

GEOPOLITICS OF THE HIMALAYAN RIVERS: ESSAYS ON WATER LAW, SECURITISATION, AND HYDRO- HEGEMONY

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Dedicated to the children of the *Dev Bhoomi*

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All the limitations of this thesis are exclusively mine.

ABSTRACT

The thesis examines the geopolitics of transboundary water resources in Himalayan South Asia using the case studies of the Mahakali and Koshi basins. In particular, it uses case-in studies of the Pancheshwar and SaptaKoshi-SunKoshi multipurpose projects to be built jointly by India and Nepal. The research questions are: how does regional geopolitics intersect with the governance of transboundary rivers in Himalayan South Asia in the context of increasing water scarcity, and what role does international water law play in assisting weaker riparians in contesting hydro-hegemony and fostering collaboration over transboundary rivers. Based on empirical data, this thesis demonstrates how the Indian hydrocracy securitises the governance of transboundary rivers and locates the role of international water law in the negotiations between India and Nepal. This research exposes the frailty of international water law in assisting weaker riparians in countering hydro-hegemony. It also maps the perspectives of Indian hydrocracy using the Q methodology.

CHAPTER 1: INTRODUCTION

In 1953, Nepal received its first airfield at a site in Kathmandu called Gauchar. This airfield was built using Indian development assistance and would go on to become an international airport, later renamed the Tribhuvan International Airport. The airfield facilitated international aviation to Nepal. However, Indian engineers, presumably instructed by officials in the Ministry of External Affairs, designed the runway short enough that flights from other countries and across the mountains could not land at the airfield (read: Chinese flights) (Mihaly, 2002). For the next seven years, India continued to administer and maintain the airport with such a tight hold that calls to the airport's control tower were routed through the Indian embassy switchboard. In so doing, New Delhi ensured that it retained its centrality in Nepal's geography and polity. Following the 1962 war between India and China, India forced Nepal to retract the tender of the Asian Development Bank-financed Kohalpur-Banbasa Road from that of a Chinese contractor.¹ Similarly, regional geopolitics plays an influential role in Nepal's water resources sector. For instance, in the 1960s, India's Trishuli and Phewa hydropower projects competed with China's Sunkoshi and Seti projects (Pun, 2008). More recently, the 1200 MW Budhi Gandaki hydropower project was rescinded twice after it was awarded to a Chinese development company.² Likewise, the West Seti project awarded to the China Three Gorges Corporation in 2011 failed to operationalise and was awarded to India's National Hydroelectric Power Corporation as of September 2022. This geopolitical tug-of-war continues to date in the landlocked Himalayan country with the resurgence of hydropower globally, even though ambitious projects often fail to materialise. It is little wonder then that Prithvi Narayan Shah, the last ruler of the Gorkha Kingdom and the first King of Nepal, once called Nepal the yam between two boulders.

With India's net-zero and energy transition goals—in which hydroelectricity is touted to play an essential role³—and the commencement of work on its longstanding river-interlinking

¹ Personal communication with former Managing Director, Nepal Electricity Authority, August 2020

² For details, see Prasain, S. (2022, September 2). Budhi Gandaki hydropower project registered as public company. The Kathmandu Post. <https://kathmandupost.com/money/2022/09/02/budhi-gandaki-hydropower-project-registered-as-public-company>

³ This can be substantiated by the Government of India's pursuit of reviving India's hydroelectricity sector through various policy incentives including declaring large dams (<25 MWs) as part of its non-solar Renewable Purchase Obligations (RPO). These obligations are binding on all electricity distribution licensees selling electricity in various Indian states. Other incentives include increasing debt repayment period to 18 years, tariff rationalisation and budgetary support for funding cost of enabling infrastructure. For more information, see GoI. (2019, March 7). Cabinet approves Measures to promote Hydro Power Sector. Press Information Bureau, Press Release. <https://pib.gov.in/pressreleaseshare.aspx?prid=1567817>

project, the water resources of Nepal have gained prominence amongst policymakers in India. Using data collected from fieldwork, this thesis answers the following research questions:

1. How regional geopolitics intersects with the governance of transboundary rivers in Himalayan South Asia in the context of increasing water scarcity?
2. What role does international water law play in assisting weaker riparians in contesting hydro-hegemony and fostering collaboration over transboundary rivers?

In other words, I examine the hydropolitics of transboundary water resources in Himalayan South Asia using the case studies of the Mahakali and Koshi basins. In particular, I look at the case-in studies of the Pancheshwar and SaptaKoshi-SunKoshi multipurpose projects to be built jointly by India and Nepal. The research explores how regional geopolitics plays out in the region's shared water resources. Based on data collected from fieldwork in India and Nepal, I illustrate how mid-level officials in Indian bureaucracies securitise the governance of transboundary rivers and locate the role of international water law in the negotiations between India and Nepal. Whilst this research looks at the shared governance of both the basins (Mahakali and Koshi) using the case studies of the Pancheshwar and SKSK, it is essential to point out that the Pancheshwar project has been under negotiations since 1996. On the other hand, the SKSK project is in the investigation stage as of July 2021. Therefore, in Pancheshwar, this research finds a stronger reference point, a richer history of negotiations to document, and more stakeholders to interview. The SKSK project is used as a case study to assess if more recent projects experience the same hurdles as Pancheshwar.

1.1 HYDROPOLITICS AND THE NEW HYDRAULIC MISSION

The governance of transboundary water resources originating in the Himalayas and flowing through Nepal into India has been a source of bitterness and animosity between the two states. The Koshi and Gandak treaties signed by India and Nepal in 1954 and 1959 respectively, had to be amended and revised in 1966 and 1964 following protests by Nepal. The provisions of the Mahakali treaty, signed in 1996 and ratified by the Nepali Parliament in the same year, have still not been realised. Despite an open border, strong people-to-people connections, and a sense of shared culture, religion, and heritage, tensions over transboundary waters have often led to widespread hostility against India among Nepali citizens, and water is also cited as the reason for persistent strain in the bilateral relations (Bhushal, 2014; Gyawali & Dixit, 1999; Swain, 2018).

With over 6,000 rivers and a combined run-off of about 200 billion cubic metres (BCM), Nepal

can *theoretically* generate 83,000 MW of hydroelectricity; of this 42,000 MW of hydroelectricity is technically and economically feasible (Alam et al., 2017). However, despite having an immense capacity to generate energy and being in an ideal location for hydropower projects (steep slopes and deep gorges make an efficient site for run-of-the-river hydropower plants), Nepal's hydropower sector is vastly underutilised, so much so that it imports electricity from India to meet its domestic needs. According to a report by the EEG's Applied Research Programme on Energy and Economic Growth, if Nepal were to manage to utilise its hydropower potential, it could not only meet its domestic demand but also export to neighbouring countries (EEG, 2016). To be sure domestic hydroelectricity generation is increasing in Nepal with newer projects reaching the operational stage and being connected to the national grid. Nepal exports electricity to India during the monsoon season when there is heavy rainfall and snowmelt. However, during the winter months, it has to import electricity from India due to decreasing snowmelt and increasing domestic demand. In the financial year 2021/22, Nepal exported 493 GWh of electricity to India and imported 1543 GWh.⁴ Nepal's net import of electricity after the deduction of export in the same year was 1050 GWh. Nepal expects to become a net exporter of electricity by 2025 due to the increasing number of hydropower projects reaching the operational stage.⁵

For Nepal to transition from a net importer of electricity to a net exporter, the Indian electricity market plays an important role since India is the only market for surplus energy produced in Nepal. However, there have been attempts to sell electricity to Bangladesh (via India) as well. India has been one of the earliest investors in Nepal's hydropower sector with the first instance of cooperation over water resources dating back to the 1920s when Nepal and British India decided to harness the Mahakali River to develop irrigation facilities in Northern India (Sah, 2018). Since then, India and Nepal have signed three important treaties regarding water resources management. These treaties deal with flood control, irrigation facilities and hydropower generation and are referred to as the Kosi Agreement 1954, the Gandak Agreement 1959, and the Mahakali Agreement 1996. However, as mentioned above, the Kosi and Gandak Agreements were later amended due to discontent within Nepal over its riparian rights (Bagale, 2020). Within Nepal, these treaties are still seen as one-sided and examples of Indian hydro-

⁴ See NEA. (n.d.). Nepal Electricity Authority Annual Reports. Nepal Electricity Authority Annual Reports. Retrieved April 18, 2023, from https://nea.org.np/annual_report.

⁵ Radio Nepal. (2023, April 18). Nepal anticipates to be a net exporter of electricity by 2025: PM Dahal. Online Radio Nepal. <https://onlineradionepal.gov.np/en/2023/04/18/351911.html>

hegemony.⁶

Nepal's water resources play a crucial role in India's water security. The water flowing from Nepal into India accounts for 46 per cent of Ganga's runoff on average. This increases to 71 per cent during the critical dry months of December-May (Dhungel, 2009). To better understand the key findings of the research (articulated in chapters five-seven), it is necessary to get an overview of the India-Nepal bilateral relationship. In chapter two, I aim to provide a concise overview of this bilateral relationship through political, economic, and riparian geographies. Chapter two is intended to provide the reader with the background information necessary to appreciate the nuances of the research findings.

This research is set against the backdrop of the water crisis that India faces. Multipurpose projects like Pancheshwar and SKSK are designed to address the extreme water stress faced by large sections of Indian society. This stress is climate-induced as well as a result of over-extraction and unsustainable use. Instead of addressing the unsustainable demands and the over-extraction, Indian hydrocrats, with backing from the political class, are seeking to address the problem from the supply side. They see it as a part of their 'hydraulic mission' to dam the rivers, control nature, and not let a drop of water flow into the ocean without first being put to work.⁷ Hydrocracy is defined as the "governmental agencies responsible for the use, development and conservation of the water resources" (Mirumachi 2015: 07). These could be the engineers, consultants, and mid-level administrators and officials working in the various government agencies and ministries that deal with water resources and hydropower. Molle et al (2009) argue that the public investments in irrigation that became common in the early 20th century led to the creation of hydrocracies, and define hydrocracy as "a cadre of professionals, most frequently civil engineers staffing hydraulic bureaucracies" (2009: 328). According to Wester (2008: 10), hydrocracies are characterised by their "high-modernist worldview" that set out to "control nature and 'conquer the desert' by 'developing' water resources for the sake of progress and development." This belief is apparent in large sections of the Indian hydrocracy and is leading to the planning and construction of dams not only domestically, but also on rivers shared with neighbours. According to the national register of large dams, there are 411 dams under construction in India as of June 2019 (CWC, 2019). Numerous such projects are on transboundary rivers that run across neighbouring countries—some of whom have territorial

⁶ For instance, see Adhikari (2014), Dhungel & Pun (2009).

⁷ Turton (2003: 11) defines hydraulic mission as the "official state policy that seeks to mobilise water as a foundation of social and economic development".

disputes with India. Additionally, none of the South Asian states are signatories to the United Nations Watercourses Convention (UNWC), making cooperation on these international rivers difficult. Chapter four illustrates in some detail the water crisis being faced in India and future trajectories in a business-as-usual scenario. It also discusses how large dams are being presented as a panacea to this crisis instead of addressing the problem from the demand side. This chapter also highlights India's water crisis and illustrates how large dams are being purported as a policy response to the unsustainable demands and the practice of over-extraction.

1.2 RESEARCH OBJECTIVES

My approach to the research can be categorised as inductive. An inductive research approach is when the researcher looks for patterns and connections between data to find themes and develop explanations. It is a bottom-up research approach that builds a theory based on interconnecting themes (Creswell and Plano Clark 2007). The benefits of this approach are that the findings emerge from data and the data itself is collected using observations and experiences. This could result in a more grounded approach—one where the complexities and nuances of the real world are more appreciated. It also provides the researcher greater flexibility in conducting research—allowing researchers to adjust their design and/or methodology to explore newer angles and emerging themes when collecting data. The chances of stumbling onto newer insights and perspectives are greater in inductive research since the researcher is not committed to any preconceived hypothesis. Nevertheless, this approach comes with some challenges as well. One of the challenges in taking an inductive research approach is that the researcher does not necessarily have prior knowledge of the themes, concepts, or findings that will emerge from the data. So, the researcher often starts with a broad research problem and finds his/her way to research puzzles (or questions) that he/she seeks to answer. This could mean that the research process is often not linear as deductive approaches and clarity emerge following data collection and analysis.

I began my fieldwork exploring the causes behind the delays in the development of multipurpose projects between India and Nepal. My interest in these projects was spurred when they were presented as the silver bullet to complex problems of flooding, water security, and irrigation enhancement in northern India.⁸ The territorial dispute over the Kalapani region

⁸ See Aggarwal, M. (2018, May 23). The strategic Pancheshwar project comes back in focus. Mongabay. <https://india.mongabay.com/2018/05/the-strategic-pancheshwar-project-comes-back-in-focus/> and PTI. (2018).

between India and Nepal also brought back focus on the Pancheshwar project. I decided to focus on the negotiations over bilateral hydropower projects, and how they are governed. I believed doing so would lead to clarity on the accusations by India's 'smaller' neighbours over its "big brotherly"⁹ treatment and explore how climate change and energy transitions are impacting the development and governance of multipurpose reservoirs in the Himalayas. My academic background in geopolitics and international relations steered me (and still does) to study the interactions between India and Nepal. What follows is an exposition of the hydrogeopolitics of shared rivers in Himalayan South Asia.

Hydrogeopolitics is defined as the "systematic study of conflict and cooperation between states over water resources that transcend international borders" (Elhance, 1999: 03). This research investigates how the geopolitics of shared rivers play out in the region, how mid-level officials in Indian bureaucracies securitise the governance of transboundary rivers and locate the role of international water law in the negotiations between India and Nepal. In doing this, I contribute to the literature on hydrogeopolitics, securitisation theory, and international law—particularly water law. Scholars of international relations may find the focus on hydrocracy interesting as it furthers the theoretical debates on constructivism and the role of agents in the conduct of foreign policy. Securitisation theory (chapter five) is primarily a constructivist or post-structuralist theory. The focus on the Paris School strand of securitisation theory (explained in chapter three) is even more so as the units of focus are individuals and their agency.

1.3 SIGNIFICANCE OF THE RESEARCH

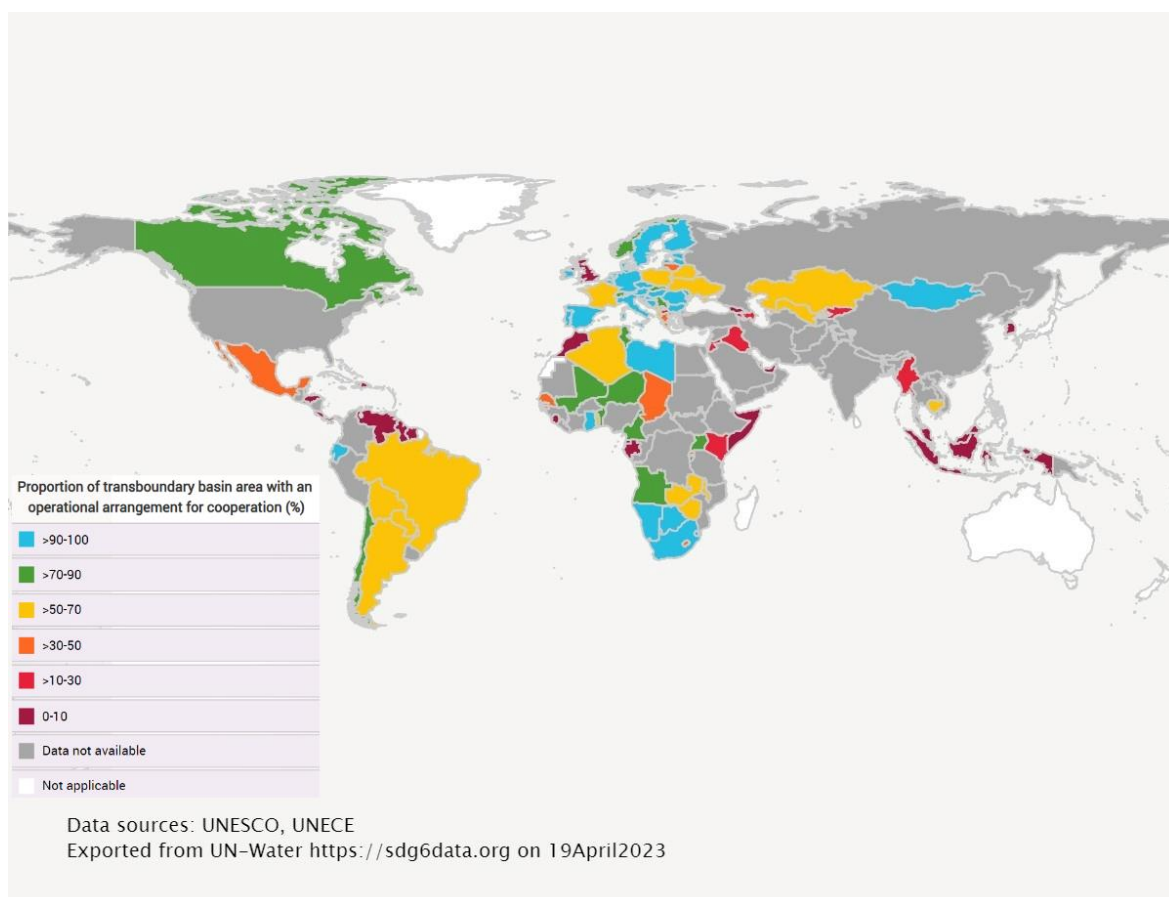
Globally, there are 286 transboundary rivers and lake basins, and 468 aquifer systems. A hundred and fifty-three countries have territories with these shared river basins and lakes, and almost all countries have territories with a transboundary aquifer (IGRAC, 2021; UN-Water, n.d.). These shared resources account for 60% of the world's freshwater flows (UN-Water, n.d.). Despite the ubiquity and centrality of transboundary water resources in a state's freshwater resources, only twenty-four states have reported that their transboundary basins are covered by cooperation arrangements and only thirty-two states have 90% or more of their transboundary basin area covered by operational arrangements (ibid). As states turn to dams to

Linking rivers can be a solution to water shortage and floods: Gadkari. Business Standard. https://www.business-standard.com/article/pti-stories/linking-rivers-can-be-a-solution-to-water-shortage-and-floods-gadkari-118082701047_1.html

⁹ See Muni, S. D. (1978). India and Regionalism in South Asia: A Political Perspective. *International Studies*, 17(3–4), 483–501. <https://doi.org/10.1177/002088177801700308>

address climate change impacts (see Ahlers et al., 2015; Dye, 2019; Gerlak et al., 2019; Karambelkar, 2017), it is becoming increasingly essential to address the inadequacies of international water law. Having saturated domestic rivers, often enough these dams are on shared, transboundary rivers (Elhance, 1999). Transboundary water resources face challenges arising from increasing population, urbanisation, industrialisation, degradation of the environment, and hydrological variability (Salman, 2007). Sustainable Development Goal target 6.5 is to implement integrated water resources management at all levels, including through transboundary cooperation by 2030. SDG indicator 6.5.2 tracks progress on transboundary cooperation by looking at the percentage of transboundary basin area under a state with an operational cooperative arrangement. Figure 1.1 shows the proportion of transboundary basin area with an operational arrangement for water cooperation (2020-2022). As we will see, asymmetrical power equations over these transboundary water resources governance and negotiations are further complicated due to ambiguous and ineffectual international laws.

Figure 1.1: Proportion of transboundary basin area with an operational arrangement for water cooperation (2020-2022)



Using the case study of India-Nepal, and the case-in studies of Mahakali and Koshi basins, I try to map potential future interactions between strong and weak riparians, their negotiations on shared projects, how riparian positions affect hegemonical designs, how shared rivers can be securitised in the context of energy transitions and climate change; and situate international water law in riparian interactions. This research exposes the frailty of international water law in assisting weaker riparians in countering hydro-hegemony and argues for reform to ensure equitable and sustainable development (chapter six). It also addressed longstanding criticisms of securitisation theory (particularly the Paris School) and contributed empirically (chapter five). Chapter five categorises the securitisation moves practised by Indian hydrocracy as structural, institutional, and statutory acts.

Using securitisation theory, essentially a constructivist theory, challenges the structural explanations of international politics, and provides agency to various actors within the state. It demystifies the 'state' as a rational unitary actor and provides an alternative view of state behaviour that is defined and practised by epistemic communities. These epistemic communities use their technical knowledge and expertise to assist decision-makers in identifying national interests (Haas, 1992). Haas (1992: 03) defines epistemic communities as "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area." By using hydrocracy as the epistemic community in the study of securitisation, an attempt is made to move away from an elitist understanding of securitisation that overemphasises the role of elite actors and the impact of their discursive practices. Lastly, to triangulate the findings, I used the Q methodology (chapter seven). Q methodology (or Q-Sort Analysis) is a systematic analysis of discourse that combines qualitative and quantitative methods. In this research, hydrocrats from the Indian side were included to discuss their perspectives on the governance of shared rivers with India's northern riparians. Findings from the Q sort analysis revealed the prevailing viewpoints, the areas of consensus and dissensus amongst these officials, and illuminated the diversity of opinion within India's hydrocracy with some hydrocrats having a distinct opinion on the governance of shared rivers with Nepal and the questions of environmental sustainability of dams in the Himalayas. However, it can be observed that only one group of opinions is followed in official policymaking. This study offers a valuable contribution to the continuing discourse on managing transboundary water resources. These resources have emerged as crucial components of regional energy transitions and water security, evidenced by the interplay between geopolitical dynamics and natural resource

governance in the region. India's pursuit of hydropower initiatives poses potential risks to its relationships with neighbouring riparian states - be it within the Indus Basin (with Pakistan), Ganga Basin (with Nepal), or Brahmaputra River basin (with China). The contentious nature of boundaries in South Asia further exacerbates tensions related to such projects among these countries.

1.4 LIMITATIONS OF THE STUDY

The COVID-19 pandemic and resultant lockdowns had a discernible impact on the conduct of the present research. Fieldwork plans had to be significantly altered, oftentimes at short notice. The original plan of embedding myself with a think tank in New Delhi and Kathmandu had to be aborted due to social distancing measures and the lockdowns. This meant a loss of the network that the institutions would have potentially provided (very important when trying to access elites for research), consequently necessitating the independent recruitment of participants. My plans to visit the Sankhuwasabha District in Nepal where the Arun-III hydropower project is being developed by SJVN¹⁰ to study joint project development between India and Nepal had to be cancelled when the second wave of the pandemic forced a lockdown in Nepal. The second wave also meant my plan to move back to New Delhi to triangulate interview data had to be cancelled. While I used the Q methodology to mitigate some of the impacts of the pandemic on the research, the methodology's full potential may not have been realized under these circumstances. For instance, I could have conducted the Q sort analysis parallelly with the interviews and hence managed to get more people to participate in the exercise instead of doing it post-facto. This would have perhaps also resulted in getting Nepali hydrocrats to participate in the study as well and added a comparative element to the research.

Moreover, this research did not engage the questions of the masculine nature of hydrocracies in India and Nepal.¹¹ The near-total absence of women in hydrocracy is likely to impact policy prescriptions and governance. For instance, of all the participants in this study, only three were women. This included one Additional Secretary in the Indian Ministry of Agriculture, one journalist covering the energy sector in India, and one private sector consultant. There were

¹⁰ A Joint Venture of Govt. of India & Govt. of Himachal Pradesh formerly called Satluj Jal Vidyut Nigam.

¹¹ To understand the masculine nature of hydrocracies see: Clément, F. (2019). Masculinities and hydropower in India: A feminist political ecology perspective. *International Journal of the Commons*. <https://thecommonsjournal.org/articles/10.18352/ijc.920>; and Sehring, J., ter Horst, R., & Zwarteveen, M. (2022). Gender Dynamics in Transboundary Water Governance: Feminist Perspectives on Water Conflict and Cooperation (p. 226). Taylor & Francis. <https://doi.org/10.4324/9781003198918>

women in NGOs working on improving the conditions of the affected communities living along the Mahakali River, but the civil engineers who staffed the offices of the Central Water Commission, Central Electricity Authority, Water and Energy Commission Secretariat (Kathmandu), were predominantly male-dominated. Regrettably, this research did not take a gender lens to the study and assessing the impact of this masculine hydrocracy could be an interesting avenue for future research. Similarly, the study did not focus on how Nepal (or China) counters the securitisation of shared rivers by India, which may limit its scope. A study on Nepali and/or Chinese response to securitisation by India could contribute to the literature on hydropolitics and securitisation theory.

The interviews and participant observations conducted with the communities living along the Mahakali River along the India-Nepal border informed the discussions with the hydrocracy in New Delhi and Kathmandu. However, data from the community interviews do not explicitly feature in this thesis. This is because the granular-level data from these interviews departs from the central focus of this thesis. There is an abundance of existing literature on the concerns of communities facing evacuation due to large infrastructural projects and hence I decided to focus on the findings from the key informant interviews. The concerns of the communities—largely to do with rehabilitation and resettlement, the need for jobs post-rehabilitation, and the lack of infrastructure in their current communities (owing to anticipated submergence)—were delivered to the policymakers in New Delhi. A news report in a local newspaper in Uttarakhand was also published using the data I gathered. This was done to highlight the views of the community facing displacement in the Pithoragarh, Champawat and Almora districts of Uttarakhand, India.

1.5 STRUCTURE OF THE THESIS

The following chapter illustrates the methodology and the research design of the thesis. It introduces the Q methodology that was used in this thesis with a comprehensive explanation of this methodology in chapter eight. Chapter three provides an overview of the India-Nepal relationship necessary to understand the rest of the thesis. We look at the political, economic, and riparian geographies of India-Nepal relations in this chapter. Chapter four is the theoretical framework that drives this research. In this chapter, I discuss the securitisation theory, its various offshoots, and how this theory is used by other scholars studying hydropolitics, before highlighting how this research contributes to the theory. I also discuss the rich literature around hydro-hegemony and hydropolitics in this chapter. This research is set against the backdrop of

the water crisis that India faces. Chapter five situates this water crisis in India-Nepal hydropolitics by showing how large dams are being presented as a response to current and projected water insecurity. Chapters six to eight present the findings of the research. Chapter six illuminates how Indian hydrocracy securitises water resources with Nepal. Chapter seven highlights the inadequacies of international water law in assisting weaker riparians in countering hydro-hegemony. I also locate the role of international water law in the negotiations between India and Nepal. Chapter eight uses the Q methodology to triangulate the findings of the research and illustrate the diversity of opinion within Indian hydrocracy that is not reflected in policymaking. This chapter statistically evaluates the subjective experiences of Indian hydrocrats. Chapter nine concludes the thesis by summarising the main findings, discussing the implications of these findings and a way forward.

