have sparked a lot of tension. They became an active part of Sino-Indian relations affecting Bangladesh as well. So as we can see, the situation on the Brahmaputra is actively getting into a state, where Bangladeshi illegal migration can increasingly affect India. This

¹⁰⁶ Vidal, "China and India 'Water Grab' Dams Put Ecology of Himalayas in Danger." (accessed May 7, 2014).

¹⁰⁷ Brahma Chellaney, *Water: Asia's New Battleground* (Georgetown University Press, 2011), 136.

¹⁰⁸ "South-North Water Transfer Project," *International Rivers*,

<http://www.internationalrivers.org/campaigns/south-north-water-transfer-project> (accessed May 9, 2014)

¹⁰⁹ "China Says Three Gorges Dam Cost \$37 Billion," *Reuters*, September 14, 2009,

<http://www.reuters.com/article/2009/09/14/idUSPEK84588> (accessed May 9, 2014).

¹¹⁰ Claude Arpi "India Needs to Catch up with China's Brahmaputra Strategy," *Niti Central*, February 04, 2014, <http://www.niticentral.com/2014/02/05/will-india-catch-up-with-chinas-brahmaputra-strategies-186709.html> (accessed May 9, 2014).

¹¹¹ "No Plans to Divert Water from Brahmaputra: China - Rediff.com India News,"

<http://www.rediff.com/news/report/china/20061122.htm>. (accessed May 09, 2014).

¹¹² Claude Arpi, "India Needs to Catch up with China's Brahmaputra Strategy", (accessed May 9, 2014).

poses a limitation for India, which will have to balance between its own water needs and water demand in downstream Bangladesh. This also creates incentives to cooperate between the two countries.

We can thus sum up the second chapter as follows. The more detailed insight has shown, the untapped hydro-electric potential of the Brahmaputra is no longer impossible to utilize. Thus relatively high water availability, in one of the most flooded areas in the world, does rather enhance than deter tension. Furthermore, relations on the Brahmaputra have insufficient institutional capacity to deal with additional water projects. For this reason, China will play a more important role in shaping Indo-Bangladeshi water relations.

Considering Sino-Indian water relations, they have been becoming more tense in the past decade. Even though the most crucial Chinese projects seem to be at a rather hypothetical level, most smaller issues show a polarization of their relations. Additionally, after 2003 water relations became a more active part of their territorial dispute as well. This divergence also increases the leverage of Bangladeshi illegal migration.

No direct Sino-Bangladeshi link for cooperation could be made. Since Chinese water needs outweigh the benefits gained from a potential geopolitical cooperation, it has less constraints to proceed with its water projects and consider the Bangladeshi water needs. What additionally supports this argument is that Bangladesh clearly falls under the sphere of influence of India, due to historical and geographical reasons, while the "hostage situation" that is created by illegal migration provides motivation to cooperate between them. Thus, the dam building race between China and India in the long run is a no-go for the latter. India will have to assess if mitigation of illegal migration, or securing domestic water availability is of higher value for the future development of Eastern India.

CHAPTER 3: THE IMPORTANCE OF THE INDUS WATER TREATY AND THE SINO-PAKISTANI COMMON INTEREST¹¹³

The second case study involves Pakistan and the Indus river system. According to H1 and the aridity of the region the situation on the Indus river should be more prone to water conflicts. Moreover, according to H2, China should impact water relations in the region heavily on the Indus river, since the Chinese-fed part of it approximately equals the entire water discharge between India and Pakistan. As in the previous case study, the thesis puts these assumptions to the test based on the same criteria. The geopolitical, institutional and BATNA arguments applied to this chapter will show, that both H1 and H2 are misleading.

To highlight how important the Chinese fed Indus is for downstream riparians, it is noteworthy to mention that the water flow from China to downstream India totals at 181,62 km³ of water per year. In Indian territory, the river gains only 50,86 km³ of water annually. This results in a flow of 232,48 km³/year from India to Pakistan. Given the Indus Water Treaty (IWT), 170,27 km³ are reserved for Pakistan, the rest, 62,21 km³/year, is under Indian jurisdiction.¹¹⁴ It is thus visible that China has predispositions to control almost the entire flow of the Indus, the life vein of North-Western India, the Kashmir region, and Pakistan.