1.6 PUBLICATIONS

Chapters six and seven form a major part of the research findings and have been published in peer-reviewed journals. Chapter six has been published in *GeoJournal* as published as “Practicing security: the securitisation of transboundary rivers by hydrocrats in Himalayan South Asia.” Chapter seven has been published in *Water International* as “International Water Law and hydropolitics An Enquiry into the Water Conflict between India and Nepal.” Both the chapters/papers were accepted for publication in early 2023—January and February respectively. Hence, readers of the thesis may find these chapters in the form of papers in journals.

Other than going through review by the supervisors, and the examiners, the researcher also benefitted from the peer review that came with the journal publication. These reviews helped situate the findings in larger academic debates on securitisation theory and international law respectively and set a tone for the thesis. While these two chapters—and chapter eight which undertakes a statistical discourse analysis of Indian hydrocracy—may exhibit a degree of independence, the findings from these chapters come together to tell a story of India’s unsuccessful attempts at hegemony over shared rivers in South Asia.

This hydro-hegemony is unsuccessful because policymakers in New Delhi have failed to gain what they set out to achieve. For instance, the Indian side was forced to revisit and re-negotiate major treaties with Nepal (the Gandak and Kosi treaties), and none of the major dams that were proposed (with much exuberance) between Nepal and India have materialised—be it the SaptaKoshi-SunKoshi dams, Karnali-Chisapani Dams, or the Pancheshwar dams. Nepal has

succeeded in resisting Indian hegemony—even if it is at the cost of progress on its rivers. Policymakers in New Delhi have grown weary of the lack of progress on transboundary rivers with Nepal. It would seem to any researcher on closer inspection that stopping progress on transboundary rivers is a deliberate negotiation strategy of Nepali hydrocracy. These chapters show the ways India’s hydrocracy has approached transboundary river governance and the tools Indian hydrocracy uses to assert itself over Nepal—be it by securitising water resources using its epistemic and/or institutional expertise (chapter six) or using provisions of international law selectively (chapter seven).

CHAPTER 2: METHODOLOGY

“Social scientists do not discover new events that nobody knew about before. What is discovered is connections and relations, not directly observable, by which we can understand and explain already known occurrences in a novel way” (Danermark et al., 2005: 91)

To address the research objectives stated above, I used the case study methodology. It is helpful to look at Lund’s (2014: 224) definition of a case as an “edited chunk of empirical reality where certain features are marked out, emphasized, and privileged while others recede into the background... a case is not ‘natural,’ but a mental, or analytical, construct aimed at organizing knowledge about reality in a manageable way.” Lund’s work on analytical movements in qualitative research has influenced my research. I aim to use case studies used in this research to provide an analytical generalisation (to use Lund’s words). Analytical generalisation is the “identification of fundamental or constituent properties in an event or phenomenon” (Ibid: 226). The constituent properties for a researcher studying securitisation, especially using the Paris School lens, could be *security practices* conducted by Indian hydrocrats, or the interpretations of the UN Watercourses Convention made by riparians depending on their position on the basin. The phenomenon would be the governance of transboundary water resources (or any other natural resources). Similarly, for a researcher studying international water law or hydrogeopolitics, chapter six which locates UNWC in India-Nepal project negotiations can provide analytical and empirical generalisation. Empirical since there is consistency across international river basins where riparian positions influence a state’s bargaining power and position. Researchers may find it helpful to study how upper and lower riparians on a basin interpret provisions of the UNWC to strengthen their arguments and how certain articles of the convention cause confusion and conflict between riparians.

Case-in studies are the specific phenomena that are used within the broader case studies to explore and study the research questions. The case-in studies allow for a deeper understanding of the complexities associated with transboundary water resource management. In this study, they provide analytical and empirical generalisations similar to case studies, but these are more specific. The case-in studies of the Mahakali and Koshi Basins (or the Brahmaputra Basin dealt with briefly) would be useful for scholars of climate geopolitics and/or South Asian politics. Researchers may find it interesting to see how states in the region link security issues like boundary disputes to water resource management. The mistrust amongst states on transboundary water issues in South Asia has been further compounded by the lack of effective

institutional mechanisms to resolve disputes and foster cooperation. The findings of this research contribute to environmental security discourse in specific ways. For instance, on these shared rivers, environmental security is not just an issue of protecting biodiversity or preserving ecosystems, but also how the environmental space is securitised leading to securitised environmental policymaking.

2.1 METHODS OF DATA COLLECTION

This research is inductive in nature—meaning, I did not venture out into the field with a set of research questions or hypotheses, but an understanding of the history of riparian conflicts between India and Nepal. I wanted to explore in detail the factors behind the delay in the development of multipurpose reservoirs between the two states. The findings of this research emerged from the data collected during fieldwork. In order to collect data, a quasi-mixed method approach was used. Quasi since the triangulation of the findings was conducted using Q sort analysis, a qualitative-quantitative methodology. The primary method of data collection was purely qualitative—semi-structured interviews with key informants. These interviews were conducted with Indian and Nepali hydrocrats, private sector consultants, environmental activists, construction company representatives (n=44), and affected communities along the Mahakali River headwaters between September 2020 and April 2021. The number of people classified as ‘affected communities’ is 52 and they live in the villages close to the Mahakali headwaters. These villages are at risk of submergence or depopulation¹² once work on the Pancheshwar Project commences. The hydrocrats were both serving and retired members of various government ministries and departments in India and Nepal (see Appendix A). The participants were information-rich cases and were identified using purposeful sampling.

The rationale for the selection of hydrocrats was their ability to provide insights based on their experience working on India-Nepal water and energy relations. To understand bilateral negotiations on the projects, I interviewed Indian and Nepali officials from the 1996 team that drafted the Mahakali treaty, officials from both sides investigating the SKSK project, and members of the Pancheshwar Development Authority (PDA). Studies on transboundary water governance using key informant interviews are common in qualitative research as they allow a deeper focus on complex issues (Barua, 2018; Fischhendler & Katz, 2013; Milman et al., 2020;

¹² The villages would either be submerged in the reservoir or would be forced to be depopulated due to their proximity to the reservoir and the communities being rehabilitated and resettled by the Indian government.

Mirumachi, 2020; Saklani & Tortajada, 2019; Tortajada & Saklani, 2018; Warner & de Man, 2020; Zeitoun et al., 2019; Zinzani & Menga, 2017).

Bureaucrats, especially those still in service, can be reserved about discussing matters involving international diplomacy. To address this, I emphasised interviewing retired bureaucrats. As the steel frame of governance, they contain a rich reservoir of information. As Seldon (1988: 10) claims, bureaucrats can also be the perfect interviewees who are “dispassionate creatures” with a barrage of information in “mental boxes that can yield rich harvest to those who take the trouble to prise them open.”

Due to the outbreak of the COVID-19 pandemic, original plans had to be modified. For instance, I had reached out to think tanks in Delhi enquiring about the possibility of being hosted as a visiting scholar. And while two prominent think tanks agreed to host me initially, the ensuing pandemic and the lockdowns resulted in them rescinding my invitation. This also meant the loss of networks and access that these think tanks would have provided. After making initial contact with some retired hydrocrats, I used a snowballing method to reach out to other members of the hydrocracy. I also used LinkedIn and minutes of project meetings to identify and reach out to officials. These minutes of the meetings are available on the Nepali government’s websites for Pancheshwar and SKSK projects. In Kathmandu, I reached out to fellow scholars who assisted me in reaching out to ministries and government departments. Attendance at conferences on India-Nepal bilateral relations¹³ was used to interact with key informants and this helped in recruiting participants while in Nepal.

To have a grounded view of the impact of large dams on affected communities, I conducted fieldwork at the Pancheshwar dam site in the Pithoragarh, Champawat, and Almora districts of Uttarakhand, India in November 2020. These districts are along the Indo-Nepal border. Here I visited 11 villages to understand the perspective of the people living in these villages that are in the submergence and ‘affected’ zone.¹⁴ In these districts, I conducted walking interviews (n=52) with the local community—people living in these villages, and who will be resettled if and once the project construction starts—and officials from a local NGO, journalists, local administration, and social and environmental activists.

¹³ These conferences were hosted by an organisation called *Neeti Anusandhan Pratishthan, Nepal* (roughly translated: Policy Research Foundation, Nepal). One of the conferences that was especially useful in meeting policymakers was on the topic of “China’s Soft Power in Nepal” hosted in March 2021 in Kathmandu.

¹⁴ Affected zone is the region that will not be submerged but will be depopulated owing to proximity to the dam.

I have triangulated at two levels—data triangulation and methodological triangulation. In data triangulation, I sought to crosscheck the data by interviewing various actors across institutions to find patterns, commonalities, and question inconsistencies. It was an iterative process. In methodological triangulation, I try to challenge the validity of the findings by using an alternative methodology. Q methodology or QSA (Q-Sort Analysis) examines the validity of my findings by revealing the diversity of the opinions within the official hydrocracy.

2.2 DATA ANALYSIS

Transcripts of interviews were uploaded onto NVIVO software and then coded for thematic analysis. Thematic analysis is a method used to identify and analyse themes within data, and interpret aspects of the research topic (Boyatzis Richard, 1998 in Braun & Clarke, 2006: 79). Data becomes a theme when it captures “something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set” (Braun & Clarke, 2006: 82). Thematic analysis is often erroneously claimed as discourse analysis, content analysis or grounded theory due to similarities in methods. The difference lies in the epistemology of the methods used. Grounded theory and interpretative phenomenological analysis (IPA) are similar to thematic analysis in that they seek patterns within the data—however, are theoretically bounded (Braun & Clarke, 2006: 80). IPA is about investigating the everyday experiences of people in order to understand the phenomenon in question (McLeod, 2012 in Braun & Clarke, 2006), whereas the goal of grounded theory traditionally has been to generate a theory using the data (ibid). Thematic discourse analysis, on the other hand, is used to refer to a method that “identifies themes in a text within a constructionist framework, focusing both on the rhetorical design and on the ideological implications of the themes” (Clarke, 2005: 07). Thematic analysis is not married to any theoretical or epistemological framework, providing greater flexibility. It can be constructivist, meaning it can be used to identify the social construction of realities, truths, experiences, or meanings. Or it can be realist/essentialist, used to identify objective realities, experiences, or truths of participants (Braun & Clarke, 2006).

I have attempted to draw a bridge between the constructivist and realist approaches to the thematic analysis method. In other words, I tried to find a balance between finding latent themes within the data and sticking to the semantics of what the participants said. Since the research deals with questions of security and geopolitics, I chose not to be overtly interpretative in what the participants said. Along with the transcripts, a research diary was used to add

observations and notes. Primary documents were also used to verify claims. I filed Right to Information appeals with the Chief Information Officer at the Central Water Commission to get access to some primary data. In this process, I managed to get an important document digitised and available in the public domain. This document is the “1999 Report of The National Commission for Integrated Water Resource Development.” It departs from the earlier practices of constituting official commissions that looked at agriculture, flooding, and irrigation in silos and was the first “national commission” that looked at water from an integrated perspective.

2.3 Q METHODOLOGY

In order to triangulate data and offset some of the impacts of the pandemic on fieldwork,¹⁵ I decided to employ the Q methodology. A detailed explanation of Q methodology (also called Q Sorts Analysis) is provided in chapter seven along with details of how the study was conducted. However, a brief description of the methodology along with its benefits follows.

Q methodology is a systematic analysis of discourse that combines qualitative and quantitative methods. The aim is to investigate the subjective viewpoints of a group of people on a narrowly defined topic statistically. The participants in the study ought to be informed about the topic. They may have differing viewpoints, however, some homogeneity in their inclusion is requisite (Coogan & Herrington, 2011). In this research, Indian hydrocrats were included to discuss their perspectives on the governance of shared rivers with India’s northern riparians. The criteria for their inclusion were their professional experience working in a government department or ministry in the field of water or energy governance.

These participants were provided with a list of statements (called concourse), and they were asked to rank these statements onto a grid box from ‘-4’ to ‘+4’. There were eleven participants and each of these rankings is called a ‘Q sort’. These 11 Q sorts were put through factor analysis to reveal factors (or groups) of individuals who ranked the statements in a similar order. Factors then are a cluster of individuals with a similar perspective on the issue and who ranked statements in a similar order of preference. Each factor represents a type of opinion or a school of thought on the matter (Valenta & Wigger, 1997). Q Sort Analysis was conducted using

¹⁵ For instance, as a result of the lockdown that was imposed in the Kathmandu valley on 29 April 2021 due to the COVID-19 pandemic, plans to visit the SaptaKoshi-SunKoshi Joint Project Office in Biratnagar and the office of SJVN Arun-3 Power Development Company in Tumlingtar had to be aborted. Plans to re-visit New Delhi to triangulate findings from Nepal with further interviews also had to be cancelled due to the second wave of the pandemic in India.

online software (called Qmethodsoftware) and data was analysed on the same software and cross analysed on *KADE*.

CHAPTER 3: GEOGRAPHIES OF INDIA-NEPAL RELATIONS

This chapter provides an overview of the relations between India and Nepal, offering essential contextual information for comprehending the rest of this thesis. To keep it concise, I have endeavoured to summarise their complex and longstanding relationship by dividing this chapter into three sections: political geography, economic geography, and riparian geography. These different sections demonstrate that various actors in Nepal possess distinct interests; while Indian policymakers prioritize security concerns above all else, cultural as well as riparian considerations also come into play. The significance of China's role in India-Nepal relations is highlighted here alongside India's use of coercive economic diplomacy concerning Nepal. This study further unpacks case studies concerning both the Mahakali and Kosi basins before elucidating how India and China vie for control over water resources in a competition for influence over Nepal.

3.1 POLITICAL GEOGRAPHY

3.1.1. TREATY OF PEACE AND FRIENDSHIP

Sometime between 40 to 50 million years ago, the Indian tectonic plate in a northward push crashed into the Eurasian plate crumpling up the fringes of the plates and forming the mountains of the Himalayas. If one were to ask people in Nepal, locked between China and India, India's northward push continues to create commotion in Nepal. Nepal and India, the only two predominantly Hindu countries in the world, share a unique relationship.¹⁶ Not only is there a sense of shared religion and culture, but in a region otherwise very protective of territory and borders, the two share an open border.¹⁷ India-Nepal have a treaty-bound open border allowing for free trade, transport, and travel of its people. Nearly eight million Nepali citizens live and work in India and nearly 600,000 Indians live in Nepal (Govt of India, n.d.). This open border had been enforced in the 1950 Treaty of Peace and Friendship between the two countries. Under Articles VI and VII both the countries agreed to give the citizens of the other “national treatment with regard to participation in industrial and economic development” and “same privileges in the matter of residence, ownership of property, participation in trade and commerce, movement and other privileges of a similar nature” (MEA, 1950).

¹⁶ Some section of Nepali civil society rejects the assertion of a ‘unique’ relationship with India—claiming such an assertion of a ‘special’ or ‘unique’ relationship is used as a crutch by officials in New Delhi to have a domineering and assertive presence in Nepal—disrespecting Nepal's sovereignty.

¹⁷ Nepal and India have territorial disputes; however, these disputes have managed to co-exist with an open border with free movement of people.

The backdrop of India and Nepal signing this treaty signifies how much the bilateral relationship is fixated on national security. The treaty was signed in 1950, following the Chinese invasion of Tibet that spooked both India and Nepal. India, wary of China following the invasion, signed ‘Peace and Friendship Treaties’ with Bhutan in 1949, and with Nepal and Sikkim (then an independent Kingdom) in 1950. These treaties continue to bind their security with India. In 1949, India also signed a treaty that allowed the recruitment of Gorkha soldiers into the Indian Army—this was seen as the establishment of closer military ties. India then sent a military mission to Nepal to assist in reorganising the latter’s armed forces, established joint check-posts along the border, joint monitoring and patrolling the border by the Indian and Nepalese armies and sharing military intelligence (Thapliyal, 2003).

Nevertheless, there have been recent demands within Nepal to revisit the treaty owing to changes and new realities. There is unease within Nepal regarding Article Two of the treaty which states that both countries shall “inform each other of any serious friction or misunderstanding with any neighbouring State likely to cause any breach in the friendly relations subsisting between the two Governments” (MEA, 1950). Nepal’s political class has been seeking to annul such a provision since they consider this article void as India never informed Nepali leaders before going to war with China or Pakistan (Eyben, 2018; Kafle, 2018). According to reports, the Nepali political leadership believes such a provision and a lopsided practice of it undermines Nepali sovereignty.¹⁸ There is also discomfort with Articles six and seven of the Peace and Friendship Treaty that give citizens of the two countries reciprocal national treatment (without civil rights such as suffrage). The Nepali side is concerned that such a population asymmetry can overwhelm Nepal in terms of commerce and demography (Kafle, 2018). Nepal wants India to grant ‘national treatment’ privileges to the Nepali diaspora in India while not reciprocating the same to India (Kafle, 2018).

Under Article five of the treaty, the government of Nepal “shall be free to import, from or through the territory of India, arms, ammunition or warlike material and equipment necessary for the security of Nepal.” (MEA, 1950). Firstly, this article does not clarify whether importing from or through India is *an option* for Nepal or whether it is the *only option*. Past events such as the Indian exception to the 1989 arms import from China by Nepal suggest that it is the latter. This creates a *de facto* dependency. Secondly, a classified exchange of letters between

¹⁸ See for instance, Basu, N. (2021, January 16). Nepal wants India to revise the 1950 friendship treaty to reflect ‘new changes and realities.’ The Print. <https://theprint.in/diplomacy/nepal-wants-india-to-revise-the-1950-friendship-treaty-to-reflect-new-changes-and-realities/586741/>

the Prime Minister of India and Nepal that was made available in 1959, revealed that any arms or ammunitions imported into Nepal by the government of Nepal “shall be so imported with the assistance and agreement of the Government of India” (Bhasin, 2005). This is seen by the Nepali side as being unequal, undermining its sovereignty, and bringing Nepal under India’s security blanket—something seen as especially unacceptable since the treaty was signed by Mohan Shumsher Jung Bahadur Rana, an unelected, oligarchic Head of the State (Manhas & Sharma, 2014). Lastly, Nepal’s political leadership argues that Article Five is not followed by India since the latter took exception to it when in 1989 Nepal sought to import from China anti-aircraft guns and imposed a subsequent blockade (Kafle, 2018). In 2016 both sides decided to revisit the 1950 treaty under an ‘Eminent Persons’ Group’ (EPG). The group was tasked to look into the totality of India-Nepal relations with special reference to the 1950 treaty. According to news reports, the EPG recommended a revision of the treaty (Basu, 2021). However, neither the report has been adopted nor has any action been taken vis-à-vis the 1950 treaty.

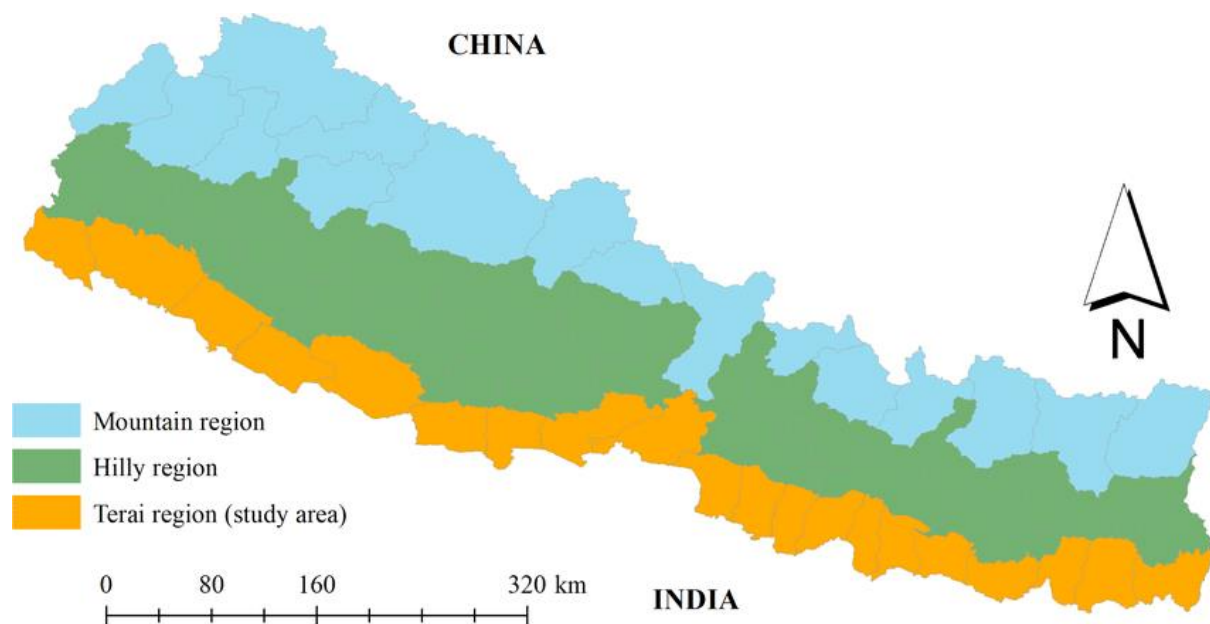
3.1.2 REGIONAL GEOPOLITICS IN INDIA-NEPAL RELATIONS

For policymakers in New Delhi, having a close relationship with Nepal is a matter of security, and as we shall see throughout this chapter, any perceived slight or attempts on the part of Nepal to move away from India economically or strategically, have resulted in a strong reaction from India. It is difficult to understand India-Nepal relations without understanding the regional geopolitics that affect this bilateral relationship. India sees Nepal as its exclusive sphere of influence and attempts by any third country to develop a presence in Nepal has resulted in resistance from India—be it the Western powers during the Cold War (more on that in the later sections) or China at any time since the mid-20th century. Speaking in the Indian Parliament, Indian Prime Minister Jawaharlal Nehru stated that “where the question of India’s security is concerned, we consider the Himalayan border as our border” (Mihaly 2002: 50). Parliamentary debates from the early 1950s reveal the extent to which Indian political leaders considered Nepal a buffer state. The importance of Nepal as a buffer increased following the annexation of Tibet by China in 1950-51. Quoting Mao as saying that “political power grows out of the barrel of the gun”, Mino Masani, an Indian parliamentarian in 1959 noted, “that gun has come across the Himalayas” (Lok Sabha, 1959: 1757).

The military importance of Nepal lay not so much in its mountains as in its valleys and the 20-mile-wide strip of flatland in southern Nepal called Terai (see Figure 3.1). There’s a fear among Indian policymakers that the presence of China in Nepal’s Terai region could be a grave

security threat to India (Mihaly 2002). A former official from the Ministry of Water Resources justified India’s anxieties over China’s presence in Nepal by saying that Nepal could be used by China to establish a military presence close to Indian borders from where short-range missiles or artillery could be lobbed inside India’s urban centres.¹⁹ The open border between India and Nepal also adds to the strategic importance of the region. There are concerns over the open border being used by terrorist organisations. A former Indian Ambassador to Nepal has stated that the Government of India is familiar with the presence of terrorists in the Terai (Rae, 2021). In December 1999 an Air India flight from Tribhuvan International Airport in Kathmandu to Indira Gandhi International Airport in Delhi was hijacked by terrorists believed to be part of a Pakistan-based terror group active in Kashmir called the “Harkat-ul-Mujahideen”. The hijacked flight was flown to several locations before being forced to land in Kandahar, Afghanistan. This exposed the security implications of having an open border with Nepal.

Figure 3.1. Geographic map of Nepal showing the Terai, Hilly and Mountain regions.



Source: Joshi, O., Parajuli, R., Kharel, G., Poudyal, N. C., & Taylor, E. (2018). Stakeholder opinions on scientific forest management policy implementation in Nepal. *PLoS one*, 13(9), e0203106.

China and Nepal established diplomatic relations on 1st August 1955 and signed a Treaty of Peace and Friendship in April 1960. Nepal constitutes an important neighbour for China since the former shares a 1,415 km border with Tibet. The fact that approximately 20,000 Tibetan

¹⁹ Personal communication, Indian official (retd.), Ministry of Water Resources, Govt of India, 04/10/2020

refugees reside in Nepal adds a strategic element to the China-Nepal bilateral relations. During the 2008 Tibetan uprising, Human Rights Watch reported that Nepal used excessive force to curb protests carried out by the Tibetan community in Nepal. The excessive use of force included “arbitrary arrest, sexual assault of women during arrest, arbitrary and preventive detention, beatings in detention, unlawful threats to deport Tibetans to China, and unnecessary restrictions on freedom of movement in the Kathmandu Valley” (HRW, 2008). The approximately 20,000 Tibetan refugees live in 12 designated camps in Kathmandu and Pokhara. Political pressure from China has often resulted in the mistreatment of Tibetan refugees in Nepal. Nepal has signed several security and intelligence-sharing agreements with China since the 2008 Tibetan uprising and has “operationalized border security cooperation; partially enforced a ban on Tibetan public demonstrations; implemented close monitoring of the Tibetan community, its leaders, and real or perceived activists; and deployed intimidating numbers of Nepali armed police in Tibetan neighbourhoods on politically sensitive dates, such as the anniversary of the Dalai Lama, International Human Rights Day (December 10), or high-level visits by Chinese dignitaries” (HRW, 2014: 01). Nepal also refuses to acknowledge the Tibetans who crossed the Sino-Nepal border after 1990 as refugees and since 1995 has refused to provide them refugee cards thereby prohibiting them from travelling, seeking a job or higher education (Giri, 2019). In May 2022 when a US official visited Tibetan refugee camps in Kathmandu, China expressed its displeasure and urged Nepal to follow its ‘one-China’ policy (Giri, 2022). According to some reports, it was the pressure from Western countries that stopped the Government of Nepal from signing an extradition treaty with China that would have specifically targeted the Tibetan refugees (Dahal & Budhathoki, 2021; Poudel, 2022).

There have been concerns within India about the proliferation of Chinese Study Centres along the India-Nepal border ostensibly to carry out religious (Buddhist) activities in a region with no proportionate Buddhist population (PTI, 2014). A news report quoted an Indian intelligence brief as saying that of the 22 Chinese Study Centres in Nepal, 11 are located along the India-Nepal border (PTI, 2014). China’s soft power influence is witnessed in the influential positions occupied by members of the ‘Arniko Society’—an “association of Nepalese professionals who studied in China” (Arniko Society, n.d.; Sahu, 2015). In 2017, Chinese tourists to Nepal numbered around 104,000—second only to India (160,000)—with the gap expected to narrow down even further (Roy Chowdhury, 2018). Despite sharing a long boundary, China-Nepal relations are hemmed by the forces of geography. The Nepal-Tibet border is mountainous with an average height of nearly 6,100 metres above sea level—making interactions, trade, or transit

difficult. Over 90 per cent of Nepal's border with China runs through snow and glaciers and of the world's 10 tallest mountains, eight mountains including Kangchenjunga and Mount Everest are located along the Nepal–Tibet border.

For New Delhi, the greater closeness between China and Nepal is a worrying trend. Indian policymakers may fear that should Nepal fail to repay any project loans borrowed from China under the Belt and Road Initiative, Nepal may have to hand over the project (along with its operations) to the Government of China just like Sri Lanka had to hand over its Hambantota port to China.²⁰ According to some scholars, Nepal's foreign policy strategy of balancing Indian influence using China (and other external players like the US, and Pakistan) started in earnest when King Mahendra was anointed in 1955 (Muni, 2015). Following pressure from India to restore democracy (which was dismissed in 1960), King Mahendra encouraged China and Pakistan to cement their presence to offset Indian influence (Muni, 2015). The King allowed Chinese traders and government officials access to the Terai region near the India–Nepal border and allowed China to build a highway connecting Kathmandu to Kodari close to the Chinese border (Muni, 2015). The strategy to use China to ward off Indian pressure was used by King Mahendra's successors as well (Sahu, 2015).

3.1.3 DOMESTICS ACTORS AND THEIR INTERESTS IN INDIA-NEPAL RELATIONS

Within India, there are varying actors with distinct interests in Nepal. Following Nepal's transition from the Hindu Kingdom to a secular state and the dissolution of the monarchy in 2008, some actors in India expressed their displeasure. Yogi Adityanath, who was the Head Priest of Gorakhnath Temple in Gorakhpur—a town in Uttar Pradesh, close to Nepal's border—expressed his unhappiness over the ceding of the Nepalese Monarchy, widely unpopular in Nepal, and being replaced by multiparty democracy with Maoist shedding arms and joining electoral politics. The head priest, known for his rabble-rousing and who went on to become the Chief Minister of India's biggest and most populous state—was upset over Nepal adopting a secular constitution, shedding its past as the world's only “Hindu Kingdom” (Jha 2014: 111-114).

The monarchy had other sympathisers in India—the *Shankaracharya* (heads of Hindu monasteries), the Rashtriya Swayamsevak Sangh (RSS), and the Vishwa Hindu Parishad

²⁰ As of July 2022, BRI projects in Nepal have not taken off owing to continued negotiations and Nepal's insistence of lower interest rates on loans, preference for grants over loans, and pressing for competitive bids instead of preference for Chinese firms (Giri, 2022).

(VHS), all saw the monarchy as a bastion of Hinduism against growing secularism (Jha, 2014; Muni, 2015). The RSS and VHS are right-wing socio-political organisations that have seen a rise in influence corresponding with the rise of the Bharatiya Janata Party since the mid-1990s. The monarch had often courted India's right-wing polity, especially the RSS (Narayan, 1970). For the RSS, the Nepali King was a Hindu mascot and was often invited to address large gatherings of the *Swayamsevaks* (volunteers) (Narayan, 1970). There are also connections between erstwhile Kings and Monarchs of India's old princely states (like Gwalior, Kashmir, Rajasthan, Pratapgarh, etc) and the Nepali monarchy. These connections are through matrimonial and familial ties (ibid). However, with the dissolution of the monarchy in Nepal, these relations do not enjoy the importance they once did in Indian policymaking.

Then there are bordering states in India—Uttar Pradesh, Bihar, West Bengal, Sikkim—that have their interests in Nepal and have often made a considerable impact on India's Nepal relations. Bihar's interest in building a dam on the Kosi to manage floods drives the Government of India's policy of transboundary water governance with Nepal (Muni, 2015). This is both a contemporary and a historical reality since the Kosi barrage was constructed—despite hesitation within Indian hydrocracy—following a devastating flood in Bihar in 1954 as a way to address domestic pressure (Verghese, 1990). The Madhesi community in Southern Nepal have cultural, linguistic, and religious ties with north Indian states like Bihar and Uttar Pradesh. This is due to historical migration within this region. The flat terrain of the region may have added to the ease of migration. People of the Madhesi region and northern India also have family ties in Bihar, and Uttar Pradesh among other states and these have often impacted Indian policies in Nepal.²¹ Within the government various ministries have their perspectives and interests in Nepal, be it the Ministry of Commerce, Water Resources, Defence or the Home Ministry (Muni, 2015). Nevertheless, the demands and perspectives of these Ministries are coordinated by the Ministry of External Affairs (ibid). There are other institutions as well that have a strong interest in Nepal. The Indian Army, for instance, has a direct relationship with Nepalese security forces since there are a significant number of Gurkha soldiers who serve in the Indian Army (Jha, 2014). There's a tradition of Indian and Nepali armies bestowing the Army General of each other's nation with an honorary rank of a General in their Army that has

²¹ The government of India has been active in supporting the Madhesi community in gaining representation in Nepal's political system. The 2015 blockade, allegedly enforced by the Indian government, was in support of the Madhesi uprising against the new constitution that negatively impacted representation of the people of Terai.

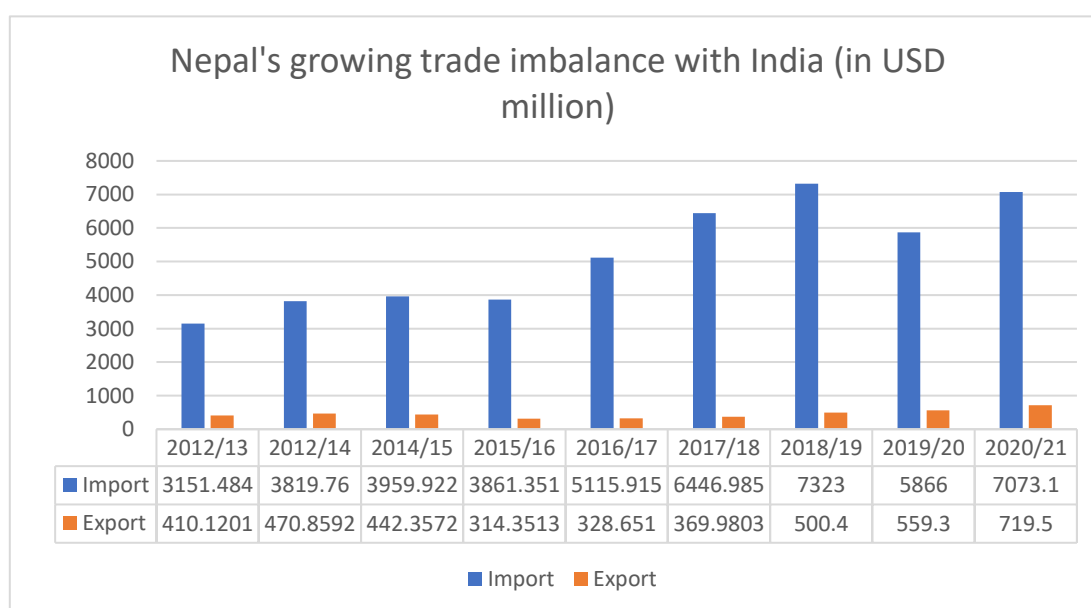
been ongoing since the 1950s. Much like the Indian Army, India’s intelligence agencies too do not need to go through the MEA to put their point across in Nepal (Muni, 2015).

3.2 ECONOMIC GEOGRAPHY

3.2.1 GEOECONOMICS OF INDIA’S DEVELOPMENT COOPERATION

India is Nepal’s largest trade partner (as of 2022) with Indian exports to Nepal growing eight-fold between 2012-22 while Nepali exports to India have almost doubled in the same period (MEA, 2022). Due to the geography of India and Nepal, the former provides transit for almost the entire third-country trade of Nepal. Exports from India are equivalent to 22 per cent of Nepal’s GDP with the bulk of these exports consisting of petroleum products, iron and steel, cereals, automobiles and spare parts, machinery, telecommunication equipment etc. (Embassy of Nepal, n.d.). Nepal’s exports to India include soyabean oil, spices, jute fibre & products, synthetic yarn, and tea. Indian enterprises are also among the largest investors in Nepal with more than 33 per cent of the FDI stock in Nepal coming from Indian firms and the value is USD 500 million (MEA, 2022). The lopsided trade relationship is a matter of concern for Nepal since the trade deficit continues to widen (see Table 3.1). The eight-fold increase in imports from India largely consists of energy imports (petrol, petroleum products, natural gas, etc.), iron and steel (World Bank, n.d.).

Table 3.1: Nepal's growing trade imbalance with India (in USD million)



Source: Ministry of Foreign Affairs, Government of Nepal and Embassy of Nepal, New Delhi.

Along with being Nepal's largest trade partner, India has also been active in development cooperation with Nepal. India's development cooperation with Nepal started after the fall of the Rana regime in 1951 and the ascent of the monarchy. Following the overthrow of the Rana regime in 1951, the newly democratic government viewed economic development as a priority and requested aid from India. Indian assistance initially focussed on administrative reforms, communications, and connectivity, building the Gauchar Airport and the Tribhuvan Highway. In the 1950s, Indian assistance to Nepal had been primarily over three sectors: managing shared rivers, increasing connectivity, and capacity building (Sahu, 2015). One of the earliest Indian development programmes was sending political and administrative advisors to Nepal following the end of the Rana regime. In 1953, Indian Military Engineering Services started the construction of an 80-mile-long highway called the Tribhuvan Rajpath. This highway connected Thankot near Kathmandu valley to Bhainse Lotan near the Indian border. Completed in 1957, this highway went on to increase the flow of people and goods between countries. However, the Tribhuvan Rajpath could also allow quick mobilisation of the Indian Army into Kathmandu in case of an emergency (Thapliyal, 1998). Indian projects during this time had a strong security linkage with most of the development assistance directed toward strategic sectors—for instance, the building of highways, airfields, and communication networks. They were as much of trade and military value to India as of economic value to Nepal (Mihaly, 2002). Between 1951 and 1972, almost 53% of Indian aid of Rs. 902 million to Nepal was spent on building roads (Vohra, 1980 cited in Mukherjee, 2015). However, New Delhi showed interest only in building roads that connected Nepal with the Indian border as opposed to building roads that were most important to Nepal, connecting Nepal with Tibet, or improving domestic connectivity, for instance (Mihaly, 1965). New Delhi often matched Chinese and American aid to keep external players away from key sectors that it saw as strategic in nature and infringing upon its sphere of influence in Nepal (Mukherjee, 2015).

In 1954, India established the Indian Aid Mission in Nepal and granted USD 1.2 million for irrigation and drinking water projects. This can be seen as the beginning of economic assistance without outright military value. Under the Colombo Plan, a multilateral agreement with a bilateral aid programme, India extended technical assistance to Nepal in fields ranging from engineering, forestry, agriculture, power, finance, and administration. In the 1960s, India expanded its aid to the social sector and built irrigation channels, drinking water facilities, and invested in education (Mihaly, 2002).

Indian assistance to Nepal was not only directed at checking China's influence in Nepal but also to balance the influence of Western powers like the United States. Nepal signed its first aid agreement with the United States under the four-point agreement for technical cooperation in January 1951. This was four years after both countries established diplomatic relations. The signing of this agreement was met with disappointment in New Delhi since Indo-US relations were tense at the time (Khadka, 1997). Indian policymakers were especially keen on keeping Nepal dependent on India around this time since the newly communist China posed a threat to the subcontinent following its invasion of Tibet in late October 1950 (Khadka, 1997). During this time, American aid was focused on agriculture, rural development, and infrastructure. The United States feared that rural Nepal, with its unequal landholdings, was ripe for communist influence (Mihaly, 2002). American aid was motivated by the fear of communist China's influence in Nepal and through Nepal to the plains of Northern India (Khadka, 1997). During the 1960s, the US expanded its aid to education and health. Nepal was also pursued by the USSR using aid and assistance programmes. Some of the other major donors during the time were Switzerland, New Zealand, Israel, West Germany, Japan, and Australia, the various agencies of the UN, and the Ford Foundation.

Statistics of aid provided by major donors to Nepal between 1960-90 reveal that Indian aid was positively and significantly correlated to aid from China as well as the UK and the US but negatively correlated to aid from the Soviet Union (Khadka, 1997: 1051-52). India was suspicious not only of China but also of the Western powers. Interestingly, Khadka (1997) mentions that one of the possible reasons US aid to Nepal saw a relative decline was because the UK increased its foreign aid to Nepal—showing congruence of ideology and the objectives of disbursing aid between the US and the UK. Aid levels of China and India in Nepal rose and fell in tandem, and about 54 per cent of the Indian aid level can be explained as a response to Chinese aid. This correlation goes both ways with Chinese aid also influenced by Indian aid and positively correlated with British and American aid—whenever Western powers provided more aid to Nepal, Beijing followed suit. The suspension of Soviet aid to Nepal in 1973 and the Sino-American rapprochement in 1972 explain the relative decline of American aid levels to Nepal.

The motivations of Indian assistance to Nepal in the recent past can be understood from the fact that the bulk of Indian developmental projects are concentrated in the Terai region which has geographical contiguity with India with high-value aid projects like road construction going

to this region while smaller projects like education projects, drinking water facilities concentrated in the hilly regions (Adhikari, 2014). Terai is a region that has Nepali citizens with Indian roots and shared culture with North Indian states like Bihar, Uttar Pradesh, and West Bengal. Various Nepali scholars accuse New Delhi of trying to use the Madhesi community living in Terai as a pro-India constituency (Adhikari, 2014; Gyawali, 2015; S. Pokharel, 2015). Even the mid-hills region of Nepal which accommodates over 100,000 retired Gurkha soldiers (a large share of whom served in the Indian Army) sees significant aid projects while the country's poorest regions of the far west and mid-western hills do not see many Indian investments (Adhikari, 2014). India's village development efforts are concentrated in the Terai region and three valleys: the Patan valley, the second largest town in Kathmandu valley and the stronghold of the Nepali Communist Party; Pokhara valley, the northernmost of all the valleys and site of an airstrip; and Palungtar, through which winds the Tribhuvan Rajpath (Mihaly, 2002).

3.2.1 INDIA'S COERCIVE BLOCKADES

Governments and policymakers in New Delhi have been hawkish when it comes to India's security interests in Nepal and have employed coercive economic diplomacy (mainly blockades) whenever it felt its interests were being compromised by the actions of Nepali leaders. These actions have often targeted Nepal's dependence on India for trade and commerce of essential commodities. In 1989, when Nepal's 'panchayat system' of government was on shaky grounds and student protests rocked Nepal, India enforced a blockade that crippled normal life in Nepal. The blockade meant India cutting off fuel supplies to Nepal and causing immense energy insecurity (Bhattarai, 2015; Crossette, 1989). The government of Nepal scrambled to access fuel supplies from Tibet and Bangladesh and distributed firewood and electric cookers to offset the absence of fuel. The blockade led to food inflation as well. The disruption started when the existing trade treaty lapsed and negotiations over a new treaty failed. Nepal insisted on delinking trade and transit rights while India insisted on coupling them (Crossette, 1989). It is widely believed that the blockade was due to unease within the government of India over Nepal's decision to buy Chinese anti-aircraft guns the previous year and the presence of Chinese contractors working on an aid project in the Terai region close to Indian borders (Crossette, 1989; Muni, 2015). Indian officials were also concerned over Nepal infringing on the 1950 Peace and Friendship Treaty and not reciprocating the privileges given to Nepali citizens in India by introducing work permits to Indians in Nepal and levying tariffs on Indian goods in Nepali markets (Crossette, 1989). Around the same time, the underground

political parties that were banned by the King came together and launched a *Jan Andolan* (People's Movement) to reinstate multi-party democracy. After a crackdown on protestors, the King eventually relented and lifted the ban on political parties and conceded to parliamentary elections and a new constitution (Thapa, 2013).

More recently, the Indian government was accused of a similar blockade immediately following the devastating earthquake in 2015 that left 9,000 Nepali dead. India was accused by Nepal of enforcing a blockade at the border that led to a shortage of essential commodities like medicines, fuel, and cooking gas in Nepal (K. Pokharel, 2015). As a result of the blockade and shortage of fuel, there were instances of illegal logging of community forests in Nepal, and power cuts ranging from eight to 12 hours (Acharya et al., 2015). Hospitals reported that they were running low on medicines and reconstruction efforts were severely curtailed (Acharya et al., 2015). The blockade was acutely felt since the entire country was recovering from the earthquake. Around this time, Nepal had promulgated a new Constitution and people from the Terai—the Madhesi—protested against their concerns not being addressed and being reduced to second-class citizens. The Madhesi demands included proportional representation in Nepali politics, redrawing of provincial boundaries so as not to decrease their political representation, emphasis on federalism wherein power is decentralised, and amendment of Article 11(6) of the constitution that does not provide *automatic* (emphasis added) citizenship to any “foreign woman who has a matrimonial relationship with a citizen of Nepal”.²² Nepal accused India of encouraging the Madhesi protestors and coercing Nepalese policymakers with this blockade (S. Pokharel, 2015). There's a sense among Nepali elites that Indian policymakers use the close ties between the people of Terai and northern Indian states to influence policies in Nepal. Officials in the Indian government claimed no role in the blockade and asserted that the blockade was a result of internal tensions in Nepal, leading to fear among Indian transport workers (truck drivers) entering Nepal (Rae, 2021). Nevertheless, Indian displeasure over Madhesi's concerns not being addressed by the Nepalese elite and statements issued by India's Ministry of External Affairs further raised suspicions (Ojha, 2015). A news report from the Indian Express stated that the Government of India communicated a list of seven amendments to the constitution to the Government of Nepal in order to assuage the concerns of the Madhesi community (Roy, 2015). This news report was rejected by the Ministry of External Affairs. However, the newspaper stood by the claims. Following the protests and the blockade, the

²² The argument against such a provision is that it is discriminatory on the basis on gender and treats women as second-class citizens (Allison, 2017)

ruling government in Nepal decided to introduce an amendment to the constitution that met some of the demands of the Madhesi community. The amendments included provisions for proportional representation and ensuring electoral constituencies based on population.

During the 2015 blockade, China tried to offset the fuel shortage by signing an MoU that sought to provide fuel to Nepal. The state-owned Nepal Oil Corporation sought to end the Indian Oil Corporation's monopoly in Nepal by signing the MoU with the state-owned PetroChina (Kathmandu Post, 2015). China also provided 1.2 million litres of fuel to Nepal on a grant. During the 1989 blockade, China sought to extend a fuel pipeline from Tibet to Central Nepal to end Nepal's dependence on India (Bhattarai, 2015). Nepal and China signed a deal that offered the former access to seven sea and land ports in China for trade along with rail and road connectivity projects. However, attempts to wean away from India for energy security and diversify trade did not amount to much due to the difficult terrain of the China-Nepal border and the lack of physical infrastructure (Shrestha, 2021). Nevertheless, images of Chinese trucks entering Nepal carrying fuel supplies were enough to cause distress among policymakers in India (Rae, 2021). The transit treaty, and the subsequent China-Nepal joint military exercise on counter-terrorism and disaster management in 2017 convinced sections of Indian policymakers that the blockade pushed Nepal further into China's camp (Rae, 2021).

3.3 RIPARIAN GEOGRAPHY

3.3.1 CENTRALITY OF HIMALAYAN RIVERS

Nepal's water resources play a central role in northern India's water, food, and economic security. The runoff of the Himalayan rivers flowing from Nepal into India amounts to 46 per cent of the flow of the Ganga (Dhungel, 2009). During the lean season, this increases to 71 per cent. These rivers are essential to sustaining lives and livelihoods in the Ganga Plain. Cooperation over these rivers dates back to British India when the British Government wrote to Nepali Prime Minister Maharaja Jung Bahadur Rana in 1874 about three *sagars* (ponds) located along the India-Nepal border (Dhungel, 2009). In 1920, Nepal and British India signed a treaty to build a barrage on the Mahakali (Sarada) River. This barrage would provide water for irrigation in the United Provinces. Under the treaty, it was agreed that Nepal would transfer 4000 acres of the eastern banks of the Mahakali to India to build the Sarada barrage. In exchange, Nepal would receive 4000 acres of forested land from British India, 50 thousand rupees as well as water for irrigation from the Sarada canal (Tabassum & Idris, 2004). In August 1947, India gained independence and in February 1951—following an armed rebellion under

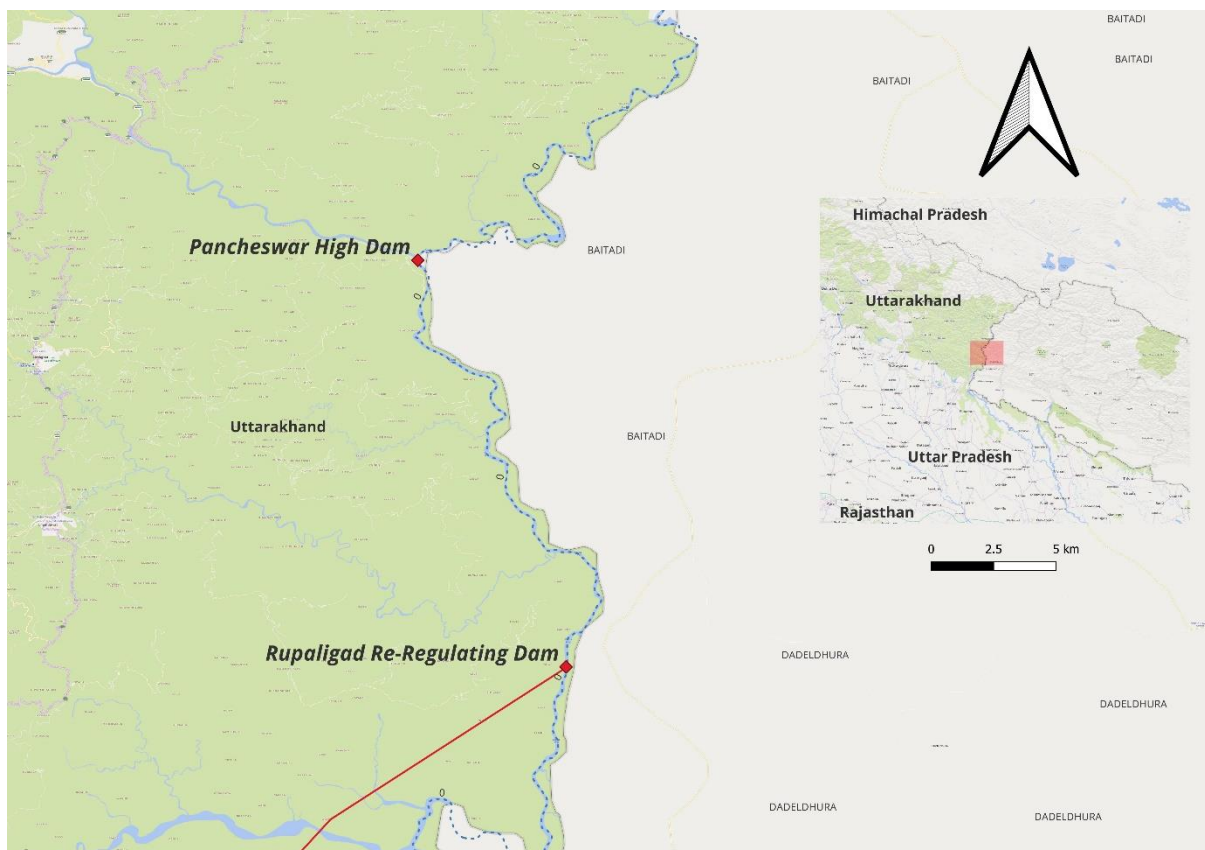
the leadership of the Nepali Congress and support from the monarchy—the oligarchic Rana rulers were overthrown. The newly formed governments of Nepal and India signed the Kosi (1954) and Gandak (1959) treaties. However, both treaties had to be amended following popular protests within Nepal (Dhungel, 2009). The Kosi treaty was signed to build the Kosi barrage to control the flood peaks of the river. Despite reservations around the time on the efficacy of a barrage in managing flood peaks, the government of India pressed ahead with the barrage due to domestic pressure to act following a devastating flood in 1954 (Dhungel, 2009; Verghese, 1990). The Gandak Treaty signed between the government of Nepal and India in 1959, permitted the latter to build a barrage on the Gandak River for irrigation in Nepal and India and the construction of a powerhouse for the supply of hydroelectric power to Nepal. During the construction of the Kosi barrage, concerns over the disproportionate benefits of the project going to India emerged (Dhungel, 2009). There was increasing disenchantment among the people of Nepal regarding the treaties and the government of Nepal took up the matter with India and the latter agreed to amendments to assuage Nepali concerns regarding sovereignty and Nepal’s riparian rights (Dhungel, 2009). Nevertheless, there’s a persistent perception among Nepali elites in the government and bureaucracy as well as among the citizens that Nepal was outfoxed by India during treaty negotiations. Perhaps as a result of the lasting suspicion of the Kosi and Gandak treaties, both countries failed to sign any more agreements on shared rivers until 1996 when the two governments signed the Mahakali treaty. It is pertinent to contextualise the Mahakali treaty since it is used as a case study in this research.