Pakistan depends on two countries in terms of water, India and Afghanistan. Roughly 11%¹¹⁵ of their renewable freshwaters reserves come from Afghanistan, most of them through the Kabul river. India contributes with 65%, the rest are internal sources.¹¹⁶ In general, the whole basin lies in arid climatic circumstances and is subject to a highly institutionalized level of water sharing. In fact, water use was divided in an unprecedented way.

¹¹³ Material partially based on: previous work, Pison, *The Indus river system*.

¹¹⁴ Aquastat, *Indus river Basin*, in FAO, 2011, <http://www.fao.org/nr/water/aquastat/basins/indus/index.stm>. (accessed March 25, 2014).

¹¹⁵ "Sharing Water Resources with Afghanistan," *Dawn.com*, November 13, 2011, <http://www.dawn.com/news/673055/sharing-water-resources-with-afghanistan>. (accessed March 25, 2014).

¹¹⁶ Chellaney, *Water*, 175.

In terms of water relations, Pakistan and India are bound by a treaty, signed in 1960. The (IWT) assigned senior appropriator right to Pakistan on the rivers flowing through the Kashmir region, called Western rivers (Indus, Jhelum, Chenab). While the Eastern rivers (Sutlej, Beas, Ravi), flowing more to the south are primarily under control of India. It is considered to be one of the most successful water treaties, since it promoted cooperation even within political hard times. The IWT gave downstream Pakistan a 80,52% share, leaving India with 19,48% of the Indus river basin.¹¹⁷ Although heavily criticized by India and countered even by Pakistan the treaty was never breached. "However, since Pakistan is a single basin country and most of its waters are supplied by their political adversary, water issues are frequently brought up as a grave divide within their relations."¹¹⁸

The whole basin itself has a total area of 1.12 million km² and feeds roughly 300 million people.¹¹⁹ However, where most of the disputes trickle down is an area of 225,000km² which has 16,5 inhabitants, and is subject to territorial claims of India, China and Pakistan. The Kashmir region has been in the center of many "Indo-Pakistani conflicts (1947, 1965, 1971 wars and the 1989 popular insurgency and armed militancy) and even a swift Sino-Indian war in 1962."¹²⁰ This territorial uncertainty sparked much antagonism between the countries. Additionally it creates an investment climate, where regular FDI inflow is hard to sustain and where the World Bank (WB) and Asian Development Bank (ADB) take a bigger share in regional development. Given that both India and China play a huge role in both institutions and the region itself, it forms a competitive environment concerning allocations into water projects.

Additionally China supplies a huge chunk of the Indus river, which also flows through the disputed Kashmir region. This situation and potential create circumstances for using water

¹¹⁷ Ibid, 77.

¹¹⁸ PISOŃ, *The Indus river system*, .4

¹¹⁹ Aquastat, *Indus river Basin*, accessed March 15, 2014.

¹²⁰ PISOŃ, *The Indus river system*, 1.

as a tool to gain political leverage by China on its downstream neighbors. However, regional constraints and motivations, the level of downstream water cooperation, low population density and economic activity in South-Western China limits the use of the Chinese "water weapon" to an extent that it will influence Indo-Pakistani relations only indirectly, not through the Indus river.

3.1 Game of States Theory

The following part follows the same outline as in the previous case study. Here the three arguments back the regional geopolitical, institutional arguments on the Indus river and outline the situation, which motivates Pakistan to increase its BATNA. Again, the thesis looks at how exactly China affects the BATNA of the country furthest downstream.

3.1.1 Geopolitical and Geographic argument

Since Pakistan has a relatively high geopolitical importance and is less dependent on India, it is more accessible to Chinese cooperation. Additionally, China would gain very little by damming the Indus and thus will value its alliance with Pakistan more. Furthermore, the geographic location of the Indus, the zero projects planned on the river, low demographics and economic activity support the notion of this argument. Given population scarcity and low economic viability, upstream projects would thus deem hardly justifiable and regarded as an outright tool of political leverage. They would additionally "suffocate" potential allies for only a relatively low gain from water projects.

As China supported numerous Pakistani projects that were openly against the interest of India, I argue that Sino-Indian water relations show a divergent tendency in this case study as well. However, since rising consumption and the negative effects of climate change are gradually decreasing the water availability in the region, one of the lasting solution lies in a Sino-Indian cooperation as well. Upstream hydro-projects could generate electricity more

effectively, and minimize population dislocation in the lower parts of the river, whereas downstream agricultural production could supply upstream shortages. Additionally it would help decrease CO₂ emissions and thus stabilize the effects of climate change. Unfortunately such solutions exceed the mutual institutional capacities of India and China by far.