3.3.2 THE MAHAKALI AGREEMENT

The Mahakali Agreement of 1996 is intended for the development of the Sarada and Tanakpur barrage along with the building of the Pancheshwar Multipurpose Project (PMP). The Mahakali River—called Kali Ganga in Uttarakhand and Sarada further downstream—constitutes Nepal’s western border with India. The river flows through the Indian state of Uttarakhand before entering Uttar Pradesh flows in the southeast direction and joins the Ghagra River—a tributary of the Ganges. The exact source of the river is a matter of bitter contention between the two countries, with India claiming that the river originates in the Kalapani region at an elevation of about 7,820 metres and is part of Uttarakhand’s Pithoragarh district. In contrast, Nepal asserts that the river originates either in Limpiyadhura (15 km from Kalapani) or in Lipulekh and is part of its Dharchula district (Jha, 2020; Rising Nepal, 2020; Shukla, 2019). Both countries also claim the strategic tri-junction of Kalapani, where Indian, Nepali, and Tibetan (Chinese) borders meet, as their own, and this also resulted in a diplomatic standoff (Nayak, 2020). In

June 2020, the Nepali Parliament passed an amendment promulgating a new map of the country featuring areas of Lipulekh, Kalapani and Limpiyadhura in the Constitution of Nepal. Following diplomatic furore, in April 2022, on a visit to India, the Nepali Prime Minister urged his Indian counterpart to address the boundary dispute through diplomacy and by setting up a bilateral mechanism (PTI, 2022).

Figure 3.2. Location of the Pancheshwar High Dam and the Rupaligad re-regulating dam along with the segment of the Sharda-Yamuna River linking them

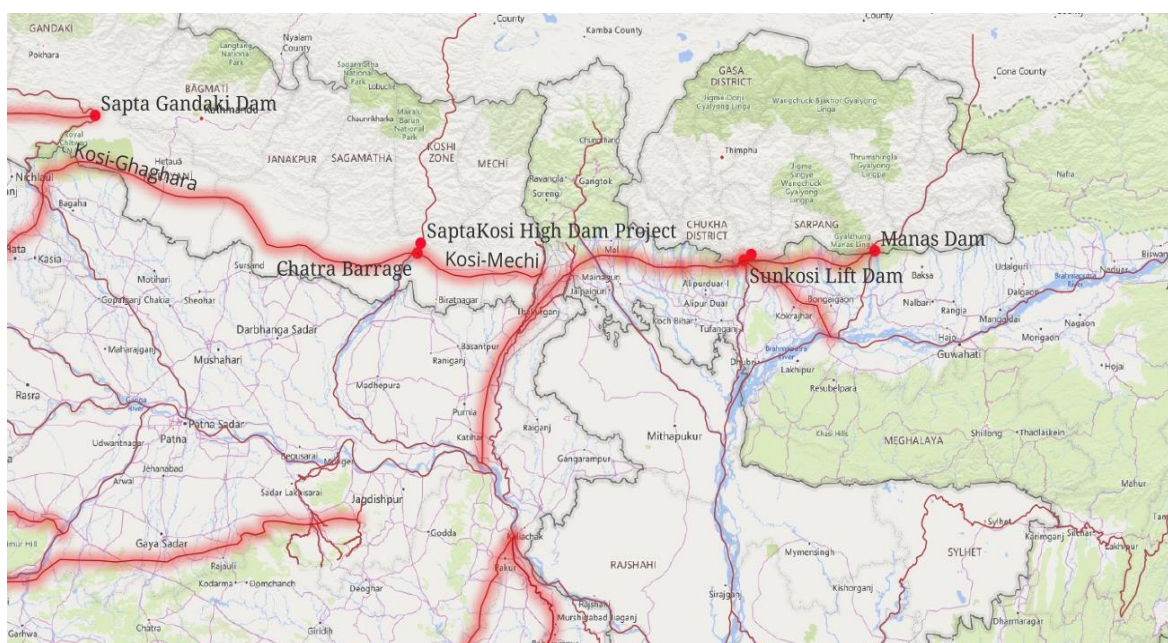


Source: Created by the author using geospatial data from Higgins et al. (2018)

The Pancheshwar project is envisioned as a rockfill dam near the Pancheshwar temple in Uttarakhand, India, 2.5 km downstream of the confluence of the river Sarju with Mahakali and about 70 km upstream of Tanakpur town (India). The purpose of the dam according to Indian officials is to store the monsoon precipitation in reservoirs upstream for using it during the lean season and divert it to regions that are facing water scarcity. The water stored in the Pancheshwar reservoir will be used in the dry season via the Sarada Canal System. The project aims to irrigate an additional 93,000 hectares of land in Nepal and 259,390 hectares of land in India (WAPCOS, 2017). The project is also designed to be an important element in the

Yamuna-Sharda link that envisions transferring the ‘surplus water’ to deficit rivers to ensure water security (see Fig. 2). The dam’s height is purported to be 315 metres tall from the deepest foundation level and forms about 80 km long reservoir—making it the tallest dam in the world when built. The reservoir’s surface area is designed to be 116 km² with a gross storage volume of about 11.35 BCM (Billion Cubic Metres). A re-regulating dam is proposed downstream to even out the main dam releases to achieve continuous river flow conditions. The total electricity generation capacity of the project is said to be 5040 MW with an annual capacity of 9116 GWh (WAPCOS, 2017).

Figure 3.3. Location of the SKSK project and Koshi-Ghagra River linking segment



Source: Created by the author using geospatial data from Higgins et al. (2018)

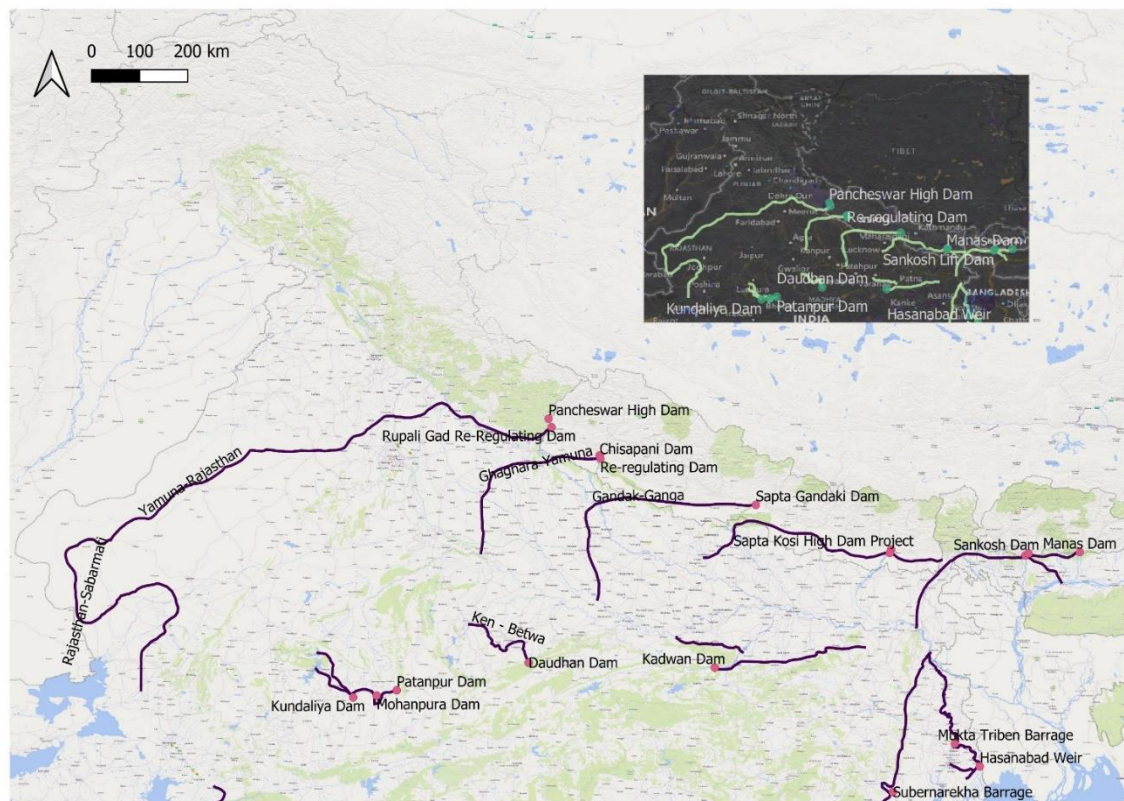
3.3.3 THE SAPTAKOSI-SUNKOSI PROJECT

The Saptakosi-SunKosi (SKSK) project has been on the anvil after the 2008 floods in Bihar. In 2008, floods on the river Kosi broke embankments and inundated large parts of Bihar, and to a lesser extent Nepal. It is estimated that around 3 million people were displaced (IBN, 2008). Since the floods, successive governments have turned to a ‘high dam’ to answer flood control. The SKSK project is promoted by the state as an instrument to capture flood peaks and regulate water flow in the basin. This assertion has been met with staunch criticism from civil society groups that suggest that instead of trying to tame the river, the Kosi plain should be treated as a flood plain, and the river should be allowed to run without restraint during the

monsoon, instead of locking it in embankments and trying to control the natural flow of the river (Dixit, 2020; Mishra et al., 2008). Nevertheless, successive governments in India managed to push the project ahead, with both countries investigating the project as of Jan 2021. According to the preliminary findings from the Joint Project Office (JPO) in Nepal's Biratnagar, the SaptaKosi High Dam is proposed to be constructed on river Kosi in the Dhankuta District of Nepal around 60 km upstream of the India-Nepal border. The SaptaKosi high dam will have a height of 269 metres and a capacity to generate 3,300 MW of electricity at a 50% load factor²³ (MoEWRI, n.d.). While the dam and appurtenant structures are to be constructed within Nepal, the canal network will extend into India for irrigation in around 13 districts of Bihar (JPO-SKSKI, 2015). Even while investigations are underway, there are already disagreements on the irrigation capacity of the project. Data available from Nepal's Department of Electricity Development website claims that the SaptaKosi high dam would irrigate 0.54 million hectares of land in Nepal and 1.05 million hectares of land in India. In contrast, a 2015 letter from an Indian official at the Joint Project Office (JPO) in Biratnagar claimed that the project would irrigate 0.77 million hectares of land in India (JPO-SKSKI, 2015; MoEWRI, n.d.). The Sun Kosi storage-cum-diversion scheme, including the dam, appurtenant structures, and canal network, lies in Nepal (JPO-SKSKI, 2015). The projects (Pancheshwar and SKSK) are also a lynchpin for the proposed interlinking of Indian rivers. The Pancheshwar will link Mahakali with the Yamuna, and the SKSK will link Kosi with Ghagra (see Figures 3.3 and 3.4).

²³ Load factor in electricity generation refers to the ratio or percentage of actual electricity generation over a period of time against the maximum generation capability. Here the SKSK project could produce 3,300 MW at 50% load factor. Factors such as dry (winter) season, maintaining environmental flows, downstream uses, etc. may inhibit utilizing the project at maximum capacity.

Figure 3.4. Himalayan component of the interlinking of Indian rivers with storage reservoirs in Nepal and India



Source: Created by the author using geospatial data from Higgins et al. (2018)

3.3.4 NEPAL'S WATER RESOURCES AS A BATTLEGROUND FOR REGIONAL RIVALRIES

When it comes to the water resources sector, China has been trying to entrench itself in Nepal. It is Nepal's largest source of FDI with most of the investment going to the construction of hydropower plants. In late 2016 and early 2017, two Chinese-supported hydropower projects began generating power. The Upper Marsyangdi A and Upper Madi projects have a combined capacity of 75 MW, with the former constructed by Sino Hydro Resources Ltd., owned by the Government of China; while the latter was constructed by China International Water and Electric Co., a subsidiary of China Three Gorges Corporation. China has been making inroads into Nepal's strategic sectors including telecommunication, roadways, railways, airports, and hydropower.

However, China's arrival in Nepal's water resources sector did not go unchallenged. The 1200 MW Budhi Gandaki project—Nepal's first reservoir-type hydropower project—was rescinded

from China's Gezhouba Group Corporation (GGC) twice. The GCC was awarded the contract for Budhi Gandaki in 2017 by the Pusha Kamal Dahal-led government in May 2017 amid controversy since it was awarded without competitive bidding. In November 2017, the Sher Bahadur Deuba government cancelled the contract. Nevertheless, the succeeding Prime Minister (re)awarded the contract back to GCC. In 2022, after having returned to power, the Sher Bahadur Deuba-led government, citing irregularities, scrapped the contract and announced that the Budhi Gandaki project would be developed domestically by the Nepal Electricity Authority (NEA). Another interesting case of geopolitical rivalry permeating into Nepal's water resources sector is the West Seti project that was initially awarded to the China Three Gorges Company (CTGC) in 2011. However, CTGC failed to get the project off the ground due to stalled negotiations with the Nepal Electricity Authority and the contract was scrapped in 2018. In 2022, the 750 MW project was awarded to India's NHPC Ltd. Prime Minister Sher Bahadur Deuba is recorded to have said that since "India does not buy electricity produced by China" or "electricity generated from the projects built by Chinese companies" an "Indian company had to be brought in" to build the dam (MyRepublica, 2022).

Currently, India is constructing two 900 MW run-of-the-river type dams—the Arun-III and the Upper Karnali. These have been a major addition to Nepal's hydroelectricity sector by India since 1984 when the 14 MW Devighat hydropower project on the Trisuli River was commissioned on an Indian grant. The Devighat plant came almost two decades after India's first demonstration of hydropower aid in 1967. Arun-III has proven to be one of the most contested and controversial projects in Nepal and has "generated more heat than hydropower" (Rest, 2012: 105). It was originally designed in the 1980s as a 402 MW run-of-the-river project and was seen as an answer to Nepal's energy shortfall and was backed by seven international donors²⁴, including the World Bank, and an enthusiastic Nepalese Government (Mahat, 2019). However, after the re-establishment of the multi-party democracy in Nepal and the rising influence of civil society, the project came under immense scrutiny. After a popular uprising and organised protests by NGOs like the 'Alliance for Energy' and 'Arun Concerned Group', the project was finally withdrawn in 1995 by the World Bank (Mahat, 2019). The withdrawal of the World Bank from the project was seen as the end of the dam-building era of the 20th century and the success of resistance movements (Saklani, 2021). However, the project received a new lease of life when the Government of Nepal floated a tender for a Build-Own-

²⁴ The financial contributions were as follows: World Bank (\$175 million), ADB (\$127 million), Germany (\$125.4 million), Japan (\$150 million), and France, Switzerland, and Finland (\$ 46 million).

Operate-Transfer licence in 2014. Under such a license, a private developer is given the rights to design, finance, construct, and operate the project for a specified time. During this time, the private sector developer is allowed to collect revenue generated by the project, and following the end of this period, the project is handed over to a public sector organisation. A memorandum of understanding was signed with an Indian public firm, the SAPDC—a subsidiary company of Satluj Jal Vidyut Nigam (SJVN) Ltd—granting the latter 79.1% of the generated electricity for a period of 30 years before the structure would be handed over to the Government of Nepal. The revival of the Arun-3 project marks the comeback of dams in the global energy infrastructure arena.

The Upper Karnali Hydropower Project was awarded to GMR group—a private Indian firm—under the Build-Own-Operate-Transfer licence. The Upper Karnali project will provide electricity to India, Nepal, and Bangladesh. A power-sharing agreement was signed in 2019 (Poudel, 2019). The Nepalese Government will receive 27% equity in the project, 12% of free power from the total power generated, while 56% will be sold to Bangladesh and the remainder of 32% to India. The project is proposed to be funded by the Asian Development Bank (ABD), Asian Infrastructure Investment Bank (AIIB), JICA, CDC, and Nepal Investment Bank (NIBL) (NS Energy, n.d.). However, due to financial difficulties faced by GMR, the project is in limbo as of July 2022. SJVN has also won the tender to build the 679 MW Lower Arun Electric Hydel Project and has signed an MoU to develop a 490 MW dam—the Arun-4—jointly with the Nepal Electricity Authority.

3.4 CONCLUSION

This chapter attempted to provide a background of the India-Nepal relationship using different elements of geography (political, economic, and riparian) for a better understanding of this thesis. How the regional geopolitics and the bilateral relations of India and Nepal affect the governance of transboundary rivers will be explored in the coming chapters. We have seen how regional geopolitics play out in Nepal's water resources sector, and how different actors and institutions in India have their distinct views and interests in Nepal. Sections 2.3.2 and 2.3.3. introduce the case studies in detail. We have seen how India is protective of its security interests in Nepal and how it has used coercive geoeconomics to achieve its foreign policy goals. India's foreign policy elite comprising the Cabinet Committee on Security, the National Security Council, the intelligence agencies, armed forces, and the external affairs ministry, has not used coercive physical power, it has used coercive economics whenever it felt its interests were

threatened. India has historically competed with China over influence in Nepal and this rivalry has often been witnessed in the water resources sector. As a former Managing Director of the NEA stated, India-China rivalry has historically been a reaction to the other's actions—India's Terai-Kathmandu Road (Tribhuvan Rajpath) competed with China's Kathmandu-Kodari Road (Arniko Rajmarga); India's Sunauli-Pokhara road (Siddhartha Rajmarga) competed with China's Kathmandu-Pokhara Road (Prithwi Rajmarga), and India's 18 MW Trishuli Hydropower rivalled China's 10 MW Sunkosi Hydropower project. In the water resources sector, Nepal's leverage over India is limited since India is the only viable market for any surplus electricity that it produces. In recent years, Bangladesh has emerged as a willing market for Nepali hydroelectricity, however, this too requires Indian acquiescence. As we will see in the coming chapters, Indian hydrocrats, and foreign policymakers have used this de facto dependency to strengthen India's influence in Nepal. The crucial water resources flowing from Nepal into India have been securitised by these hydrocrats using their agency.

CHAPTER 4: ANALYTICAL FRAMEWORK

Armed with an interview guide exploring the barriers to mutually beneficial cooperation on water resources between Nepal and India, I reached the home of a retired Engineer in New Delhi who served as a member of the team that negotiated and concluded the 1996 Mahakali treaty between the two countries. However, a few questions into the interview, the conversation turned to matters of national security and the role of transboundary rivers in ensuring India's environmental and economic security. The engineer justified the continuous attempts of India's hydrocracy to work with Nepali counterparts—despite delays and mistrust—by stating that India cannot avoid working with Nepal. Not because the rivers are essential to the sustenance of people in India (which they are), but if India draws away from cooperation with Nepal on its rivers, it would be the perfect opportunity for China to build its presence in Nepal—close to Indian borders where it can build a [military] base. “China will come and sit on your border close to Gorakhpur, and then they can launch missiles,” the engineer added.

In my interviews with Indian hydrocrats, it became evident that national security concerns were strongly imprinted in their minds. They saw themselves, and their ‘hydraulic mission’ (especially when this mission was manifest outside of Indian borders), as a tool not only to dam rivers and utilize the flowing rivers to generate energy, and provide water to parched parts of the country, but also to further the agenda of national security and offset threats posed by whom they see as a threat. These hydrocrats see themselves working seamlessly with the ‘national security establishment’²⁵ to assist them in achieving the ‘national interest’. During conversations, they revealed not only how frustrating working with Nepali counterparts is, since the approval of projects and treaties does not always mean they will see completion, but how they have to compete with China for influence in Nepal's water resources sector.

In this context, I look at the relationship between India and Nepal through the lens of securitisation theory to understand *how* and *why* these hydrocrats securitise shared river governance with Nepal and China. The focus on questions related to security and securitisation is accidental. As a researcher, I ventured into the field wanting to explore bilateral project governance, the role of large dams in development, and the causes for the delay of such projects. However, with every interview, it became difficult to ignore the role of diplomacy

²⁵ National security establishment could be defined as the institutions and personnel working in the field of political and/or military security of the state.

and security in what I saw as apolitical, technocratic projects. I believed (wrongly I realised) that there is not much that needs exploring when it comes to the role of China in the India-Nepal relationship. It is no secret that India is concerned (to put it diplomatically) about the presence of China in Nepal. India has always been concerned about external influence in what it sees as its sphere of influence. Nevertheless, it was interesting to see epistemic communities using their agency to further the cause of ‘national interest.’ It was perhaps naïve for me to imagine that engineers, consultants, and mid-level officers in water or energy departments, responsible for building, designing, and maintaining public infrastructure (including but not limited to dams), could not *practise* security. Security, after all, I imagined (wrongly) was the purview of the high offices of defence and foreign ministries. Even the literature on securitisation theory that employed the Paris School strand did not provide empirical evidence that securitisation can be conducted by non-elites. The data from the interviews, the transcripts, and the codes on NVIVO made it unavoidable for me to engage with how these officials’ practised security. I then tried to explore the data to classify the processes and methods of practising security by the Indian hydrocrats. Beyond the discourse on security, I observed how the hydrocracy used its expertise to influence policymaking. This expertise could be in ensuring the functioning of institutions, the legal frameworks guiding the procedures within these institutions, and their epistemic, knowledge-based expertise. An example of this epistemic, knowledge-based expertise could be their inputs on the viability or necessity of projects (dams, for instance) which could drive securitised policymaking. I decided to explore these practices further and found the Paris School strand on the securitisation theory to be appropriate for understanding how mid-level officials practise security.

Beyond the securitisation theory that is actively employed in this research and to which I contribute using my findings (particularly in chapter five), I ground this thesis in the study of *hydropolitics*. Hydropolitics is the systematic study of transboundary interactions on water resources between sovereign states and forms the overarching theme of the thesis of which the ST is a constituent part. Beyond forming the foundation of this research, I chose to employ hydropolitics as the analytical framework since the findings of this research address the constructivist gap in the hydropolitics literature. In doing this, I hope to refute the criticism of IR as being structuralist only. I have expanded on hydropolitics in section 3.4. Similarly, geoeconomics provides another grounding for this research. In section 3.5, I use the study of geoeconomics to explain the behaviour of Indian policymakers on the governance of shared rivers with its riparian neighbours. In the following section, I introduce the basic tenets of the

securitisation theory, its definitions, and its meanings. In section 3.2, I present the various schools of thought on the theory and elucidate to which school this research belongs. Section 3.3 provides a review of the literature on how securitisation theory is used in studying the governance of shared rivers and the methodology used by the authors contributing to this literature. In section 3.4, I present a critical appraisal of the theory, how scholars view this theory, some of its criticisms and draw out how and where my research contributes to the theory.

4.1 SECURITISATION THEORY: AN OVERVIEW

The intellectual roots of securitisation theory (ST from hereon) can be traced to the early works of Ole Waever in the mid-1990s. However, the theory gained popularity with the publication of the book *Security: A New Framework for Analysis* (Buzan et al., 1998). A simplified—if not reductionist—explanation of the central premise of the theory is that it explores how normal, everyday issues are *securitised* by a set of *securitising actors* (or an actor) to convince an *audience* about a *threat* and make it possible to take *extraordinary measures*, which would otherwise not be feasible. Since its inception, the theory has evolved, has been widely used, criticised, metamorphized, and branched out into different schools of thought. Buzan et al (1998: 25) define securitisation as the move “that takes politics beyond the established rules of the game and frames the issue either as a special kind of politics or as above politics.” It is also called an extreme version of politicisation (Buzan et al., 1998). ST pioneered the intellectual movement for widening the range of security studies to include other sectors in the realm of security such as environmental, societal, economic, and political security. This movement of widening the sectors of security was around the same time that ‘human security’ entered the popular lexicon. The Human Development Report 1994 published by the UNDP was the first to articulate the concept of ‘human security’. The report classified elements of human security as environmental security, personal security, community security, political security, economic security, food security and health security (UNDP, 1994).

“It will not be possible for the community of nations to achieve any of its major goals peace, not environmental protection, not human rights, or democratization, not fertility reduction, not social integration—except in the context of sustainable development that leads to human security” (UNDP, 1994: 01).

The end of the Cold War had heralded a new optimism among scholars and practitioners alike. A consultant with UNDP and a former Pakistani Finance Minister stated:

“We are entering a new era of human security where the entire concept of security will change—and change dramatically. Security will be interpreted as security of people, not just security of territory; security of individuals, not just security of their nations; security through development, not security through arms; security of all the people everywhere - in their homes, in their jobs, in their streets, in their communities, in their environment.” (Haq, 1995: 68).

The agenda to expand the study of security to include other sectors rejected the traditionalists' view of security associated with military and political issues. The traditionalists argued that associating security with wider sectors risked endangering the intellectual coherence of the concept (see Gray, 1994). Walt (1991: 212-13) asserted that security studies ought to be defined as the “study of the threat, use, and control of military force” and expanding the study to include other issues could “destroy its intellectual coherence.” However, the non-traditionalists fought back and insisted that the military-centric study of security could be ensconced into a separate field of ‘strategic studies’ (Buzan 1991, chapter 10; Buzan 1987).

Securitising an issue allows the actor(s) to suspend the usual protocols and procedures and adopt extraordinary measures. Successful securitisation has three components: existential threats, emergency action, and breaking free of established rules (Buzan et al., 1998). However, some passages from Buzan et al. (1998) suggest that for successful securitisation, extraordinary (or emergency) measures may not necessarily be adopted; and only an argument for an existential threat may be made (by the securitising actors). These existential threats should be persuasive enough to build a platform for emergency measures. As we will see in chapter six, in the case of the dam-for-dam approach on the Brahmaputra, it is difficult to ascertain any ‘extraordinary measures.’ The act of building a dam as a response to an upper riparian project is extraordinary in itself.

The various units in securitisation—especially if done using discourse or speech acts—involve the referent object, the securitising actor, and functional actors. The referent object is seen to be existentially threatened and has a legitimate claim to survival, the securitising actor securitises the issue by declaring something (the referent object) as existentially threatened, and the functional actor is one who affects the “dynamics of the sector” or the one which “significantly influences the decisions in the field of security” (Buzan et al., 1998: 36). For instance, in environmental security, advocacy groups, transnational corporations, farmers unions, chemical and nuclear industries, fishing and mining industries are the functional actors who affect the sector in a significant way. As we will see in chapter six, on the river

Brahmaputra, the construction of a Chinese dam near the ‘great bend’ is seen as an *existential threat* to the *referent object*—the river’s biodiversity and water security for local communities living downstream. The *securitising actors* here are the hydrocrats who have planned a dam downstream of the Chinese dam to offset the latter’s impact on the water flow as well as give the Indian side prior rights to a continued flow of water under the UN Watercourses Convention. *Functional actors*, in this case, are the various NGOs, advocacy groups, and local communities that affect the proposed dam in certain ways. It must be noted that not all cases of securitisation may have functional actors. This is particularly true if the region does not have a strong or vocal civil society or if the audience has unanimously accepted the securitising move.