To improve the outcomes I have marginally included how Afghanistan influences the situation. However, a more detailed assessment of this additional actor and its influences the Indus river basin could improve my thesis. What is more, other regional, or international actors will hardly intervene for a similar reason as in my previous case study: the water issue of the Indus basin is also tied to a regional territorial dispute of geopolitically significant countries. Moreover, in this case all three are nuclear powers. In addition to the Indus, the Sutlej river also flows through the same three countries. It belongs to the Eastern rivers, which according to the IWT are under Indian jurisdiction. However, the Eastern rivers, together with the Sutlej discharge only 11km³ of water per year from India to Pakistan. Therefore, most of my case study on the river system will involve only the Indus itself. The Sutlej river will be brought up a several times, however assessing further implications of Chinese projects on this river does not fall within the scope of this research.

3.1.2 Institutional argument

The IWT was a very important momentum in Indo-Pakistani bilateral relations, which introduced a platform for cooperation in the 60's. In fact, it was so successful, that it was not breached even during later outright conflicts. It was prepared from a rather technocratic perspective than a political one. Given their hostile relations, the countries themselves did not want integrated water management, which also brought in the WB as a third party. In the end, the fact that the two parties were interested in sovereignty and control over their individual resources, quantified their terms into negotiable agreements, which led to a very stable treaty

unaffected even by outright military conflict between the signatory parties.¹²¹ The treaty led to a remarkable institutionalization, which also had a spillover on their relations. So, in addition to the common water data sharing agreements and many other features it introduced trust building measures to the Indo-Pakistani relations. Even though the region is arid, a technocratic solution that set aside political differences have built a foundation for a resilient cooperation mechanism.

This means that even though ties between India and Pakistan are tense, their water relations are heavily institutionalized. Thus they have a firm ground for deepening these relations and an existing institutional framework to do so. This background, in addition to the minimal Chinese activity on the river, means that the solution to the Indus water issue is more dependent on Indo-Pakistani mutual relations and only marginally on Chinese influence.

3.1.3 BATNA argument

As was mentioned in the previous case study: "GoST assumes that lasting cooperation will only be possible if weaker countries increase their BATNA and stronger countries stop using their superior position. This will only be possible when cooperation will also benefit the stronger party." In the case of Pakistan this materializes in their intentions to decrease overall water dependency on India. Not to be mistaken, 65% of their sources still stems from it, however Pakistan showed clear intentions of diversifying its water relations. In 2013 it started cooperation with Afghanistan on their common rivers.¹²² Even more importantly, it gave green light to Chinese state-owned companies to finance dam projects that were vetoed by India on the of the WB and the ADB. This itself does not entail any benefits for India. However, the further the situation goes, the less leverage it will have on Pakistan. Having a functioning cooperation mechanism, it would be a missed opportunity for India to gradually

¹²¹ Abukhater, *Water as a Catalyst for Peace*, 48.

¹²² Khaleeq Kiani, "Pakistan, Afghanistan Mull over Power Project on Kunar River," *Dawn.com*, August 26, 2013, <http://www.dawn.com/news/1038435> (accessed May 12, 2014).

lose this leverage, which is my argument why it should motivate cooperation between the two countries.

3.2 Pakistani struggles to decrease its water dependence on India

Even though the treaty was amended with a clause regarding technological development,¹²³ it did not count with the immense rise in water demand and the climate-change-induced, uneven annual distribution of water flow. For this reason the treaty is slightly outdated, and further institutionalization has to be introduced to cope with these flaws.¹²⁴ The fact that the treaty survived wars between the countries does not mean that water as such was not one of the core issues of these two neighbors. In fact, the IWT had to overshadow pre-treaty grievances when India used water as a tool to exert pressure on Pakistan, which consequently had to pay for water release by India.¹²⁵

Pakistan may have highly institutionalized cooperation with India, however, it lacks sufficient storage capacities,¹²⁶ has one of the worst regional irrigation methods¹²⁷ and, even from a global perspective, belongs to countries with the lowest water utilization rates.¹²⁸ Given that the region is arid and that it should have motivated Pakistan to improve its infrastructure shows that ingenuity was not high enough to overcome this scarcity.

Even if India is a upstream country, after the IWT was signed, it always acted benevolently with its policy choices.¹²⁹ However, climate change and increased water consumption induced by rising population and changing diets affect Indian and Pakistani water availability and reduce the pie they both share. Indian water researchers emphasize that

¹²³ IDSA Task Force, *Water Security for India*, 35.

¹²⁴ *Ibid*, 40.

¹²⁵ Abukhater, *Water as a Catalyst for Peace*, 13.

¹²⁶ Jeff Spross "Pakistan Now 'One Of The Most Water-Stressed Countries In The World' As 'Demand Exceeds Supply'," July 22, 2013, <http://thinkprogress.org/climate/2013/07/22/2336941/pakistan-now-one-of-the-most-water-stressed-countries-in-the-world-as-demand-exceeds-supply/>. (accessed May 12, 2014).

¹²⁷ Niaz Murtaza "How Hungry Is Pakistan?," *Dawn.com*, January 27, 2013, <http://www.dawn.com/news/781566/how-hungry-is-pakistan>. (accessed May 12, 2014).

¹²⁸ IDSA Task Force, *Water Security for India*, 37.

¹²⁹ *Ibid*, 39.

the treaty is unjust and that the 80,25% water share in favor of Pakistan disables any kind of development on the Indian part of the Western rivers.¹³⁰ According to them, India's share should be doubled to 42,8%¹³¹ in order to sustain the livelihoods of its inhabitants in the Kashmir region. Some Indian policy recommendations go even further and support additional water projects both on the Eastern¹³² and Western rivers.¹³³ Pakistani scholars criticize the treaty for its ambiguous parts,¹³⁴ which of course both of them interpret in their own way. However, as India is the stronger upstream riparian, their interpretation has direct negative effects for Pakistan. This, combined with upstream pressure stemming from Indian dissatisfaction with the treaty, mainly regarding the Western rivers, motivates Pakistan to secure its water-availability and hydro production elsewhere.

Since Pakistan is 65% dependent on India it has other sources that can be of potential benefit. 11% come from Afghanistan and 23% originate within its border, which creates possibilities to diversify its hydro-projects. What is more, there were instances when China helped funding dams, even if India openly objected to their construction. The last part of this chapter includes a more detailed description.

3.3 Chinese effects on the Pakistani BATNA

China has already built dams on both the Indus and the Sutlej river. Compared to the hydro electric station in Zada county on the Sutlej river,¹³⁵ the Ngari dam on the Indus sparked more tension, given the importance of the river and severe shortages it already faces given the

¹³⁰ Chellaney, *Water*, 195.

¹³¹ IDSA Task Force, *Water Security for India*, 39.

¹³² *Ibid*, 42.

¹³³ *Ibid*, 42.

¹³⁴ Islamabad Policy Research Institute (IPRI), *Report on Conference Water and Energy Security in Pakistan: The Way Forward*, 2012, 7.

¹³⁵ Neeraj Kapoor, Dam issue: Chinas concern and India' fear, *India China Chronicle*, January 2014, <http://www.icec-council.org/india-china/index.php?param=news/379257/81> (accessed May 26, 2014).

effects of climate change.¹³⁶ Given their geographical circumstances, the rivers are mostly glacier fed, in fact 90% of their water flow depends on the Tibetan snow caps.¹³⁷

So, even if the HydroChina Corp. map from 2010 mentioned in the previous case study¹³⁸ does not include projects neither on the Indus, nor the Sutlej river, China still has direct effects on downstream water availability on the Indus. Even if they are not that significant, they don't help Pakistan at all. However, given its immense financial reserves and geopolitical position, China affects Pakistani water projects differently. In fact, this active presence underlines my arguments for Sino-Pakistani cooperation, as well as the notion of Pakistan to increase its BATNA against India. It is on one hand an example how Pakistan is trying to get loose from the high Indian water dependence. On the other It represents a signal for India and to consider deeper institutionalization.

China and "its state-run companies today are building more dams overseas than the other international dam builders put together. As many as 37 Chinese financial and corporate entities are involved in more than 100 major dam projects in the developing world"¹³⁹ and Pakistan hosts numerous projects. International lawyers argue that investment in water is almost impossible to sustain in regions with unsettled land ownership, since it is a contractual predisposition.¹⁴⁰ Economist say that a secure, transparent legal and political environment are essential for amplifying FDI inflow.¹⁴¹ This represents an issue for the Kashmir region, not only because of the territorial claims of India, Pakistan and China but because of tribal/cast social structures that are present in the region. However, where the international markets cannot provide FDI, new possibilities emerge for other forms of financing. This is why the

¹³⁶ "The Thirsty Dragon: Tibetan Water Resources And Chinese Dams" *Water Politics*, April 2014, <http://www.waterpolitics.com/2014/04/09/the-thirsty-dragon-tibetan-water-resources-and-chinese-dams/> (accessed May 12, 2014).