Securitisation theory is a neorealist, social constructivist theory, meaning that the threat is subjective and/or constructed and the theory focuses on questions of security (as neorealists tend to do) instead of power (associated with classical realism). Scholars of classical realism in international relations like Hans Morgenthau examine the balance of power between states while neorealists such as Kenneth Waltz (1979) and John Mearsheimer (2001), focus on security instead of power and how the pursuit of security impacts state behaviour. Neorealists look at state behaviour through the prism of security under an anarchic international structure. However, ST departs from the statist view of international politics common among neorealists and acknowledges the role of individuals in state behaviour. In other words, the emphasis is not on the overarching structure under which states exist, but on the actors who have some agency and the ability to influence state behaviour. By using ST as the analytical framework and hydrocrats as the principal actors, I mitigate the state-centric analysis of transboundary water governance that treats states as monolithic rational actors functioning under an unyielding ‘structure’ as criticised by Furlong (2006). By providing agency to the actor, ST avoids the structuralists' explanations of international politics.

4.2 SECURITISATION THEORY: THE VARIOUS SCHOOLS OF THOUGHT

The theory of securitisation has a rich intellectual corpus with scholars deliberating on various aspects of the theory. These deliberations and debates have established themselves as various schools of thought on security. The boundaries of these schools are fluid. Nevertheless, these schools have survived over time and have an established coherence to deserve their labels. The origin of the theory can arguably be associated with what was termed by McSweeney (1996) as the ‘Copenhagen School’ in his essay “Identity and security: Buzan and the Copenhagen

School.” The term refers to the work done by scholars at the Copenhagen Peace Research Institute. Scholars at the Copenhagen Peace Research Institute were also the pioneers of the ‘widening [of security to include various sectors] agenda.’ According to the Copenhagen School, securitisation is an illocutionary act—an issue is securitised using discourse, or ‘speech act(s)’. Wæver (1995: 07) states—security is a speech act; “by saying it, something is done”. CS sees securitization as inherently a negative development—a failure to deal with issues of normal politics (Diskaya, 2013). Matt McDonald (2008: 568) states that for the CS, “issues become security issues (or more accurately threats) through language. It is language that positions specific actors or issues as existentially threatening to a particular political community, thus enabling (or indeed constituting, depending on interpretation) securitization.”

Successful components of a speech act include an existential threat, a point of no return, and a possible way out (Buzan et al., 1998: 33). This securitisation move is facilitated if it comes from an actor in a position of authority, carries the “grammar of security”²⁶, and features of the threat facilitate securitisation²⁷ (ibid). Wæver points out that there are no natural things that are a security threat and others that are not. Security is a social construct, and it is communities of people who choose to deal with certain things in a particular way—to see them as a security threat. Some of the leading figures of the CS are Barry Buzan, Ole Wæver, and Jaap de Wilde who authored the landmark 1998 text on the theory ‘*Security: A New Framework for Analysis.*’

The Paris School on Securitisation emerged in the mid-1990s as an epistemic community studying the blending of internal and external security in Europe. The French journal *Cultures et Conflits* is regarded as being closely associated with this school of thought. Various scholars based out of Paris pioneered this school of thought and hence the term Paris School. Its roots can be traced to the sociology of migration and policing in Europe. Unlike the CS, it locates itself not just in International Relations but in Political Theory, Political Sociology, Law, and Criminology. Scholars from the Paris School of Security define securitisation as “what is done with it”, or how security is practised, as opposed to the Copenhagen School which understands security is what it does (Floyd, 2006). These researchers focused on the professionals of security, the “governmental rationality of security, and the political structuring effects of

²⁶ These could be threats to nebulous concepts like identity, sovereignty, freedoms, way of life, or sustainability in the environmental sector. See Wæver (1996)

²⁷ These features could be stationing artillery along the border, mobilisation of armed forces, allowing the flow of polluted water downstream, capturing and diverting water, etc.

security technology and knowledge” (ibid: 449). The Paris School also proposes treating security as a “technique of government” (ibid: 457).

While the CS focuses on the discourse of the elite decision-makers, the Paris School studies the practices of security undertaken by *professionals of security*.²⁸ Paris School understands that securitisation could be a long process wherein the securitising move can be conducted by other professionals of security using acts beyond speech acts. The role of ‘professionals of security’ is important when studying securitisation from the Paris School’s definition. The professionals of security are individuals whose actions lead to the construction of security issues (Baysal, 2020). These professionals “obey the rules and orders and implement the decisions taken at a higher level, acting within the security definitions of the high-level decision-makers.” (Ibid: 13). In the case of military security, these could include “soldiers, intelligence agents, or militants” (ibid: 13). For these professionals of security to undertake acts of security, often there are no preceding ‘speech acts.’ For instance, “practices of surveillance and border controls... undertaken by bureaucrats or professional managers of unease” are a “central part of securitization and are not simply those actions enabled by preceding speech acts” (McDonald 2008: 570). Within environmental security, particularly the transboundary water resources that this thesis focuses on, professionals of security are engineers, contractors, and mid-level bureaucrats amongst others.²⁹

4.3 SECURITISATION OF TRANSBOUNDARY RIVERS

Securitisation theory is used by various scholars to study the governance of transboundary rivers. Mirumachi (2013: 309) has argued that the Indian government used its “technical and institutional expertise” to frame a securitised discourse on the Mahakali River that forms the western border between Nepal and India to construct the Tanakpur Barrage. During the negotiations over the Tanakpur project, the Indian government managed to securitise it by

²⁸ Reckwitz (2002: 249) defines practices as “routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding and know-how, states of emotion and motivational knowledge.”

²⁹ There is another school of thought on security—beyond the purview of this thesis—that is critical and views securitisation more negatively than even the CS. The emancipatory school of thought on securitisation, also called critical security studies, argues that scholars ought to challenge the statist view of security and question assertions of threat to national security. The theory sees securitisation as a justification by the state to exercise power and the need for the emancipation of people from these unjust exercises of power. Scholars of this school believe the state is not only the solution to problems of security but also part of the problem (Wæver, 2004). These scholars urge research to be individual-centric instead of institution-centric. The leading figures of this school of thought are Ken Booth (2005, 2007) and Richard Wyn Jones (1999).

claiming that the survival of both states was at stake (ibid). Securitisation, in this case, rests on environmental security and was the result of speech acts from the Indian Prime Minister when he wrote to his Nepali counterpart asserting the necessity of the Tanakpur project to protect Indian territory from inundation and erosion during monsoons (Bhasin, 2005, 1554-5):

“While the unresolved issue [concerning details of the Tanakpur project agreement] could be formally taken up in the [Nepal-India] Joint Commission meeting [on general water resources issues], in view of the approaching monsoon, the work of the left afflux bund has to be completed at the earliest. The areas at the border on the left side of the river at Tanakpur are subject to inundation and erosion, and tying the left afflux bund with high banks in the Nepalese territory, as proposed by us, will bring a permanent solution. A large area of Nepal will also become flood-free and usable for irrigation and development.”

Beyond the study of discourse, Mirumachi (2015) studied the role of official hydrocracy in securitising transboundary water governance. She asserts the importance of studying the hydrocracy since it “accumulates vast amounts of knowledge and information through their use of technical expertise about potential river development projects that inform the state agenda” (Mirumachi, 2015: 44). Similarly, Ho et al. (2019) used Q methodology to understand the perceptions of ‘water experts’ in India and China on the riparian relations between the two states. However, their assertion that both countries have tried to desecuritize their shared water resources is problematic. Ho et al. (2019) argue that desecuritisation between the two stems from China’s goal of stabilising its southern periphery, expanding trade and investment with India, and reducing India’s alignment with the United States; while Indian policymakers have tried to desecuritize due to power asymmetry does not stand up to scrutiny. A closer look at the activities of China and India in the region—be it in Nepal (discussed below) or on the Brahmaputra—demonstrates that transboundary rivers have been securitised due to regional geopolitical rivalries, and both India and China have not tried to desecuritize these shared resources. The problem perhaps lies in the hypothesis of the paper that both India and China have tried to desecuritize the transboundary rivers between them. Such a predetermined position prevents the authors from seeing the securitised nature of shared rivers in the region even though ‘factor 3’ in their paper demonstrates the interlinkage between natural resources governance and geopolitical concerns. Furthermore, research on the securitisation of water resources between India and China limits itself to the case of the Brahmaputra River (for instance: Rampini, 2021; Sahu & Mohan, 2021). While recent developments on the Yarlung

Tsangpo-Brahmaputra make it necessary for the study of securitisation, there are other avenues in the region that illustrate the securitisation of water resources.

Sahu & Mohan (2021) rely on documentary analysis and speech acts by political leaders to study the securitisation of India-China riparian relations. Before going on to explain how both the states view the action of the other on the Brahmaputra through the lens of national security, Sahu and Mohan illustrate how they came together to contest the attempts by developed countries to link climate change with international security as a way to shed their historical obligation to developing countries:

“Both [India and China] have framed their external climate change policy as a development issue that contradicts as well as counterbalances the developed states’ motive to link climate change with international security. For instance, when the issue of climate change was first debated in the United Nations (UN) Security Council in April 2007, a majority of member states vehemently opposed the projection of climate change as a security determinant.”

Some scholars have taken a normative approach to the study of securitisation. For instance, Zikos et al (2015) examine the securitisation of water discourse in Cyprus, following its division, and examine conditions under which this securitised discourse may be moved to an “asecuritised” realm. They illustrate how both sides (the Republic of Cyprus and North Cyprus) use “tactical methods” to securitise water and link it with high politics (ibid: 311). Security jargon is used to add a sense of urgency and necessity to water development projects. The authors illustrate that there is a will for bi-communal (or joint) voluntary management of water resources, however, linking water resources with high politics has led to a deadlock over such plans in other parts of the country. They argue for an “asecure” roadmap that delinks water with securitisation and for projecting water as a tool fostering cooperation (ibid: 320).

Some others see securitisation as a positive sum game that could ensure urgent action to address water insecurity and catapult national authorities to attend to water scarcity (Abdulrahman, 2017). Abdulrahman (2017) blames the lack of action against water scarcity on a failure to securitise. Some scholars have ventured out to study how non-state actors securitise natural resources as well. El-Sayed & Mansour (2017) use the case studies of the Jordan Rivers Basin, the West Bank Aquifer, the Tigris–Euphrates Basin and the Nile Basin to show how NGOs and human rights activists too participate in the securitisation of water in the Middle East. In all four cases, the context of securitisation was larger political grievances, and the trigger was

water scarcity. The target audience was the national and international public as well as decision-makers in donor countries (in the case of the Tigris–Euphrates Basin and the Nile Basin).

4.4 A CRITICAL APPRAISAL

A review of papers on the ST since 1995 in major IR journals conducted by Baele and Jalea (2022) reveals some interesting findings. Scholars studying the literature on ST may observe an abundance of papers that are primarily theoretical at the cost of *using* the theory to drive empirical findings. Baele and Jalea (2022: 05) contend the same in their review when they point out that more than half of the 171 papers they reviewed were “primarily theoretical”, only ten were classified as “primarily empirical” articles while the rest were balanced between theory and empirics.³⁰ On balance, it seems that while theoretical development is emphasised, it is not at the cost of empirical engagement. However, a closer look reveals that the empirical papers are not driven by methodological rigour and ST scholarship lacks methodological precision. Baele and Jalea (2022: 06) state that “of the 82 papers with empirical content, only 48 have a clearly identifiable method followed for the analysis (either a quantitative one like an experiment or a survey, or a qualitative one like a discourse analysis or a process-tracing); out of these 48, only 13 ‘comprehensively’ explain and justify the parameters of the chosen method (e.g. sampling decisions, tools used for analysis, the system used for interpreting the corpus, etc.).” Baele and Jalea (2022) also point towards the Eurocentrism of the theory. The authors argue that 78 per cent of the papers reviewed by them were published in journals based in Europe and eight per cent out of the US. Nevertheless, some structural issues may be the reason for the Eurocentrism (at least in terms of the location of the journals) of ST. After all, there has been a systematic failure of journals from the Global South to break into the ‘top journals’ category ranked by Scimago or another such platform. Similarly, the geographical location of the authors may not necessarily demonstrate an ethnocentric view.

Beyond the methodological frailty, certain aspects of the theory have also been criticised by scholars for being elitist and too dependent on the semantics of security. Moreover, as an evolving theory—its wide-ranging explanatory power is its strength but often this also means that certain aspects of the theory are not as specified as others. Concepts such as ‘audience,’ ‘facilitating conditions’ and ‘extraordinary measures’ are under-specified and not always easy

³⁰ The authors, however, point out that if the inclusion criteria are widened to include area studies journals—instead of primarily IR journals—the number of papers using ST to investigate case studies does increase.

to identify—that is if they are not missing in some cases altogether. Balzacq (2005: 171) argues that a speech act view of security “does not provide adequate grounding upon which to examine security practices in real situations.” Barthwal-Datta (2012: 150) argues that the concept of breaking normal procedures and rules remains vague even though “within the securitization studies literature it appears to have been widely interpreted as generally referring to those rules and procedures which relate to policymaking at the state level.” Whereas the concept of extraordinary and emergency measures remains vague and is generally understood as “urgent or even unprecedented measures in the context of policymaking (e.g., the suspension of regular parliamentary procedures ahead of action by state representatives or ahead of passing a bill into law)” (ibid). If extraordinary measures and breaking of protocols are usually understood within the context of state actions, Barthwal-Datta (2012) asks, what happens when securitisation is conducted by non-state actors or at the sub-state level? ST needs to move away from its state-centric paradigm and reconsider the need for protocols to be broken or extraordinary measures to be taken for securitisation to be successful. If this happens, argues Monika, ST could emerge more inclusive in its analysis of the developing world.

Furthermore, McDonald (2008) points out that language is only one of the ways that threats are communicated, and there may be a need to include other ways of alluding to threats, such as images. He asks whether a theory that is “closely tied to speech for its explanatory and ethical position is capable of addressing the dynamics of security in a world where political communication is increasingly bound with images and in which televisual communication is an essential element of communicative action.” (Ibid: 524). From the Russian invasion of Ukraine, the pandemic, and the ‘migrants’ crisis,’ to 9/11, in a world where security is communicated through visual mass media—be it mainstream news to WhatsApp forwards—ignoring the power of images in securitising issues leaves a gaping hole. McDonald asserts, an “exclusive focus on language is problematic in the sense that it can exclude forms of bureaucratic practices or physical action that do not merely follow from securitizing ‘speech acts’ but are part of the process through which meanings of security are communicated and security itself constructed.” (Ibid: 568-69). Balzacq states that the speech-act dominant view of ST ignores the context, the power that the securitising actor and audience bring to the interaction, and the “psycho-cultural disposition of the audience” (ibid: 172). He argues that successful securitisation is audience-centred, context-dependent, and power-laden, meaning both the securitising actor and the audience have some power and agency.

As stated previously, the reliance on speech acts as the primary securitising move in the traditional, CS-dominant view of the theory is seen by certain scholars as elitist (Balzacq, 2005; Baysal, 2020; Bigo, 2008; Bigo & McCluskey, 2018; Booth, 2007). In other words, such an approach places disproportionate importance on high-level decision-makers whilst ignoring the ‘professionals of security.’ While speech acts assist in understanding how some issues are presented as a security threat, securitization is a social and political construct that depends on other forms of actions as well. The CS assumes that security happens in a moment. Particularly, the moment the securitizing actor speaks about it (speech act) and the moment the audience accepts it (Baysal, 2020: 04). This traditional overemphasis on speech acts comes at the cost of ignoring other securitising moves. The Paris School of securitisation focuses on the practices of security as a way to address this gap.

Securitisation could be a result of everyday practices of government officials who may not enjoy the same forms of “capital and legitimacy” as high-level decision-makers (Bigo & Tsoukala, 2008: 4-5). According to some scholars, securitisation has a lot to do with “mundane bureaucratic decisions of everyday politics, with Weberian routines of rationalisation, of management of numbers instead of persons, of use of technologies” (Bigo & Tsoukala, 2008: 5). Some of the securitisation measures practised by the bureaucracies or the media are so routinised and institutionalised that they escape scrutiny or are never discussed (ibid). Within bureaucracies, these actors—with sometimes competing interests—try to legitimize their definitions of security threats using policy tools. In these cases, the lines between the securitizing actor and the audience could start to blur as Balzacq (2011: 15) argues:

“Security practices are enacted, primarily, through policy tools. Given the thickness of security programs, in which discourses and ideologies are increasingly hard to disentangle, and differences between securitizing actors and audiences are blurred, there is growing evidence that some manifestations of securitization might best be understood by focusing on the nature and functions of policy tools used by agents/agencies to cope with public problems, defined as threats.”

It is also important to note that sometimes, these securitising actors may not be aware of the consequences of their actions as the final results depend on the “field effect” of various actors competing to define whose security is more important (Bigo & Tsoukala, 2008: 5). Within bureaucracies, these actors—with sometimes competing interests—try to legitimise their definitions of security threats using policy tools.

This research attempts to address some of the gaps identified in the theory and its application to real-world research. I use the theory to understand how securitisation takes place in the context of transboundary water resource governance in the region of Himalayan South Asia. In doing this, I address the criticism of ST identified by Baele & Jalea (2022) as being poor in empirical findings. My findings are based on extensive fieldwork in New Delhi, Kathmandu, and Uttarakhand where I interviewed the hydrocrats as well as the communities living along the river where the Pancheshwar Dam is designed to be built. I have undertaken a Q-Sorts Analysis to triangulate my findings. I will focus on the professionals of security—the hydrocrats—who work under the structure set by the decision-makers, to implement and further the agenda of security using their technical and institutional knowledge and expertise. These hydrocrats possess the knowledge and information required for policymaking. As Haas (1992: 03) states, “Control over knowledge and information is an important dimension of power and the diffusion of new ideas and information can lead to new patterns of behaviour”. These communities also assist decision-makers in identifying ‘state interests’ or illuminate the “salient dimensions” of issues that influence these decision-makers in inferring state interests (Haas, 1992: 04). Their technical knowledge guides decision-makers as they navigate issues outside their technical purview (Haas, 1992). By focusing on this epistemic community and how their technical expertise is used in securitisation, this research contributes to post-structuralist debates in IR as championed by Alexander Wendt (1992).

Utilising securitisation theory, this study situates the results outlined in chapter five within broader academic discussions pertaining to international politics. Additionally, this research delves into hydropolitics—examining how nations interact over transboundary water resources. The succeeding segment delineates hydropolitics and elucidates how this thesis bolsters an emerging field of inquiry. Moreover, it explicates geoeconomics' pertinence in comprehending Indian policymakers' conduct regarding shared river governance with their South Asian counterparts; both frameworks aid in firmly establishing this dissertation's foundations within a scholarly tradition.

4.5 HYDROPOLITICS: AN EMERGING FIELD

As highlighted in Chapter One, climate mitigation efforts and energy transitions will lead states to exploit transboundary rivers for energy generation and to address water insecurity. There are 286 transboundary rivers and lake basins, and 468 aquifer systems globally. A hundred and fifty-three countries have territories with these shared river basins and lakes, and almost all

countries have a territory with a transboundary aquifer (IGRAC 2021; UN-Water n.d.). As more states turn to these transboundary rivers, lakes, and aquifers, it is essential to look at how states negotiate with each other over these shared resources and how variables like power, geography, topography, domestic needs, bilateral relations, adherence to customary laws, etc., affect these negotiations and interactions.

The study of states' negotiations, deliberations, and actions over shared water resources is called hydro-politics. It is an emerging field with an unsettled framework—oscillating from international relations—where some consider it a sub-field—to trying to establish itself as a field of its own with influences from the environmental security programme that emerged in the end days of the Cold War (Furlong 2006, Julien 2012, Stucki 2005). Scholars have debated if, and to what extent, should IR conceptual tools continue to be employed in the study of hydro-politics. Some argue that IR's rationalist tendencies tend to limit the diversity of theories that can be used in hydro-politics (Furlong 2006, 2008). While other scholars refute the narrow reading of IR theories and argue that critical and constructivist frameworks have a lot to offer in studying hydro-politics (Warner and Zeitoun 2008). By using a constructivist view of securitisation theory, I try to contribute to the study of hydro-politics that is situated with IR but does not depend entirely on rationalist or structuralist frameworks of neorealism or neoliberalism.

While it is an emerging field, some characteristics set hydro-politics apart. Hydro-politics treats water essentially as political and is distinct from engineering, technological or even environmental perspectives. It also largely deals with water on the transboundary scale and studies processes of cooperation and conflict over this shared resource. The term first came into use by Waterbury (1979) in his study on the Nile valley. Elhance (1993: 03) defines hydro-politics as "the systematic study of conflict and cooperation between states over water resources that transcend international borders."

Until recently, the literature on hydro-politics of transboundary water resource governance had not considered power asymmetry between states (Vij, Warner, and Barua 2020). There have been recent attempts to address this power blindness. A special issue of *Water International* tried to investigate the impact of various forms of power on hydro-diplomacy and transboundary interactions between states. Other attempts to understand the various forms of power as variables in transboundary water interaction include Woodhouse & Zeitoun (2008), Zeitoun & Allan (2008), Cascão & Zeitoun (2010), Zeitoun & Warner (2006), Mirumachi

(2015, 2020), Daoudy (2008); Vij, Warner, Biesbroek, et al (2020). These scholars identified the various forms of power in the transboundary context. Some of the forms of power are economic, military (or ‘hard power’), ideational power, and geographical power (see Cascão & Zeitoun, 2010). Some of the uses of power are obvious—a state with higher financial resources can afford to better exploit shared rivers, even if unilaterally, and military power can be used by states to compel riparian neighbours over shared rivers—should the state decide to use covert force.

However, it is important to note here how ideational or geographical power plays a role in the hydropolitics of shared water resources. For instance, to interpret and use international laws, and multilateral treaties, or lobby in international organisations, states may require the power of ideas or expertise. A useful measure of this ideational power can be the sizes of states’ delegations to international organisations (the UN or WTO for example) since delegations could build alliances with fellow riparians, lobby with the chair of the organisation, prepare drafts for negotiators, counter the ideational power of the stronger riparian.

Another measure of ideational power can be the ability of states to use legal representation (often very expensive), or the availability of research organisations or think tanks domestically to research and equip the organisations with arguments (see Panke, 2012a, 2012b). Ideational power is often derived from financial power. Geographical power matters immensely in the governance of shared rivers, though not conclusively, and the discussion on water law that follows in this paper highlights how riparian positions often determine how resources will be managed. Cascão & Zeitoun (2010) argue that upper riparians have a distinct advantage as they can divert or dam rivers, though the geographic position is not the ultimate factor and can be subservient to financial power.

An interview with a Nepali scholar³¹ revealed how the lack of established think tanks (private and government-funded) relative to India puts Nepal in a weaker position in negotiations with India. This is corroborated by Vij, Warner, Biesbroek, et al (2020) who argue that India uses its ideational and material power to maintain the status quo in the Brahmaputra basin with Bangladesh. The emphasis here is on the material and ideational powers. Vij, Warner, Biesbroek, et al (2020) also highlight geographical variables, namely India’s position as the upstream state vis-à-vis Bangladesh. This geographical power allowed Indian policymakers to

³¹ Interview with a Nepali scholar, 06 March 2021, Kathmandu

make unilateral decisions (ibid). To be sure, it would be incorrect to claim India as a hydro-hegemon going by the definition set by Zeitoun & Warner (2006). Hanasz (2017) maintains that while India has not (yet?) become a hydro-hegemon, it has also not been able to engage in positive-sum interactions on transboundary water resource governance. In other words, neither hegemon nor ally. Taking a considered view of power as a variable in bilateral riparian relations, research in the following chapters focuses primarily on how the inadequacies of international water laws manifest themselves in bilateral negotiations on water governance between India and Nepal, and how Indian hydrocrats securitise water resources with Nepal. I introduce securitisation theory to the study of hydro-politics—adding a constructivist view to a statist field of study. In the next section, I explain how Indian hydrocracy has used its geographical position to meet its economic goals.

4.6 HYDRO-HEGEMONY

The framework of hydro-hegemony is dominant in the study of hydro-politics as the former assists in understanding how power asymmetries manifest in riparian relations. The development and refinement of the framework of hydro-hegemony are attributed to the scholars at the London Water Research Group (Hayat et al 2022). The theory was refined by Zeitoun & Warner (2006), Cascão (2008) and Mirumachi (2015) and has continued to be further developed by water security scholars to include analysis of power asymmetries, the varying intensities of conflict, and the importance of the geographical position of the riparian states.

Zeitoun and Warner (2006: 435) define hydro-hegemony as “hegemony at the river basin level, achieved through water resource control strategies such as resource capture, integration and containment.” A hegemon may execute these strategies through an array of tactics such as “coercion, pressure, treaties, knowledge construction, etc.) that are enabled by the exploitation of existing power asymmetries within a weak international institutional context.” It is a theory that is focussed on power in different forms—be it ideational, material, hard (military) power, soft (diplomatic and/or cultural) power, etc and how this power is manifest in water resources governance.

Hydro-hegemony as a framework primarily deals with the question of power asymmetries and varying intensities of conflict. Zeitoun and Warner (2006) two forms of hegemony—positive and negative. Positive hegemony refers to actions of the hegemon that lead to cooperative arrangements for all riparians involved. Whereas in negative hegemony, the most powerful

riparian (the hegemon) enforces its will over other riparians using some or all of the control strategies identified above. Summarising the role of geography in riparian relations, Warner (2004) argues that upper riparians use water to get more power, while lower riparians use power to get more water.

Since the turn of the century there has been a surge of interest in HH with scholars looking at the role of international water law on riparian negotiations (Woodhouse and Zeitoun 2008; Daoudy 2008; Farnum et al 2017; Tawfik Amer 2015); the multidimensional concept of power (including coercive, economic, political, cultural, and discursive) (Zeitoun and Warner 2006; Lustick 2002; Cascão 2008); counter hydro-hegemony (Cascão 2008; Wessels 2015; Tandan 2021); and the role of non-state actors in shaping water governance outcomes (Conker 2014; Lasheen 2019).