¹³⁷ IPRI, *Report on Conference Water and Energy Security in Pakistan*, 6.

¹³⁸ Brahma Chellaney, "The World's Most 'Dammed' Country."

¹³⁹ Ibid.

¹⁴⁰ Smaller, Carin advisor of the International Institute for Sustainable Development, specialist on agriculture and investment. Skype conference call, CEU, March 13, 2014.

¹⁴¹ World Bank, "Investing Across Borders 2010," 2010, <http://iab.worldbank.org/~-/media/FPDKM/IAB/Documents/IAB-report.pdf> (accessed June 1, 2014)

WB and ADB play an important role in the region. Additionally, governments that have sufficient reserves, like China, can also invest their sources and use them as political tools.

One of the most obvious instances, when China financially intervened on Indian vetoed water projects was the Bunji dam in the Pakistani Kashmir region.¹⁴² Disputable water projects between Pakistan and India get funded by the Banks if both partners agree to them. They do it by issuing No Objection Certificates (NOC).¹⁴³ Since India did not agree to the project as it was planned near the cease-fire line with between India and Pakistan,¹⁴⁴ the building of the dam was in a financial deadlock. However, the planning of the project continued, funded by the Chinese Three Gorges International Corporation (TGIC).¹⁴⁵ India reacted immediately, however, "China had disregarded repeatedly expressed Indian concerns over Chinese hydro projects in Pakistan-held Kashmir"¹⁴⁶ and their denouncing had no effect.¹⁴⁷ Currently, the design of the dam is finished and its construction phase should be initiated in the near future.¹⁴⁸ What is more, in 2011 the TGIC reportedly demanded that Pakistani government should "remove legal bottlenecks in the award of contracts for mega hydropower projects [such as the] Bhasha, Bunji, Kohala and Karot...the Chinese firm is not interested in following the Public Procurement Regulatory Agency rules or participating in international competitive bidding, preferring to secure the projects on a single-bid basis."¹⁴⁹ This further underlines Chinese intentions to continue funding Pakistani project, even those that are against Indian interests. Although, it is important to mention that in some cases the

¹⁴² Chellaney, *Water, Peace, and War*, 195.

¹⁴³ Khaleeq Kiani, "Call to Seek Indian NoC for Bhasha Dam Rejected," <http://www.dawn.com/2012/08/14/call-to-see-indian-noc-for-bhasha-dam-rejected/>. (accessed May 26, 2014).

¹⁴⁴ Chellaney, *Water, Peace, and War*, 193.

¹⁴⁵ Syed Fazl-e-Haider, "Pakistan dam dealt funding blow by India" *Asia Times Online*, August 18, 2012, http://atimes.com/atimes/South_Asia/NH18Df01.html. (accessed May 12, 2014).

¹⁴⁶ Chellaney, *Water*, 352.

¹⁴⁷ "Indian Stance on Bunji Dam, Package Criticised," *Dawn.com*, September 14, 2009, <http://www.dawn.com/news/944994/indian-stance-on-bunji-dam-package-criticise> (accessed May 12, 2014).

¹⁴⁸ "7,100 MW Bunji Dam's Detailed Engineering Design Completed," *Paktribune*, accessed June 1, 2014, <http://paktribune.com/business/news/7100-MW-Bunji-Dams-detailed-engineering-design-completed-11159.html>.

¹⁴⁹ Syed Fazl-e-Haider, *Pakistan dam dealt funding blow by India*, (accessed May 12, 2014).

Indian pressure on the financial institutions and potential donors was overruled. One example is the Pakistani Diamar-Bhasha dam,¹⁵⁰ to which India declined to issue a NOC. After numerous negotiation the deadlock got resolved in favor of Pakistan,¹⁵¹ and the project received funding from both the WB and ADB.