Hayat et al (2022) and Warner et al (2017) have comprehensively examined the literature regarding hydro-hegemony (HH). Consequently, this section will not extensively delve into reviewing the HH literature. Instead, it will offer an in-depth perspective on how this thesis enriches the HH framework. By employing empirical data gathered from interviews and QSA, this thesis integrates the use of international water law in the framework of hydro-hegemony. It provides a first-hand perspective of how international water law manifests in bilateral negotiations, how states use (misuse?) certain principles of the law to their advantage, how the law is not prepared to meet the challenges of the future and possible remedies. In particular, this thesis provides a granular look at how international law is employed to deny an equitable share of benefits derived from transboundary rivers, the confusion between equal and equitable entitlements, and principles of benefit sharing.

Secondly, this thesis demonstrates how epistemic communities like the Indian hydrocracy use their technical, institutional and legal expertise to securitise the governance of transboundary rivers. I do this using the data gathered during fieldwork in New Delhi and Kathmandu. The security moves highlighted in the following chapters go beyond discursive practices to incorporate bureaucratic practices that can either go unnoticed or be looked at in isolation. Taken together, these practices show the role played by mid-level officials in 'technical' in foreign and security policymaking.

In the eighth chapter, Q methodology is employed to elucidate the multifaceted viewpoints harboured by participants within the Indian hydrocracy. This chapter serves to encapsulate the

phenomenon where the prevailing standpoint within the hydrocracy aligns with established official policies. This brings to the fore an inquiry into the factors contributing to the limited translation of contrasting viewpoints—those that challenge extant policies such as environmental securitisation or the construction of dams in the Himalayan foothills—into actionable directives endorsed by governmental entities and ministries. The question arises as to why dissenting perspectives tend to emerge predominantly following retirement from active service.

4.7 GEOPOLITICS OF TRANSBOUNDARY RIVERS

Before we look at the evolution of geopolitics and focus on the geopolitics of water, it is instructive to see how the term geopolitics was defined. Any endeavour to define ‘geopolitics’ needs to consider the wide-ranging use of the term which is often used for explaining diverse phenomena. It can be notoriously difficult to define since its meaning and usage of it has changed from time to time. In popular discourse, the term is interchangeably used for what can be more accurately described as foreign policy, national security, or [geo]strategy. The emphasis on its past definition is because over time the term has lost its original meaning owing to its diffusion in popular discourse. Geopolitics—as it was meant to be when it emerged as a discipline—was the study of global politics through the variables of geography. That is what puts the “geo” in geopolitics. These variables could be international boundaries, territories, sovereignty over this territory, size, location, topography, access to seas, population centres, the character of the territory (religion, language, neighbours), etc. It was a statist discipline but has evolved over the years.

4.7.1 ORIGIN AND EVOLUTION OF GEOPOLITICS

The meaning of the term has changed over the decades when it was first coined in 1899 by Swedish political scientist Rudolf Kjellen who used this term to signify the link between geography and politics (O’Tuathail 2006). He described geopolitics as “the theory of the state as a geographical organism or phenomenon in space” (Muir, 1997: 215). This was the time of colonial conquests and European powers of the time scrambled for colonies in much of Asia, Africa, and the Americas. Hence geopolitics was used by imperialist thinkers to guide the invasions and annexations. Geoffrey Parker (1998: 05) defines geopolitics as the “study of international relations from a spatial or geographical perspective.” Similarly, John Agnew (1985: 02) defines the field as an “examination of the geographical assumptions, designations and understandings that enter into the making of world politics.”

Imperialist thinkers of the time referred to geopolitics as the relationship between the physical earth and politics. Scholars of the time ruminated about the primacy of different physical domains in statecraft and hence the theories of the time competed in forwarding the primacy of air, sea, or land power over the other. ‘Control’ over territories—a relic of Europe’s imperial past—was also dealt with in this era and theorists posited how the ‘control’ of specific territories—the heartland of Eurasia versus the rimland of coastal Asia and western Europe—would lead to dominance over world politics.

The application of geopolitics in statecraft is termed by Gearóid Ó Tuathail as ‘classical geopolitics.’ Such an application was at its zenith during the Second World War in Nazi Germany. Karl Haushofer is recognised as the geopolitical thinker of the Nazi regime that drove much of its statecraft. Haushofer founded the journal *Zeitschrift für Geopolitik* (Journal of Geopolitics) in 1924. He merged the social Darwinist ideas of Friedrich Ratzel, and the ideas of Mackinder to argue for expansion of the German state articulated through the term *Lebensraum* (the pursuit of more “living space” for Germany) (Ó Tuathail 2003). According to him, the discipline of geopolitics could not be separated from practical politics and its primary aim was to aid statecraft. He and the editors of the *Zeitschrift* outlined their vision for geopolitics in 1928 when they wrote:

“Geopolitics is the science of the conditioning of political processes by the earth. It is based on the broad foundations of geography, especially political geography, as the science of political space organisms and their structure. The essence of regions as comprehended from the geographical point of view provides the framework for geopolitics within which the course of political processes must proceed if they are to succeed in the long term. Though political leaders will occasionally reach beyond this frame, the earth's dependency will always eventually exert its determining influence. As thus conceived, geopolitics aims to be equipment for political action and a guidepost in political life.... Geopolitics wants to and must become the geographical conscience of the state” (Tuathail 1996: 36).

4.7.2 POST-WAR GEOPOLITICS

The term fell into disrepute following its association with the Nazi foreign policy (Flint, 2006; Heske, 1987). However, former U.S. Secretary of State Henry Kissinger is credited for reviving the term in the 1970s by using it as a synonym for the power rivalry and the balance of power between the Cold War rivals (Tuathail, 1998). In the post-imperial era where the Cold War dominated global politics, geopolitics was used to signify the power play between the major

powers in different parts of the world. It was also during this time that metaphors and templates that divided the world into different realms emerged—such as the ‘iron curtain’, ‘first/second/third world’, ‘rogue state’, etc. were used (Dodds 2007).³² Gearóid Ó Tuathail et al (2003) provide a useful guide on the intellectual evolution of geopolitics since its conception and how different practitioners used this term distinctly according to the era they lived in (see Table 4.1).

Table 4.1 Discourses of geopolitics (Tuathail et al 2003: 05).

Discourse	Key Intellectuals	Dominant lexicon
Imperialist geopolitics	Alfred Mahan Friedrich Ratzel Halford Mackinder Karl Haushofer Nicholas Spykman	Sea power Lebensraum Land power/Heartland Land power/Heartland Rimlands
Cold War geopolitics	George Kennan Soviet and Western political and military leaders	Containment First/Second/Third World Countries as satellites and dominos Western vs. Eastern Bloc
New World Order Geopolitics	Mikhail Gorbachev Francis Fukuyama Edward Luttwak George Bush Leaders of G7, IMF, WTO Strategic planners in the Pentagon and NATO Samuel Huntington	New political thinking End of history Statist geo-economics US-led new world order Transnational liberalism/neoliberalism Rogue states, nuclear outlaws, and terrorists Clash of civilisations
Environmental geopolitics	World Commission on Environment and Development Al Gore Robert Kaplan Thomas Homer-Dixon Michael Renner	Sustainable Development Strategic environment initiative Coming anarchy Environment scarcity Environment scarcity

The end of the Cold War led to a reimagining of geopolitics that moved away from ideological competition between communism and the free market where the latter had won leading to an

³² The term ‘third world’ went on attract criticism as it viewed much of Asia, Africa, and Latin America as a playground for Soviet-West strategic competition with the former not having any agency of its own. While some from Asia, Africa and Latin America embraced the term as a signifier of their separateness from the Soviet-West camp (Dodds 2007).

end of history.³³ For yet others, the shift was away from nation-states as the primary sources of conflict (and cooperation) to one where challenges emerged from transnational groups and non-state actors like terrorist organisations, drug cartels, and organised crime. Nation-states did not disappear from geopolitical focus, but the character of challenges posed by them or to them changed. Nuclear proliferation, geoeconomic statecraft, or the ‘clash of civilisations’ were the challenges of the future—away from the ideological battles of the Cold War. Of course, these ideological battles turned very real—mostly in the ‘third world.’

Since its early days, the discipline of geopolitics has shifted from a ‘classical’ or applied field that sought to inform practitioners to a more ‘critical’ discipline. Perhaps owing to the evolution in public ethics surrounding imperialism, and militarism, and the impact of this evolution on the role of academia—especially social sciences. Following the end of the Cold War, the focus shifted to the geopolitics of the environment. The popularity of environmental geopolitics can be ascribed to the increasing impacts of and awareness surrounding environmental degradation and climate change. Geopolitical thinkers now engage with the relationship between the physical environment and human actions on various scales through a political prism. Yet others see how political actions affect the race to limit climate change and adopt mechanisms such as net zero emissions and transitioning to greener sources of energy. The advent of newer technologies, the need to move away from sources that emit GHGs, and the necessity to change social (especially surrounding consumption) behaviours have renewed geopolitical imaginations as can be evidenced by the diffusion of newer journals dedicated to studying these phenomena.

4.7.3 CRITICAL GEOPOLITICS

A final strand of geopolitics that challenges many of the assumptions made in the above elements of geopolitical studies is termed ‘critical geopolitics.’ Critical geopolitics questions the norms and power structures inherent in the above strands. It examines the ways in which political power, spatiality, and geographical narratives interact to shape policies, perceptions and international relations. The focus of critical geopolitics is to uncover underlying ideologies, discourses, and representations that influence how states, groups, and individuals construct their understanding of space, borders, and identities.

33 See Fukuyama (1989)

The foundation of critical geopolitics lies in a Foucauldian emphasis on exploring the power/knowledge nexus in discourse (Dodds and Sidaway 1994), Foucault (1980: 77) is recorded to have recorded his observations on the role of discourses and the “genealogy of knowledge” as a strategy of power:

"The longer I continue, the more it seems to me that the formation of discourses and the genealogy of knowledge needs to be analyzed, not in terms of types of consciousness, modes of perception and forms of ideology, but in terms of tactics and strategies of power. Tactics and strategies deployed through the implementations, distributions, demarcations, control of territories and organisation of domains could well make up a sort of geopolitics where my preoccupations would link up with your methods ... Geography must lie at the heart of my concerns".

Some of the more modern definitions of geopolitics are provided by Colin Flint who defines geopolitics as a “way of seeing the world” (Flint, 2006: 13). Geoffrey Parker calls it a “study of international relations from a geographical perspective” (Cohen, 2014: 16). For this research, geopolitics will be elucidated according to Parker’s definition. Geopolitics—according to this thesis—refers to the study of state behaviour as influenced by geographical factors or how states use geographical factors in pursuit of their foreign policy goals. Geographical factors could include variables like topography, demography, location, size, boundaries, population, access to seas/oceans, access to natural resources, nature of borders etc. Foreign policy goals vary and could be political, economic, or military in nature. My definition of geopolitics is relevant to this research as geography plays a vital role in the interaction between India and Nepal. India, geographically the largest state in the region, and one that shares a border with seven states in South Asia brings a set of challenges for other, ‘smaller states.’³⁴ India has been often described as a “bully” for its “big brotherly” attitude towards its neighbours (Muni, 1978; Upadhyay, 2007). Nepal shares a porous 1,751 km-long border with India on the Indo-Gangetic plateau—its primary source of trade and essential supplies. On the other hand, Nepal and China are divided by the tallest mountain range in the world—making interactions difficult and Nepal more dependent on India.

³⁴ India occupies almost 63% of South Asia (including Sri Lanka and Maldives but excluding China).

4.8 GEOECONOMICS

“All politics is economics”—author unknown.

Geography may be used in the pursuit of foreign policy goals by Indian hydrocracy. But what are these foreign policy objectives? If states are guided by the pursuit of power—as realists tend to argue and something that forms the theoretical basis of this thesis—how do the decisions by these policymakers resemble *realpolitik*? While hydrogeopolitics deals with the question of power in transboundary water resources interaction between states, there is another element that drives the behaviour of Indian hydrocracy. It is economics. The various forms of power are explained in the above section. This section shows how Indian hydrocracy employs distinct geographical advantages to reach its economic goals.

India has used its geographical and economic centrality in the region to pursue its political and economic agenda (discussed in chapters six, seven, and eight). The electricity grids that make regional energy cooperation possible, the denial of markets to Chinese hydropower developers, the building of a dam downstream to claim rights under the UN Watercourses Convention, and the geographical dependence that Nepal has on India—all these tactics fall under the strategy of geoeconomics.

The strategy of geoeconomics is ancient. From Chanakya to Machiavelli, scholars of statecraft have argued that economic strength is one of the foundations of a strong state and a tool of statecraft. However, not all states choose to use geoeconomic tools to achieve foreign policy goals. It could be either due to their proclivity for *laissez-faire* or their relative economic weakness. It could be their dependence on foreign trade, lack of leverage with rival states, or the inclination to use geopolitical tools (instead of geoeconomic tools). It is only recently that India has turned to flex its geoeconomic muscle (Ahuja & Kapur, 2018; Baru, 2012). Some scholars though still point out that in the case of India, geoeconomics has remained subservient to geopolitics:

“The attractions of commerce have certainly affected India’s foreign policy choices, and the need for rapid economic development as a precondition to emerge as a major power has been a constant refrain in New Delhi’s foreign policy discourses. However, geo-economics has remained subservient to geopolitical concerns, and considerations of strategic interests have, when required, prevailed over the demands of international business, trade, and commerce. The weak domestic basis of commercial liberalism has further accentuated this tendency. The Indian

business class has gone global; however, they have not attempted to redirect the goals of Indian foreign policy in South Asia” (Chatterjee, 2019).

Geoeconomics should be considered a sub-field within geopolitics—even though some scholars often contrast the two in competing terms (see Blackwill & Harris, 2016; Luttwak, 1999). For instance, Edward Luttwak (1999) argued in the post-cold War era that the tools of geoeconomics are replacing the tools of geopolitics:

“Except for those unfortunate parts of the world where armed conflicts or civil strife persist for purely regional or internal reasons, the waning of the Cold War is steadily reducing the importance of military power in world affairs” (Luttwak, 1999: 17)

Massive armies and advanced weapons are now complemented by more economic tools that are used to expand the state’s economic interest and punish adversaries (ibid). To be sure, Luttwak does not proclaim the primacy of economic tools to more conventional military strength. He states that in some “unfortunate” parts of the world, old-fashioned territorial struggles continue as they did throughout history and in these regions, military strength remains as important as ever. Nevertheless, in other parts of the world, with the advent of nuclear weapons, conventional warfare has become obsolete. In these regions, Luttwak believes geoeconomics takes precedence. Luttwak states that geoeconomics is the “conquest (or defence) of important roles in high value-added, ‘strategic’ industries (telecommunications, information technology, biotechnology, aerospace, and high-tech automotive components)” (ibid: 134). Robert Blackwill and Jennifer Harris (2016: 09) define geoeconomics as “the use of economic instruments to promote and defend national interests and to produce beneficial geopolitical results; and the effects of other nations’ economic actions on a country’s geopolitical goals.” In chapters six to eight, I examine how India’s actions on the Mahakali and Brahmaputra basins align with the definitions of geoeconomics. In doing this, I illustrate the geoeconomics of transboundary river governance and the increasing proclivity of Indian policymakers to employ economic statecraft for the pursuit of foreign policy goals.

CHAPTER 5: THE NEW HYDRAULIC MISSION IN INDIA

5.1 INTRODUCTION

In July 2021, armed policemen from two neighbouring states in Southern India came face to face over the walls of a hydroelectric project that had been a bone of contention since the states were divided in 2014. The governments of Telangana and Andhra Pradesh deployed hundreds of police personnel against each other on key hydroelectric installations along the shared Krishna River to avoid a flare-up of violence. It was an odd sight to see the deployment of police officials, armed with rifles, taking positions on the dams, ostensibly against each other. Later in the day, an official from Andhra Pradesh was stopped by the Telangana Police from entering the state to hand over a memo protesting the latter's release of water for electricity generation. It was not the first time that the two states bifurcated only in 2014, clashed over water. In 2015, police forces from Andhra Pradesh and Telangana fought with each other at the Nagarjuna Sagar dam leaving four police officials injured. Inter-state water disputes are not uncommon in India; however, it is rare for such disputes to flare into outright violence and deployment of forces. The trend of increasing sub-national water disputes was noted in a report by NITI Aayog in 2019 when it stated that national water governance currently has inadequate frameworks and institutions (NITI Aayog, 2019). The report started with the ominous declaration that India is going through the worst water crisis in its history and that millions of lives and livelihoods are under threat (NITI Aayog, 2019).

With immense physical, geographical, cultural, linguistic, and religious diversity, India is a land of contradictions. These paradoxes are apparent in the spread of its water resources as well. In 2015, Cherrapunji, the second wettest place in the world with an annual rainfall of about 11,500 mm reported a water shortage. The same year, Cherrapunji got more rain in one day than Jaisalmer—the driest place in India with an annual rainfall of 165 mm—did in the last three years. Various government reports have pointed out that India is not a water-deficit state by any means. The annual natural runoff in the rivers is projected at 1999 billion cubic metres (CWC, 2021).³⁵ This is about 4 per cent of the total river water in the world. Even taking the constraints of topography and uneven spatial and temporal distribution into account, 1123

³⁵ Calculated by the Central Water Commission in a 2019 study wherein data between 1985-2015 was studied to estimate the average annual water resource available in all of India's basins at 1999.20 BCM with mean annual rainfall calculated at 3880 BCM (CWC, 2019b).

BCM (Billion Cubic Metres) is utilisable.³⁶ If used sustainably, this is sufficient to address India's water needs. However, if the current process of over-extraction, unsustainable demand, and poor agricultural practices continue unabated (discussed in detail in later sections), the present scarcity will only grow into unmanageable proportions.

In the following sections, we will see how larger dams in the Himalayas have emerged as a policy response to the growing (ground)water crisis. The chapter begins with data on India's current water crisis and future projections. The next section focuses on the nexus of poor government policies and over-extraction of groundwater and how this crisis is being played out in the Ganga basin—the region that will receive the additional water for irrigation from the Pancheshwar and SKSK projects. Finally, I explain how reservoirs have emerged as a way to address the plunging water tables. While some scholars have studied the government's rationale and the official discourse surrounding the resurgence of dams as a response to climate change and greater sensitivity toward the need for clean energy (Dye, 2019; Gerlak et al., 2019; Karambelkar, 2017), I argue that reservoir-based dams are primarily intended for irrigation and are strongly linked to the water crisis—hydroelectricity is the bonus.

5.2 FUTURE OF INDIA'S WATER

It is estimated that 54 per cent of India faces extremely high water stress, 600 million Indians are at risk of surface water supply disruptions, and roughly 200,000 Indians die annually due to lack of access to safe water (NITI Aayog, 2019; Shiao et al., 2015). With a rising population and a growing economy, the stress on existing water resources will only rise. A report by India's National Commission on Integrated Water Resources Development estimates that a scenario of 6.8% growth of GDP between 2000-25, and 6% during 2025-50, will cause an immense increase in demand for food grains with the total demand for grains increasing to 375 million tonnes (CWC, 2019b). With an increasing number of Indians consuming meat, the stress on water resources will be compounded (Srinivas, 2018). It is expected that by 2030, India's water demand will increase to 1500 billion BCM—driven by a diet of water-intensive crops like rice and sugar and growing meat consumption (WRG & McKinsey, 2009). Other projections put the water demand by 2050 to increase to 1180-1340 billion BCM (CWC, 2019b; Verma & Phansalkar, 2007). Against this projected demand, India's current water supply is approximately 695 BCM. It is difficult to ascertain the future of India's water demand and

³⁶ India currently utilizes 650-699 BCM of water annually. This comprises of 450 BCM of surface water and 249 of groundwater (CWC, 2021).

supply not only because it depends on various factors including population increase projections, economic growth, urbanisation, agricultural practices, dietary practices, the success or failure of India's energy transitions, and the impacts of climate change, but also because the data available lacks a sufficient level of detail. For instance, water usage data for the domestic and industrial sectors is available only at the aggregate level. The quality of data is also suspect since it is often collected using outdated techniques and methodologies (NITI Aayog, 2019). Data on groundwater availability across the country is based on a sample size of approximately 55,000 wells against an aggregate of approximately 12 million wells—making projections difficult. Under any scenario, the total availability of water (1123 BCM) is lower than even the most conservative projected demand of 1137 BCM (NITI Aayog, 2019).

5.3 ALARMING STATE OF INDIA'S GROUNDWATER

From cultivation to commerce to cattle, water resources are the backbone of modern economies. With changing climate, water resources are at a heightened risk. The impacts of climate change on water range from drought, floods, increased evaporation, changing precipitation (temporal and spatial), and variations in soil moisture to decreasing snow cover. Various reports have noted the increasing frequency of droughts and floods in India and the bleak future of water resources due to the impacts of climate change (Ministry of Agriculture and Farmers Welfare, 2017; NITI Aayog, 2019). The water crisis is manifesting itself in declining groundwater reserves across large parts of the country. It is estimated that 54 per cent of India's groundwater wells are declining with 16 per cent declining more than 1 meter per year (Shiao et al., 2015). Poor agricultural incentives have led to the overexploitation of water resources according to various government reports (CWC, 2019b, 2021). Of the total groundwater extracted by India, 89-91 per cent is used for irrigation (FAO, n.d.-b).

According to official figures, currently, there are over 20 million wells pumping water with free electricity supplied by the government (CWC, 2019b). The situation is dire in regions that benefitted greatly from the 'green revolution'. The high-yielding varieties (HYV) programme was introduced in India in the 1960s as a response to persistent food shortages and dependence on food aid, which led to a tremendous increase in yield due to inputs of modern seeds, technology and fertilisers, and also led to greater use of flow irrigation, pesticides, and chemical fertilisers (Frankel, 1971). The HYV programme was initially introduced to regions with larger landholdings among farmers, a high water table, an existing canal network, and 'enterprising farmers' (Chambers, 1984; Dasgupta, 1977; Frankel, 1971). Nowhere are the benefits of the

Green Revolution more visible than in the state of Punjab.³⁷ However, in recent years the plunging water table of Punjab has emerged as a cause of concern highlighting the trade-off that emerged from the green revolution.

The legacy of the Green Revolution is the move to intensive irrigation that threatens the water tables across the country. Populist policies that put little to no costs on the over-extraction of water have made matters worse. For instance, while the industrial sector has to obtain a ‘no objections certificate’ from the government to extract a specified volume of water, there is no such condition for the agricultural sector. There are also no limits on the volume of groundwater that can be extracted by farmers even though over 89 per cent of groundwater is used for irrigation (CGWA, 2020; UNESCO, 2022). Immense energy is used in pumping this groundwater. Besides the use of energy (and contributing to the release of carbon), this practice has been depleting the groundwater tables, while encouraging the wastage of water in many states. Estimates suggest that the water table in the country is dipping every year by 0.4 metres (CWC, 2019b).

The overexploitation of groundwater is one of the main causes behind saltwater intrusion in coastal areas, making fertile agricultural land unfit for cultivation (CWC, 2019b).³⁸ The intrusion of saltwater into freshwater aquifers is even more concerning since a fourth of India’s population lives in the coastal areas. These areas also contain major industrial hubs, three of the four Indian metros, and some of the most fertile lands in the country (Dhiman & Thambi, 2009). A study by the World Resources Institute on groundwater quality in India is alarming. It claims that of the 632 districts studied, only 59 are above BIS (Bureau of Indian Standards) limits on groundwater quality (Shiao et al., 2015). Not passing the BIS limit on water quality makes the groundwater unsafe for drinking. A NITI Aayog report states that 70% of India’s water is contaminated, and groundwater resources—accounting for 40 per cent of India’s water supply—are being depleted at unsustainable rates (NITI Aayog, 2019).

³⁷ The inequitable distribution of the modern inputs and access to easy credit were criticised (Nehru, 1963). To be sure, even within districts chosen for the HYV programme, the new seeds and technology increased disparities between the rich farmers and small farmers and tenants. The legacy of the green revolution is bitterly contested. On one hand are the social scientists and environmentalists who argue that the HYV programme increased the inter-regional and intra-regional disparities, caused immense strain on water tables, and destroyed genetic diversity of crops (Dasgupta, 1977; Shiva, 1991). On the other hand, biological scientists point out the gains made by the HYV programme in making India food self-sufficient and ending the era of food aid (Chambers, 1984).

³⁸ In coastal aquifers that are in hydraulic connection with the sea, groundwater pumping can induce a flow of salt water from the sea toward the well. This migration of salt water into freshwater aquifers under the influence of groundwater development is known as seawater intrusion.