Such efforts are aimed to protect Indian interests. However, they prevent Pakistan from exploiting its own hydroelectric potential. What is more, even if Chinese funding is not involved, vetoing each other projects increases tension between the IWT signatories. As was shown, China is prepared to use these opportunities to outmaneuver India by financially backing Pakistani projects. China can thus "not only gain a geopolitically valuable ally (Pakistan), but can do it at the cost of an aspiring geopolitical competitor (India) and at the same time its companies (TGIC) are be the ones that profit in the end. It is an interesting equation to consider."¹⁵²

These tendencies should be a signal for India that Pakistan is gaining momentum in their mutual water relations. This elevates their BATNA, which in fact should motivate India to reconsider its hard-line position against its downstream neighbor. If Afghanistan and Pakistan managed to gain benefits and increase cooperation on a river that provides less than 11% of Pakistans renewable freshwater supplies, increased cooperation on a river system that provides 65% of this water supply should even more rewarding. In fact, given the stability provided by the treaty, their mutual awareness of its flaws and the marginal impact of China on the Indus river, it is only the IWT signatories that can solve the regional situation permanently.

¹⁵⁰ "Donors to set aside Indian pressure over Diemer Bhasha dam: PEW" *Online International News Network*, August 29, 2012, <http://www.onlinenews.com.pk/details.php?newsid=200869&catname=Business> (accessed: May 12, 2014).

¹⁵¹ Rana Shahbaz, "Progress report: Pakistan secures credit line for Diemer Bhasha Dam", *The Express Tribune*, August 20, 2013, <http://tribune.com.pk/story/592844/progress-report-pakistan-secures-credit-line-for-diemer-bhasha-dam/>(accessed May 12, 2014).

¹⁵² Pison, *The Indus river system*, 7.

Summing up the third chapter we can see that even though the Indus has unused hydroelectric potential, utilizing it would bring relatively small benefits to China. On the one side, it is due to scarce population and geographical distance from Chinese economic/demographic "heartland", on the other because it could cause harm to downstream countries that outweighs these small benefits. For this reason China has no future projects planned on the river and given the high level of water cooperation between downstream countries it will affect Indo-Pakistani relations on the Indus river only marginally. Although, the IWT signatories have a high degree of institutionalization, which has to be modernized in order to keep up with rising consumption and climate change.

The cooperation between China and India breaks down to mere memorandums of understandings. Given Chinese financial activity aimed against India's interest, we can conclude that their relations are drifting apart rather than merging together.

As was assumed, Pakistan is more accessible for China than Bangladesh. On the one hand, China does not need the Indus waters acutely, on the other Pakistan is a stronger geopolitical player, less water dependent on India. Their financial cooperation fully underlines this argument. Even though Pakistan depends on Indian water, it is a more equal player. By looking towards China and Afghanistan, it gradually decreases Indian water leverage. India has to acknowledge, that the further this situation continues the less beneficial its negotiation outcomes will be. This and the lasting, successful treaty should motivate it, even as a stronger player, to cooperate with Pakistan.

CONCLUSION

The thesis concludes with many policy implications, some of them applicable to future probabilities. However, all outcomes are based on real evidence and supported by a theoretical concept. The thesis gradually funneled its broader theoretical base that narrowed down to two case-specific situations and pinpointed exact examples that underlined the theoretical assumptions

Both case studies disproved the two hypotheses. Therefore, the thesis supports the argument that water scarcity per se does not trigger water disputes. Rather than scarcity it is man-made projects that spark tension, which are implemented by a regional great power. Even though the physical circumstances of the rivers show that China should have more leverage on the Indus and less on the Brahmaputra, through the Games of States Theory approach and geographical-geopolitical, institutional and BATNA arguments the thesis has shown the opposite. On the Brahmaputra, given the abundant, unexploited water sources China exerts higher pressure on the lowly institutionalized Indo-Bangladeshi water ties, whereas the strong water relations of India and Pakistan on the Indus will remain unaffected by Chinese water projects. However, China influences their relations indirectly, not through the Indus river, by funding Pakistani projects.

As for the research questions. In the case of the Brahmaputra the following implications can be made. First, given the relatively low benefits from cooperation with Bangladesh and the huge untapped potential of the Brahmaputra, China will value its water projects more, and is rather reluctant to consider Bangladeshi water needs. Thus Sino-Bangladeshi cooperation is unlikely. Second, since Bangladesh is almost an Indian enclave and is highly dependent on Indian water, whereas India is motivated to aid Bangladesh in order to decrease illegal migration, which in turn is also exacerbated by Chinese water projects, further Indo-Bangladeshi cooperation has huge potential.