5.4 POLITICS AND THE WEFE NEXUS

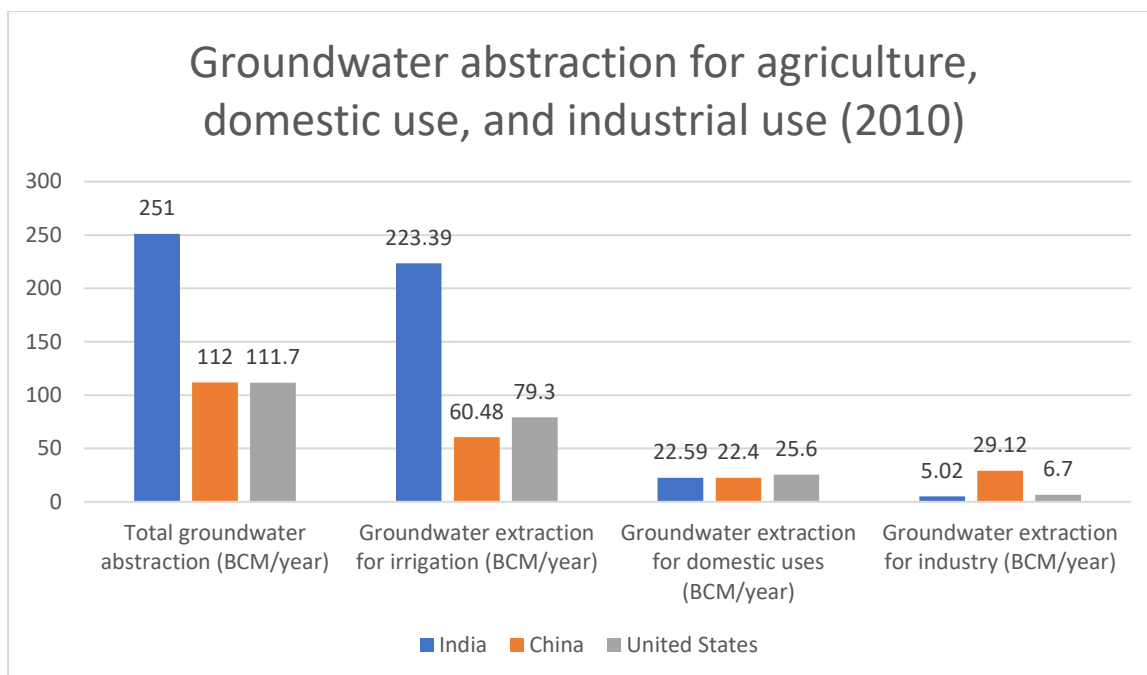
There is an intrinsic link between water, food production, energy generation and the environment. This is sometimes referred to as the WEFE (Water-Energy-Food-Ecology) nexus and is defined as a framework for “understanding and managing often-competing interests while ensuring the integrity of ecosystems” (FAO, n.d.-c). This framework maintains that these sectors are interdependent and should not be dealt with in isolation (Bervoets et al., 2018; HLPE, 2015; Putra et al., 2020; Ringler et al., 2013).³⁹ The water crisis is intrinsically linked to agriculture since the latter is the largest consumer of the world’s freshwater resources, and more than one-quarter of the energy used globally is spent on food production and supply (FAO, n.d.-c). Globally, the water withdrawal ratios are heavily skewed towards agriculture with food production utilising 69 per cent of total freshwater.⁴⁰ In Asia and Africa, the water withdrawal by the agricultural sector is much higher than the global average with 80 per cent of freshwater of the total withdrawals going to food production (FAO, n.d.-a). To keep up with the increasing population and a corresponding increase in food demand, global food production would need to increase by at least 50 per cent by 2050, while another projection puts this figure at 70 per cent, to feed the more than 9 billion people that would inhabit this planet (FAO, 2017; Hoff, 2011). By the same time, the global water demand is projected to increase by approximately 55 per cent with over 40 per cent of the global population living in river basins experiencing severe water stress (where water withdrawals exceed 40 per cent of recharge).

The problem is acute in India where water withdrawal by agriculture is 89-91 per cent (FAO, n.d.-b). Poor government incentives to the agricultural sector exacerbate the problem. Practices of flood irrigation, distribution of water in open canals, subsidies for water extraction, charging water use based on the area irrigated instead of the volume of water consumed and cultivating water-intensive and climate-insensitive crops have added to the pressure on water tables by the agricultural sector (CWC, 2019b; Ministry of Agriculture and Farmers Welfare, 2017; Rosegrant et al., 2002). The practice of flow irrigation in India has led to wastage of water, soil erosion, leaching of fertilisers, and infestation of pests (CWC, 2019b; Rosegrant et al., 2002). The CWC estimates that 70 per cent of the water supplied for irrigation is wasted by depriving other drier areas of this water (CWC, 2019b).

Figure 5.1: Groundwater abstraction for agriculture, domestic use, and industrial use

³⁹ Sometime the environment link is replaced ecologies.

⁴⁰ Water withdrawal for municipal and industrial use accounted for 12 per cent and 19 per cent respectively.



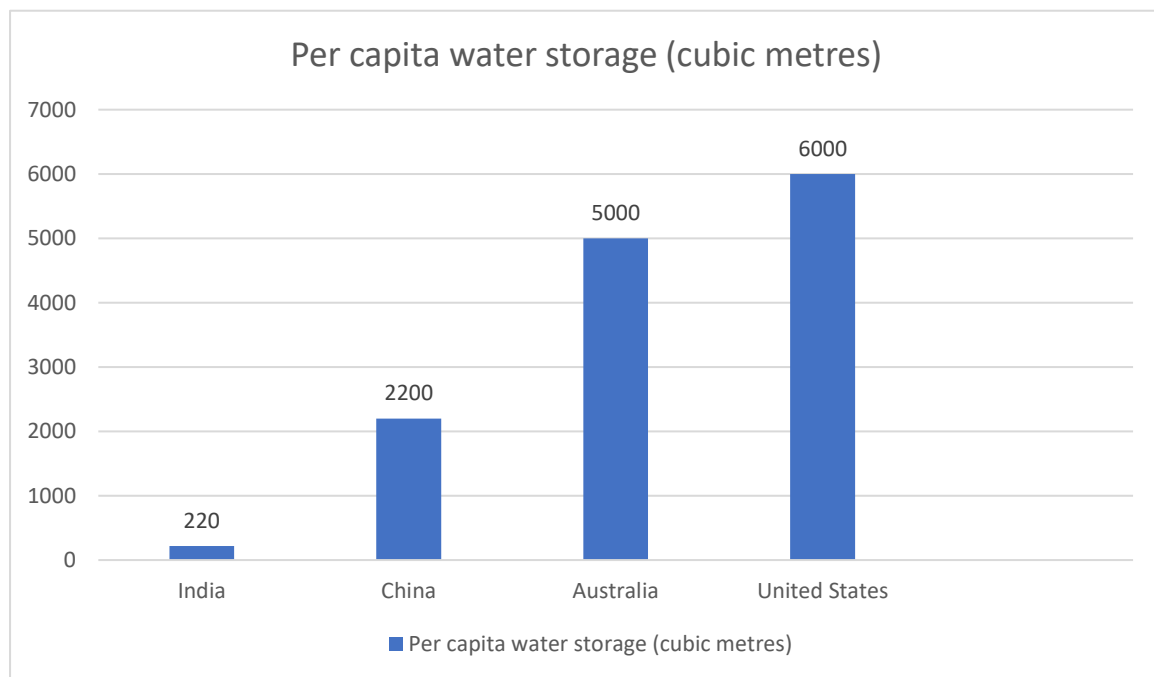
Source: UNESCO (2022)

The inefficient use of water by Indian states can be gauged from the fact that an average Indian farmer uses 2-4 times more water to produce a unit of a major food crop than farmers in China or Brazil (Dhawan, 2017). The levels of micro irrigation in India are abysmal. Micro irrigation is a form of low-pressure, low-flow-rate irrigation that reduces the volume of water needed. This form of irrigation delivers water directly to the areas where water is needed the most—the root zone of the plants. Under micro irrigation, water is delivered slowly over a longer period. Since water is delivered at the root zone, there is less evaporation and run-off and better percolation into the soil. Uttar Pradesh, the largest Indian state with 20.09 million ha (hectares) of irrigated land has zero per cent coverage of the area covered with micro irrigation systems (NITI Aayog, 2019). Other major agricultural states fare worse with Punjab at one per cent, Bihar at three per cent, and Haryana and Tamil Nadu at zero per cent (NITI Aayog, 2019). Malik et al (2018: 67) illustrate how capital-cost subsidies by the government in Madhya Pradesh, a state in central India, instead of encouraging drip irrigation have led to many drip irrigation providers turning into “drip agents seeking revenues from the government instead of providing service to farmers.” This is claimed due to the highly bureaucratic nature of the subsidy with very specific technical requirements. Such a convoluted nature of the subsidy, the authors allege, has turned “manufacturers subservient to government favours, reduced enterprise spirit and encouraged poor business practices.” In another study based on drip irrigation in the state of Maharashtra, the authors found the subsidy system to be inefficient since the farmers were required to pay for the drip irrigation equipment upfront (Misquitta &

Birkenholtz, 2021). The government's subsidy amount was then deposited in their bank accounts following a verification. The delay in disbursing subsidy amount and the unsuitably high costs of government-approved high-quality, long-lasting equipment for seasonal crops such as onion and tomato made this scheme inept.

Subsidised energy and water to farmers have played a strong role in entrenching practices such as flood irrigation, groundwater extraction, and the refusal to move to more climate-sensitive crops (CWC, 2019b; Ramesh, 2021). NITI Aayog (2019) states that electrical connections to most north Indian states are not metered and even in the metered connections, the true cost of electricity remains subsidised. The availability of cheap electricity gives no incentives to farmers to stop extracting groundwater even at the cost of depleting the water tables faster than they can be recharged.

Figure 5.2: Per capita water storage (cubic metres)



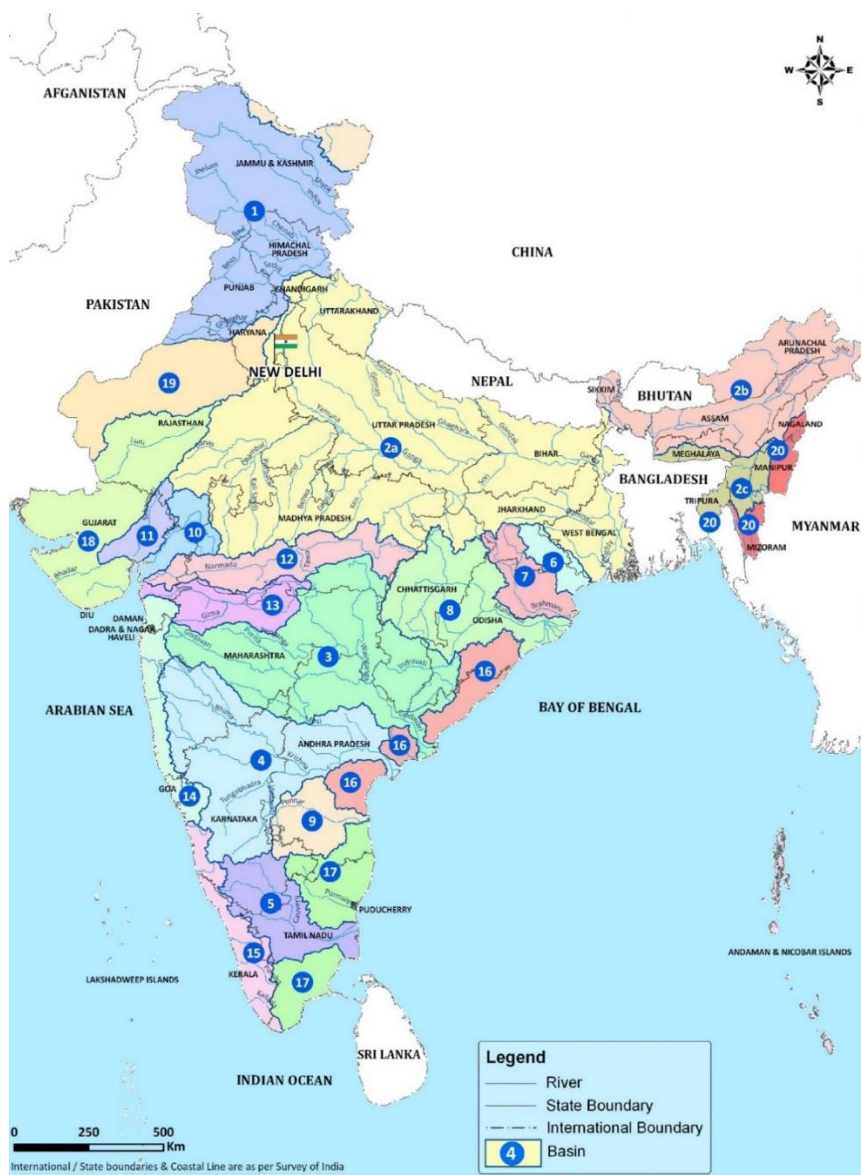
Some scholars have pointed out that when it comes to surface water infrastructure, India lacks the ability to hold on to its precipitation so as to make its farming less monsoon-dependent (Ramesh, 2021). On a per capita basis, the storage of water in India is 220 cubic metres (see table 5.2) compared to 2200 cubic metres in China, 5000 cubic metres in Australia and 6000 cubic metres in the United States (Qureshi, 2011). While the Murray-Darling River basin and the Nile River store 100-200 per cent of the mean annual flow for multi-year storage and operations, Ganga stores less than 10 per cent of its annual runoff (Sadoff et al., 2013). Surface

water storage infrastructure is virtually non-existent in Nepal which stores less than one per cent of its total annual runoff with no reservoirs (Jeuland et al., 2013). Some of the largest tributaries of the Ganges, originating in Nepal, have no storage projects (Bandyopadhyay, 2009; Wu et al., 2013). Biswas (2008: 150) states that Nepal and India, dependent on the monsoon for their water requirements, with 80 per cent of the total precipitation falling from June to September, cannot meet their water requirements with such low levels of storage. Such a shortfall in building a storage infrastructure augments the over-extraction of groundwater.

There are efforts underway to reform. The 2019 draft national water policy prepared by independent experts for the government of India recommends, among other things, diversification of crop procurements to include nutri-cereals, pulses, and oilseeds. This is to ensure that farming is in line with local agro-ecologies, to move away from water-intensive cropping and to reduce import dependence (CWC, 2021). There are also proposals to reform water subsidies to have more rational water charges that disincentive the wastage of water (Das Gupta, 2021). The report acknowledges the unsustainable demands of Indian agriculture, and that dams cannot be the answer to meet these demands. The experts recommended the inclusion of more nature-based solutions⁴¹ and regulating the over-extraction of groundwater by Indian farmers (M. Shah, 2019, 2021). These are noteworthy and impressive policy prescriptions. Nevertheless, it remains to be seen if the government manages to disentangle entrenched practices of Indian farmers—especially since they could be politically unpopular.

Map 5.1: Basin Map of India

⁴¹ Nature based solutions include solutions that harness the power of nature instead of constructing artificial or unnatural infrastructure to address problems. Some of these solutions could be investing in mangroves for its carbon storage abilities or acting as a natural barrier against storms and erosions. Some other examples include coral reefs, constructing of wetlands, rain gardens, rainwater harvesting, peatlands green roofs, savannahs, etc.



Source: India Water Resources Information System, Government of India.

Table 5.1: Basins in India and their storage capacity

Basin code (CWC)	Basin name (CWC)	Storage capacity (Million Cubic Metres) *
1	Indus (up to border)	16568.43
2a	Ganga	60660.38
2b	Brahmaputra	2400.00
2c	Barak and others	9310.00
3	Godavari	31330.39
4	Krishna	49547.52

5	Cauvery	8867.02
6	Subernarekha	2322.21
7	Brahmani and Baitarni	5523.69
8	Mahanadi	14207.80
9	Pennar	4820.11
10	Mahi	4984.03
11	Sabarmati	1367.54
12	Narmada	23604.60
13	Tapi	10255.79
14	West-flowing rivers from Tapi to Tadri	14732.41
15	West-flowing rivers from Tadri to Kanyakumari	11553.70
16	East flowing rivers between Mahanadi and Pennar	3026.41
17	East-flowing rivers between Pennar and Kanyakumari	1906.90
18	West flowing rivers of Kutch and Saurashtra including Luni	5524.15
19	Area of inland drainage in Rajasthan	--
20	Minor rivers draining into Myanmar (Burma and Bangladesh)	312.00

*Projects with a minimum storage of 10 MCM included.

The water crisis is not uniform across the country. Some basins are seen by the hydrocracy as a ‘surplus’ while other basins are seen as a ‘deficit’ in the availability of water resources. According to estimates made by the CWC, of the 22 basins in the country, by 2050, eight basins⁴² will have per capita utilizable water more than the per capita water demand, while 14 basins⁴³ will have per capita utilizable water less than the water demand (CWC, 2021).⁴⁴ A comparative analysis by the NITI Aayog on the performance of states on nine themes and 28 indicators on water resource management shows that the states that are low performing states are home to 50 per cent of the country’s population (NITI Aayog, 2019). These low-performing states have a combined population of 600 million and account for 20-30 per cent of India’s agricultural input (NITI Aayog, 2019). The bottom five states in this index are Jharkhand, Haryana, Bihar, Uttar Pradesh, and Rajasthan. They are all in the Ganga basin.

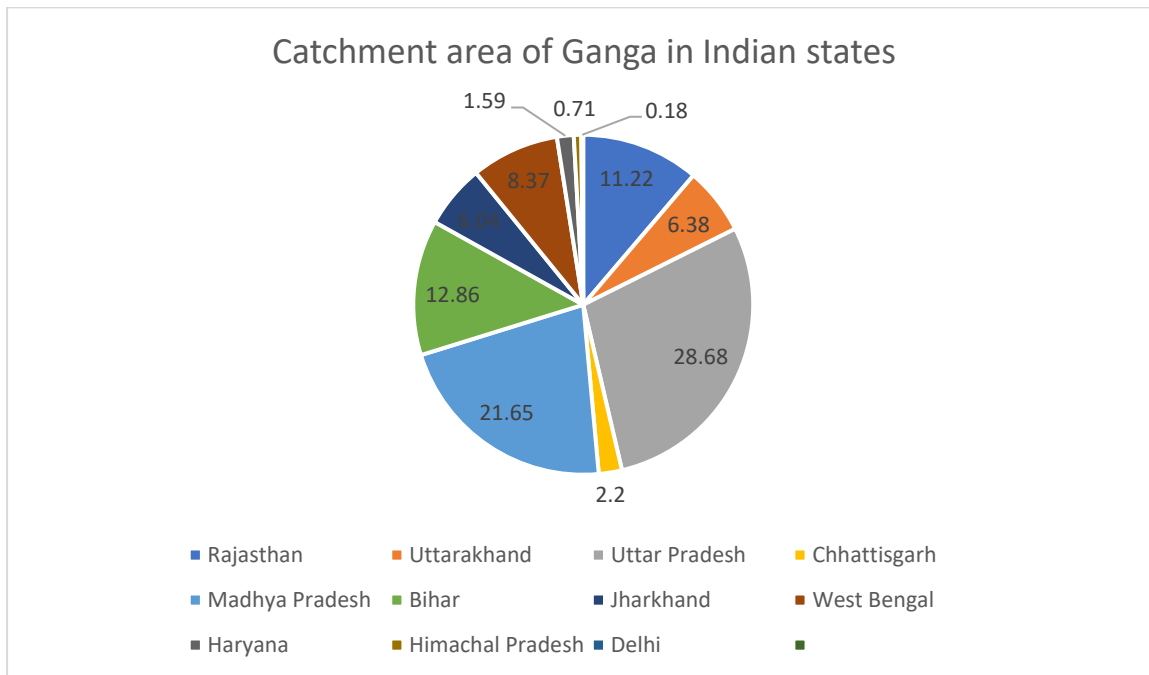
⁴² Brahmaputra, Godavari, Brahmani & Baitarni, Mahanadi, Narmada, Tapi, WFR from Tadri to Kanyakumari and Minor River Draining into Myanmar (Burma) & Bangladesh

⁴³ Indus, Ganga, Barak, Krishna, Cauvery, Subernarekha, Pennar, Mahi, Sabarmati, WFR from Tapi to Tadri, EFR between Mahanadi & Pennar, EFR between Pennar & Kanyakumari, WFR of Kutch and Saurashtra including Luni and Area of Inland drainage in Rajasthan.

⁴⁴ Based on average per capita utilisable water resource calculated at 684cum/capita/year.

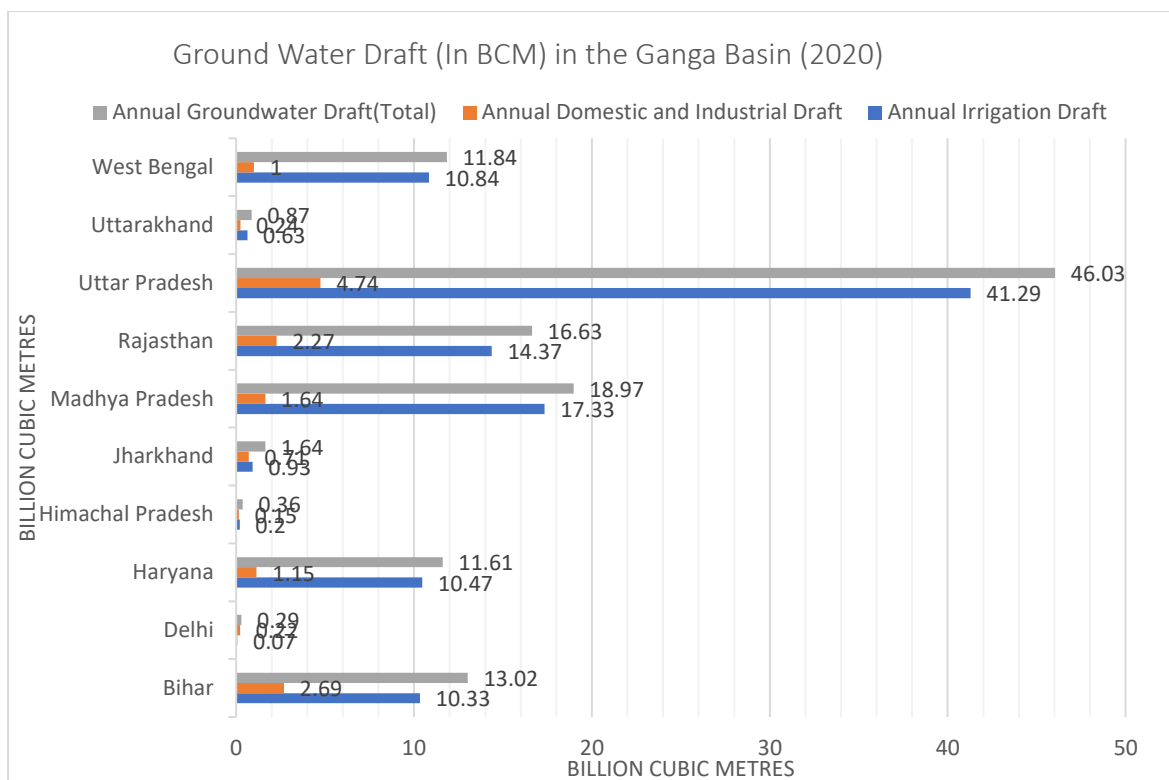
5.5 CRISIS IN THE GANGA BASIN

Figure 5.3: Catchment area of the Ganga River



The additional water that will be available in the post-project scenario from Pancheshwar and SKSK projects will be used for irrigation in the Ganga basin using the canal network. The Ganga basin constitutes about 26 per cent of India's landmass and supports 43 per cent of its population. The basin covers 1,086,000 sq. km extending from Nepal to India and Bangladesh with 79 per cent of the basin lying in India (GoI, n.d.). In India, it covers the states of Uttar Pradesh (28.68%), Madhya Pradesh (21.65%), Rajasthan (11.22%), Bihar (12.86%), West Bengal (8.37%), Uttarakhand (6.38%), Jharkhand (6.04%), Haryana (1.59%), Chhattisgarh (2.20%), Himachal Pradesh (0.71%) and Union Territory of Delhi (0.18%) draining an area of 838,803 sq. km. It is estimated that 655 million people inhabit this river basin (World Bank, 2014). The basin generates roughly 40 per cent of India's GDP (World Bank, 2015). Nevertheless, the basin is also home to extreme poverty with average GDP per capita under \$2 a day and poverty rates of around 30 per cent. In India and Bangladesh, poverty in the basin districts is higher than the national average (World Bank, 2014).

Figure 5.4: Ground Water Draft (In BCM) in the Ganga Basin (2020)

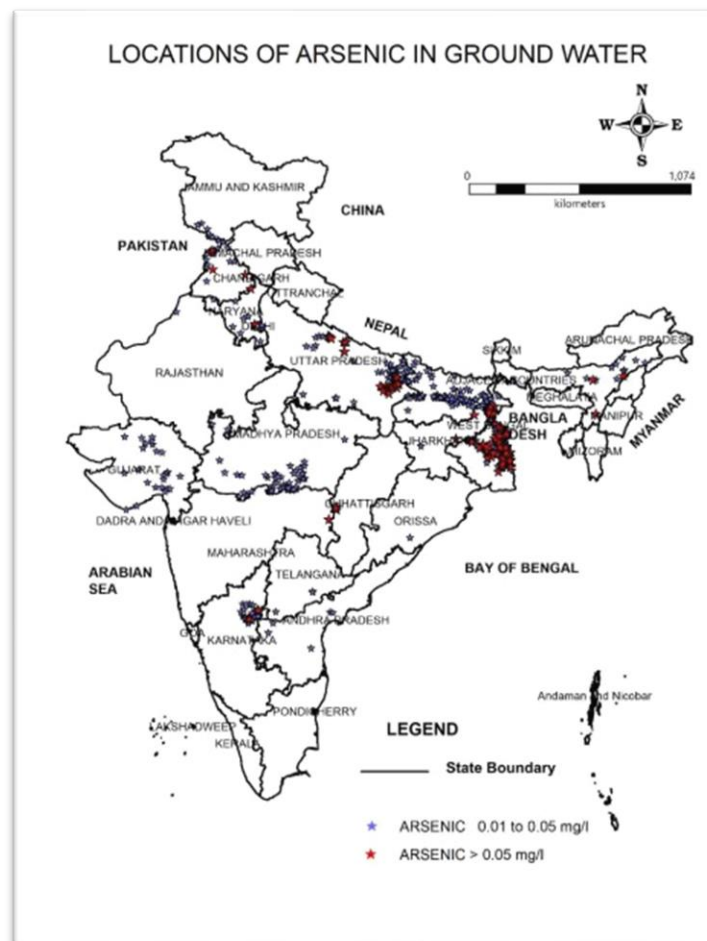


Source: India WRIS

Livelihoods in the Ganges basin are predominantly sustained through agriculture, and 90 per cent of the Ganges' water is utilised in irrigation (see Figure 5.4, World Bank, 2014). Uttar Pradesh alone has 9 million hectares of land irrigated with surface water and an additional 8 million that rely solely on groundwater (World Bank, 2014). Irrigation takes up 100 BCM of water in the Ganges basin annually (Rasul, 2014). Groundwater depletion is rampant in the Upper Ganges plain with rates of depletion higher than rates of recharge (Gleeson et al., 2012). While groundwater levels are higher downstream, the groundwater contains toxic concentrations of naturally occurring arsenic in the shallow alluvial aquifers (Ahamed et al., 2006; K. M. Ahmed et al., 2004; Chakraborti et al., 2003). In India, groundwater quality is monitored by the Central Ground Water Board (CGWB) through a network of observation wells located all over the country. According to CGWB, groundwater quality in the Ganga basin is severely affected by arsenic, fluoride, nitrate, chloride, and salinity. A 2014 report points out that there are “152 arsenic-affected groundwater observation sites in 31 districts of 3 states that are contained in Ganga basin. There are 74 sites in West Bengal, 42 sites in Bihar and 36 sites in Uttar Pradesh” (CWC, 2014: 117). Data from India WRIS points out that the poor quality of groundwater in coastal areas is due to overexploitation leading to saltwater intrusion and hence increased water salinity (CWC, 2014). In other areas, groundwater quality

is impacted by geogenic and anthropogenic activities. Excessive use of fertilisers and pesticides, and improper disposal of urban and/or industrial waste contaminate groundwater resources (CWC, 2014). The surface water quality is monitored by the Central Water Commission using 110 water quality stations. According to CWC, due to heavy abstraction and discharge of pollutants into the river, lower segments of the Ganga River are highly polluted.