The Indus case implies that since Pakistan has a relatively high geopolitical importance, China has more motivation to cooperate with it. Additionally Pakistan is not as dependent on India as Bangladesh is, which allows it to request and respond to Chinese favors. Given geographical circumstances, China has few benefits from water projects on the Indus, and thus will almost certainly not engage in constructing them, which affects Sino-Pakistani relations positively. In addition, Chinese investments are increasing Pakistani BATNA by funding Pakistani dams vetoed by India on the platform of the World Bank and Asian Development Bank. As for Indo-Pakistani relations, since Pakistan is trying to rid itself of Indian influence, given Game of States Theory, the thesis argues that this is rather a signal than a deterrent for cooperation.

Having compared two specific case studies essential for explaining Chinese effects on the Indian sub-continent, the thesis also managed to bridge several theoretical debates. In the environment and security debate it chose to argue that regional militarization is not a viable option. This was followed by historical arguments, which supported the notion of water cooperation. Additionally, the included case studies involved a treaty that withstood even three wars, which underlines the already mentioned argument by Priscoli that water is "humanity's great learning ground for building community."¹⁵³ Mentioning regional and sub-regional tension was also essential in the paper, since they were present in both case studies. However, only the Brahmaputra case had international implications, in the form of illegal migration, that elevated the downstream BATNA against India. By bringing in the possibilities of water tension escalating to disturbances in smaller regions the study aimed to show that water wars, on a scale involving actors on the Indian Sub-continent and China, is very unlikely to happen. The argument that three out of four actors are nuclear powers and

¹⁵³ Wolf, "Conflict and Cooperation along International Waterways," 261.

that even the arid adversarial relations between India and Pakistan got solved partially by water cooperation disproved the "water war" concept.

The added value in this thesis lies in connecting India's downstream issues to Sino-Indian water relations. Most literature deals with them separately and even if it considers mentioning ties, in most of the cases it does not go further. Given the equal amount of actors that are directly involved on both rivers and geopolitical similarities the thesis could utilize the Game of States Theory approach without excessive limitation. Thanks to it, the thesis was able to answer the research questions more easily, additionally the approach allowed it to scrutinize the hypothesizes based on geographical, geopolitical and institutional facts. Involving additional actors would have complicated the research. Since Nepal, Bhutan and Afghanistan are not directly involved in the rivers, the study could rule them out. However, since the thesis was arguing about water availability both on the Brahmaputra and the Indus, and that these ruled-out countries are indeed part of their corresponding river basins, further research, which would involve them, could contribute to the findings of this work.

As for the Game Theory part of the Game of States Theory approach. It assumes that political adversaries will hardly agree on common projects, based on mistrust and the negative implications of the "suckers pay off". In the case studies we could see that if done correctly it can be overcome. As technocratic solutions on the Indus could overshadow political differences, the game theory approach was not fully applicable on that case. However, in relation to the Brahmaputra, where the Ganges treaty was done politically, even the moderate tensions between India and Bangladesh created mistrust that was part of their mutual relations for decades. This implies that water issues and the agreement themselves have to be made apolitically, based on quantifiable water needs in order to be lasting.

The thesis argued that on the one hand weaker countries will have to improve their BATNA by proving that their alliance would be beneficial for India as well, on the other it

mentioned that the downstream countries have to increase their BATNA and leverage on India to achieve more equal outcomes. Derived from the two case studies we can see that the latter is true, Pakistan on diversifying water sources, Bangladesh on uncontrollable migration. Thus to keep the situation manageable on both rivers India has to balance its own water needs and needs of downstream neighbors on both sides of the country. This decreases its leverage vis-à-vis downstream neighbors. Additionally since China affects both the Pakistani and the Bangladeshi BATNA, and limits the stronger position of India towards downstream neighbors, according to Game of States Theory it should form increasing water cooperation on the Indian sub-continent. Considering Sino-Indian relations, both case studies showed that cooperation is not forming, in fact Chinese water pressure has been rising constantly throughout the past decade, and given future plans, legal and financial possibilities it can be expected to grow.

The thesis drew upon similarities between Chinese water pressure and the policies India introduced during its uncontested, senior appropriator era. In both cases true water data sharing posed an issue, as was presumed by the Game of States Theory. We can see that the initial phase of the Chinese influence resembles the actions India took when it had the chance. However, 50 years later we can deem water cooperation between India and Pakistan and India and Bangladesh functional. Does it mean that we have to wait the same amount of time for a Sino-Indian cooperation to emerge?

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