Map 5.2: Locations of arsenic in groundwater



Source: Central Ground Water Board, Govt of India.

In the Ganga basin, small farmers are forced to invest in technology to exploit the groundwater through deeper wells and newer pumps (Ahmed et al., 2013). This also leads to a greater demand for energy for agriculture and increasing greenhouse gases (GHGs) emissions. Scot et al (2016) find that while both diesel and electricity pumps are prevalent throughout the Upper Ganges plain, once the water level drops below 15 metres, it becomes efficient for farmers to move to electric pumps. Shah (2009) states that this impacts energy consumption and GHG

emissions as although only 15 per cent of the groundwater pumps in India are electric, they account for two-thirds of the carbon emissions from groundwater pumping. Power subsidies further led to the prevalence of groundwater pumping for irrigation, and between 1980 and 2010, over 15 million electric pumps were installed in India (Scott et al., 2016). The intertwined nature of water-energy-food puts pressure on resources with reliance on groundwater depleting water tables and increasing stress on energy supply.

5.6 DAMS AS A POLICY RESPONSE

In the above context, various Indian governments have sought to exploit the northern rivers flowing into India from Nepal to augment surface water resources and move away from groundwater utilisation in the Ganga basin. In 2019 the Indian government classified large hydropower plants (25 MW and above) as renewable energy projects, and the Ministry of Power issued a notification specifying ‘renewable purchase obligations’ with special provisions for ‘hydropower purchase obligations’ for energy distribution companies for projects commissioned after 08 March 2019.⁴⁵ According to plans made by the Central Electricity Authority on the optimal generation capacity hydropower plants with storage reservoirs could be used to address the intermittency of solar and wind power since the former can be quickly ramped up—providing peaking power and maintaining grid stability (CEA, 2020). According to the national register of large dams, there are 411 dams under construction in India as of June 2019 (CWC, 2019a). Data from the Central Water Commission suggests that the Indian state has put the low point of the 2000 World Commission on Dams behind and moved ahead with its hydraulic mission.

Though the quest for ‘cleaner’ and ‘greener’ hydroelectricity has driven the development of new dams in the Himalayas, as in other parts of the developing world; how far is hydroelectricity green and clean is contested, especially if the social and other environmental concerns are considered (Ahlers et al., 2015). In the following chapters, I illustrate that the large dams designed to be built between India and Nepal are aimed at augmented water rather than hydroelectricity.

The push for hydropower in Indian policymakers’ minds goes beyond the boundaries of India. Nepal has always been seen as an ideal source for hydropower and storage reservoirs by Indian

⁴⁵ See Ranjan, R. (2021). DISCOMs Now Have Hydropower Purchase Obligation in Their RPO Targets - Mercom India. MERCOM India, 2–4. <https://mercomindia.com/discoms-hydropower-purchase-obligation/>

policymakers—owing to its topography, the gradient of its rivers, and its vast water resources.⁴⁶ Projects like the Pancheshwar Multipurpose Project, and the SaptaKoshi-SunKoshi Multipurpose Project (SKSK project)—to be built jointly between India and Nepal—are designed to store monsoon water in the reservoirs for temporal and spatial transfer of water in the Ganga plain for irrigation. The detailed project report of the Pancheshwar project acknowledges that the primary purpose of the dam is to provide irrigation. The Pancheshwar project promises to provide additional water in the Sarada Canal System that will augment irrigation to 259,390 ha of land in India and 170,720 ha of land in Nepal—the size of London, St Petersburg and Rome put together (WAPCOS, 2017). The SKSK project on the other hand seeks to increase the coverage of irrigated land in India and Nepal by 1.05 million hectares and 0.54 million hectares respectively (JPO-SKSKI, 2015; MoEWRI, n.d.).⁴⁷ Ancillary services of these projects include flood management, drinking water, inland navigation, hydroelectricity, pushing back saltwater intrusion, and interlinking of rivers. With more than 6,000 rivers, Nepal contributes at least 46 per cent to the flow of the Ganges, and during the lean season, this increases to 71 per cent (Dhungel, 2009).

Beyond providing water for irrigation and moving away from groundwater extraction, the rationale for these projects has an energy element. The availability of surface water can reduce the dependence on the energy needed in pumping for groundwater and also lead to groundwater recharge (Rasul et al., 2021).

⁴⁶ Nepal has over 6,000 rivers with a combined run-off of about 200 billion cubic metres

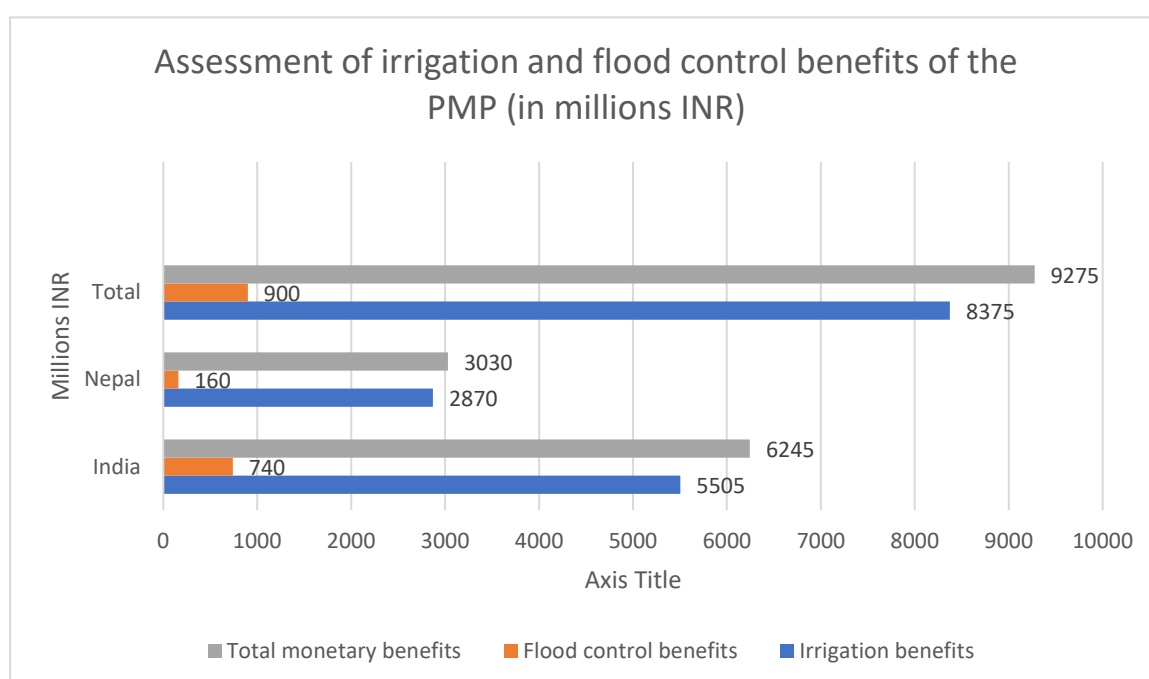
⁴⁷ There have been disagreements between India and Nepal on how much of additional land will be irrigated in India by the SKSK project with an official letter from SKSK Joint Project Office claiming 0.77 million hectares of land will be irrigated by the project against Nepal's projection of 1.05 million.

Table 5.2: Assessment of Irrigation Benefits to India and Nepal from the Pancheshwar Multipurpose Project

	NEPAL		INDIA			Total (INR millions)
Quantum of water	Irrigation potential	Annual Benefit	Quantum of water	Irrigation potential	Annual Benefit	
3073 MCM	17020 ha	2870 million	1905 MCM	259390 ha	INR 5505 million	INR 8375 million

Source: Pancheshwar Environment Impact Assessment Report

Figure 5.5: Assessment of irrigation and flood control benefits of the PMP (in millions of INR)



The government’s rationale is that building more reservoirs in the Himalayas will not only bring more land under irrigation but will also ensure the maintenance of the existing canal network. While the PMP is not designed to address the problem of frequent flooding in the low-lying areas downstream, the project report states that due to the storage ability of the dam, the project could moderate flood peaks in the reservoirs and provide ‘incidental’ flood benefits to downstream areas along the course of the Mahakali river in both the countries (WAPCOS, 2017). In India, the Pancheshwar project is believed to address the problem of flooding in Uttar Pradesh, especially in the districts of Pilibhit and Lakhimpur Kheri. A total of 100,000 hectares of land is inundated in these two districts almost every five years due to flooding (WAPCOS, 2017). In Nepal, the project is expected to provide flood management capability to protect the

low-lying areas in the Chandani-Dodhara villages along the west bank of the river. Similarly, the SKSK project is projected as a barrier to the frequent flooding of North Bihar.

5.7 CRITICISMS

Though the irrigation potential of the SKSK project is 3 4 times of the Pancheshwar project, the justification for its construction, as forwarded by the state and central governments, is its flood management ability in a region where floods are annual—often devastating—occurrences. Critics of the SKSK project point out that instead of trying to capture the floodwaters behind large reservoirs, people living in the floodplains should be made flood-resilient (Dixit, 2020a, 2020b; Mishra et al., 2008; Shrestha et al., 2010; R. Sinha, 2008). Flood resilience here would mean communities will make lifestyle changes during the time of inundation, and the floods will carry the fertile silt across farmlands in northern Bihar (Dixit, 2020b). These changes primarily mean moving away from inundated land until the floods subside.⁴⁸ Such a nature-based solution, it is claimed, will lead to “quick flushing of floodwaters” and leave behind the fertile silt of the Koshi River replenishing the region (Dixit, 2020b). Following the 2008 floods in Bihar, the issue of embankments along the Koshi River came up once again. The engineering-led solution to the ‘problem’ of flooding was criticised for its unsustainability. It was claimed that the river breached embankments because of silt accumulation in the Koshi riverbed over the years and the failure of successive governments to maintain the embankments (Thakkar, 2008). Some estimates suggest that due to the concentration of sediment load on the riverbed, owing to the embankments, the riverbed has risen by 4 metres making flooding a more frequent event (Shrestha et al., 2010). At the time of the breach, the flow of the river was at 144,000 cusecs while the embankment was designed to have a capacity of 950,000 cusecs (Yadav & Tiwari, 2008). The siltation of riverbeds and the role of embankments in it has been a point of recurring reproach.

Environmentalists living along the Koshi have claimed that attempts to tame the river and control its flow have only made matters worse. Building embankments on either side of the river ensures that the silt and sediment settle on the riverbed and make flooding easier (Krishnakumar, 1999; Thakkar, 2008). Thakkar (2008) claims that documents prepared in 1937 to assess construction on Koshi maintained that a storage reservoir on the river would fill up

⁴⁸ It is puzzling whether the communities living in the flood plains want such a lifestyle as advocated by environmental activists. For an incisive analysis of how lack of dispassionate analysis and ideological commitments led to the unpopularity of dams in developing countries, see A. K. Biswas & Tortajada (2001).

with silt in 37 years considering that Koshi is rich in siltation. This demonstrates the flawed strategy of dams as a flood control mechanism. While Koshi's average runoff is approximately 2166 cubic metres per second, during floods, this increases to as much as 18 times the average. Less than one-fifth of the Koshi basin is in the plains while 84 per cent of the catchment is in the highlands (Kale, 2008). The basin rises from 8000 metres above sea level (ASL) to 95 metres ASL. Approximately 50 per cent of the basin is 4000 metres ASL and the area below 120 metres ASL is only 16 per cent (Kale, 2008). This means there is not enough space in the plains to accommodate the river runoff generated by 84% of the catchment area (Kale, 2008). This, and the fact that Koshi is infamous for drastically changing its course, begs the question if a dam will be able to assist in flood control.

Similarly, criticisms have been raised against the Pancheshwar project. In February 2021, there was a landslide in Uttarakhand's Dhauliganga Valley when a glacier—the size of 15 football fields long and five across—broke off from the steep face of a mountain, plunged, and brought with it an avalanche of rock and ice into the Ronti Gad. This landslide led to the death of at least 58 people. Following this, there has been renewed opposition to dams in the Himalayas (Kashwan & Vallangi, 2021; Mashal & Kumar, 2021). Even though it is difficult to ascertain the exact reason behind the sliding of the hanging glacier or how this landslide triggered the flash flood, opposition to dams and attempts to interfere with the Himalayas' fragile ecology have received renewed support.⁴⁹ In the aftermath of the 2013 floods in Uttarakhand, the Supreme Court of India froze the proposed dams in the state and tasked the union government to spell out a strategy regarding hydropower projects. In the prevailing inter-ministerial dialogues, while the ministries of power and environment approved the construction of these dams, the water resources ministry objected to the construction of these projects in the ecologically sensitive areas of the Ganges basin (B. Sinha, 2021). The view of the water resources ministry was that the protection of the natural, unhindered flow of rivers was necessary for the rejuvenation of the Ganga (B. Sinha, 2021). The Supreme Court even tasked the government to form a committee to study the mushrooming of hydropower projects in the Himalayan state and “whether the existing and ongoing/under construction hydropower

⁴⁹ Experts studying the disaster suggest that following the landslide, the ensuing debris may have halted the flow of the Rishi Ganga River and caused the formation of a temporary lake. The formation of natural dams by debris and sediments, either by landslides or glacier retreats, are called moraines, and these moraines contain meltwater within. According to a team of scientists that analysed satellite imagery, seismic records, numerical model results, and eyewitness videos, the breaching of this moraine led to the flash flood (Shugar et al, 2021). The causes behind breaching of this moraine could be earthquakes, avalanches, or a natural collapse due to excessive pressure from water; or human-induced activities such as deforestation, pollution, or altering the region's natural ecosystem.

projects have contributed to the environmental degradation and, if so, to what extent and also whether they have contributed to the tragedy that occurred at Uttarakhand in the month of June 2013” (Chopra et al., 2014: 04). The Ravi Chopra Committee report recommended that the region 2000 metres above sea level in Uttarakhand is unsuitable for hydroelectric projects since glaciers in Uttarakhand are receding and leaving behind debris in the vacated areas (Chopra et al., 2014).⁵⁰ This debris could “contribute to the sediment flux into the river valleys, particularly during extreme weather events like June 2013” (Chopra et al., 2014: 224).

Besides its environmental impact, the projects have been criticised for the social costs they will incur on the communities living in the submergence and affected areas. There have been continued protests against the Koshi dams in Nepal and the local community has agitated against the proposed project. The Pancheshwar Social Impact Assessment (SIA) prepared by WAPCOS states that a total of 134 villages will be affected by the Pancheshwar project on the Indian side. The SIA report puts the number of families losing land and/or houses due to the project and needing rehabilitation and resettlement at 31,032 (WAPCOS, 2017b). These villages are in the Pithoragarh, Almora, and Champavat districts of Uttarakhand. As part of the project, a total of 9100 ha of land will need to be acquired by the government of India. The number of project-affected families (PAF) in Nepal is estimated to be 3729 (WAPCOS, 2017b).

Despite concerns raised by various civil society and environmental groups, successive governments have managed to carry forward on the project—even with consecutive delays—and not succumb to the opposition. What explains the choice of the high modernism of dams instead of more environmentally friendly solutions? Perhaps the high political costs that unpopular steps entail are enough to discourage policymakers (especially in a democracy) from going down that route. These unpopular steps could have been letting the river run its course (and enriching the region with its fertile silt), moving people living in the flood plains to safer zones, and ensuring prudent water and energy prices (instead of subsidies) to recharge water tables, thus eliminating the need for storage reservoirs like Pancheshwar and SKSK, and discouraging the harvest of water-intensive crops.

5.8 CONCLUSION

This chapter attempted to clarify the link between India’s water crisis and the quest for reservoir-based dams. The unsustainable practices and over-extraction of groundwater among

⁵⁰ The Pancheshwar and the downstream Rupaligad dams are in sub-700 metre elevation.

large sections of Indian agriculture were highlighted above. Populist policies by the governments do not provide any incentive to farmers to curb their unsustainable practices that exacerbate water insecurity and increase GHG emissions. The difficulties to reform entrenched practices, and the heavy political costs associated with it seem to have forced policymakers to eschew reforming the agriculture sector. Indian hydrocracy is attempting to plug the gap in its water storage ability to offset variability in monsoons and to address the water crisis India currently faces. Such a supply-side intervention, instead of transitioning to sustainable demand, puts pressure on the ecology of the Himalayas. Large dams in the fragile ecology of the Himalayas are a persistent threat. The mountain range is just 45 million years old compared to the North American Appalachians (440–480 million years) or the Aravallis in India (around 4,000 million years old). The Himalayas are still rising and more tectonically active. Of the 8800 glacial lakes in the Himalayas, 200 have been classified as dangerous (Pandit, 2013). Dam-building, rock-blasting, and erosion of topsoil make the bad situation worse.

The year-on-year list of fatalities due to natural disasters in Uttarakhand is a reminder of the wrath of nature. The practices that were established during the advent of the green revolution were suitable for the time of food shortages. Current challenges require a reform of these unsustainable practices as illustrated in the sections above. Lastly, continuous monitoring of the Himalayas and early-warning systems can ensure no loss of life. The following chapters will illustrate how the domestic water crisis shapes India's foreign policy and its relations with its northern neighbour.

CHAPTER 6: SECURITISATION OF TRANSBOUNDARY RIVERS BY HYDROCRATS IN HIMALAYAN SOUTH ASIA

6.1 INTRODUCTION

Equipped with heavy machinery, the People's Liberation Army (PLA) rolled down the plateau of southern Tibet in June 2017 to extend the existing road further southward into Doklam (called Donglang in China). The tri-junction of Doklam, with China's Chumbi Valley to the north, Bhutan's Ha District to the east and India's Sikkim state to the west, has been a point of contestation between China and Bhutan with both the states claiming sovereignty over it. In June 2017, the PLA troops encountered around 270 Indian soldiers in the region who had come to the rescue of Bhutan and were armed with weapons, and two bulldozers, avowedly to stop the Chinese construction. The Doklam/Donglang region also holds strategic importance for Indian national security planners as it lies close to the Siliguri corridor that connects North-eastern India with the rest of India. For over two months, the armies of India and China faced each other in close proximity over the plateau while their foreign ministries charged the other with belligerence.

The deep freeze in the bilateral relations between India and China was reflected in their riparian relations as well. MEA officials acknowledged that the hydrological data that Indian hydrocrats were receiving from their Chinese counterparts under an MoU (Memorandum of Understanding) had suddenly stopped. Beijing cited the renovation of their monitoring stations as the reason behind not sharing hydrological data. Nevertheless, Chinese hydrocrats shared data from the same stations with Bangladesh during the same period (Khadka, 2017). The Himalayan region is a seismically active zone, and this lack of data could prove critical in times of natural disasters. This was the second instance in recent years when water resources were securitised in the region. Following the terrorist attacks on the Indian Army in Uri, India, in 2016, the Indian Prime Minister alluded to using water resources flowing from India into Pakistan as a punitive measure.⁵¹

Riparian relations and governance of shared water resources are often linked to territorial disputes and geopolitical conflicts. In the Middle East, regional geopolitical tensions permeated

⁵¹ For details, see The Indian Express. (2016, September 27). Blood and water cannot flow together: PM Modi at Indus Water Treaty meeting. The Indian Express. <https://indianexpress.com/article/india/india-news-india/indus-water-treaty-blood-and-water-cant-flow-together-pm-modi-pakistan-uri-attack/>

onto hydropower projects (sometimes violently) such as the Ilisu and Ataturk dams in Turkey, and how different actors used water issues as leverage to gain territories in the Euphrates-Tigris basin. Warner (2012) states that when the Kurdish Workers' Party started attacking Turkey's hydraulic projects, Southeast Anatolia—the region where the dam project was set to be built—was placed under martial law. Warner confirmed the position of Buzan et al. (1998) that security can be contagious—securitised non-water issues may lead to water security issues and vice versa.

This chapter examines the intersection of security with the water resources sector in the region, specifically the Himalayan South Asian region of India, Nepal, and China. I use the case study of multipurpose dams in the region to understand the several ways Indian hydrocrats use their technical and institutional knowledge to securitise the governance of transboundary rivers. Using the data gathered from fieldwork, I illustrate the distinct ways Indian hydrocrats practise security. I categorise these practices as structural, institutional, and statutory acts. The rationale for this categorization is to provide a framework to analyse the processes of securitisation in other fields through professionals of security. It follows the template set by Fischhendler (2015) for classifying securitising moves. The focus of the chapter is on studying the practices of Indian hydrocrats. The practices identified and the process of securitisation are discussed in the sections below.

As elucidated in chapter three, securitisation theory attempts to explain how securitisation happens or how people securitise everyday issues. Since its inception, it has evolved to explain diverse phenomena and has even grown into different schools of thought. Chapter three explains the theoretical foundations of this thesis, and in particular, explains the theory of securitisation, its meaning and definitions, the various schools of thought, and some of its limitations. Chapter three, section 3.4 explains how I contribute to this theory and how my contributions depart from the existing literature.

In the interest of brevity, I will not repeat the overview of the securitisation theory, but just note that securitisation has been defined as the move “that takes politics beyond the established rules of the game and frames the issue either as a special kind of politics or as above politics” (Buzan et al., 1998: 25). I attempt to explain the central premise of the theory as one that explores how normal, everyday issues are *securitised* by a set of *securitising actors* (or an actor) to convince an *audience* about a *threat* and make it possible to take *extraordinary measures*, which would otherwise not be feasible. The following section provides a rationale for

using securitisation theory in studying the hydropolitics of transboundary water resource governance in the region. Section 5.3 discusses the key findings on how Indian hydrocrats securitise shared rivers followed by the conclusion.

6.2 SECURITISATION THEORY AND HYDROPOLITICS: A RATIONALE

The reasons for looking at securitisation through hydrocrats are multi-fold. Firstly, using such a constructivist, the actor-oriented approach provides a post-structuralist lens to the study of international politics that treats state behaviour as dynamic, not static and provides agency to actors. This follows the tradition set by securitisation scholars such as Buzan, Wæver, & Wilde (1998), Floyd (2006, 2010), Aradau et al. (2006), and Balzacq (2011) among others. Secondly, it demystifies the ‘state’ as a rational unitary actor and provides an alternative view of state behaviour that is defined and practised by epistemic communities. These epistemic communities use their technical knowledge and expertise to assist decision-makers in identifying national interests (Haas, 1992). Haas (1992: 03) defines epistemic communities as “a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area.” What sets these epistemic communities apart are shared values, culture, causal beliefs, and a common policy enterprise. The tendency to look at transboundary water politics through structuralist IR theories (neo-realism, neoliberalism for instance) is criticised by certain scholars (see Furlong 2006). J. F. Warner and Zeitoun (2008) pointed out there is scope for IR theories to engage meaningfully with questions of transboundary water politics especially if one were to look at the critical and constructivist scholarship on the topic. The scholarship of ‘hydro’ scholars and their framework of hydro-hegemony and hydro-diplomacy illustrates the range of international relations beyond the conventional theories of neo-realism and neo-liberalism (See Cascão and Zeitoun 2013; J. Warner et al. 2017; Zeitoun et al. 2017; Zeitoun and Mirumachi 2008a, 2008b; Zeitoun and Warner 2006; Zeitoun and Allan 2008). By focusing on the agency of an epistemic community, this chapter expands on constructivist literature on ‘hydropolitics’. Lastly, by focusing on the practices of hydrocrats, an attempt is made to move away from an elitist understanding of securitisation that overemphasises the role of elite actors and the impact of their discursive practices. Practices can be defined as “a routinized type of behaviour which consists of several elements, interconnected to one another” (Reckwitz 2002: 249). Floyd (2016: 677) argues that the study of securitisation through speech acts suffers from a “constructivist deficit” where the success of securitisation is decided by scholars. A “radically constructivist” theory on security would appreciate the role of professionals of security (ibid).

Similarly, Baysal (2020: 08) argues that Copenhagen School (CS) is fixated on “macro-level discourses while ignoring micro-level practices”. Trombetta (2014), Zajko (2015), and Mirumachi (2015) try to study these micro-level practices in their research looking at climate-induced migration and security within the EU, Canada’s cyber security, and transboundary water politics in the developing world. This chapter will follow their tradition and expand on the literature on security practices by epistemic communities—in this case, the hydrocrats.

Hydrocracy is defined as the "governmental agencies responsible for the use, development and conservation of the water resources" (Mirumachi 2015: 07). These could be the engineers, consultants, and mid-level administrators and officials working in the various government agencies and ministries that deal with water resources and hydropower. Molle et al (2009) argue that the public investments in irrigation that became common in the early 20th century led to the creation of hydrocracies. Molle et al (2009: 328) define hydrocracy as “a cadre of professionals, most frequently civil engineers staffing hydraulic bureaucracies”. According to Wester (2008: 10), the hydrocracy is characterised by its “high-modernist worldview” that is set out to “control nature and ‘conquer the desert’ by ‘developing’ water resources for the sake of progress and development.” This belief is apparent in large sections of the Indian hydrocracy and is leading to the planning and construction of dams not only domestically, but also on rivers shared with neighbours. According to the national register of large dams, there are 411 dams under construction in India as of June 2019 (CWC, 2019). Numerous such projects are on transboundary rivers that run across neighbouring countries—some of whom have territorial disputes with India. Additionally, none of the South Asian states are signatories to the United Nations Watercourses Convention (UNWC), making cooperation on these international rivers difficult.

6.3 SECURITISATION THEORY: PRACTICES AND PROFESSIONALS

Table 6.1. Practices of security in transboundary water resources in Himalayan South

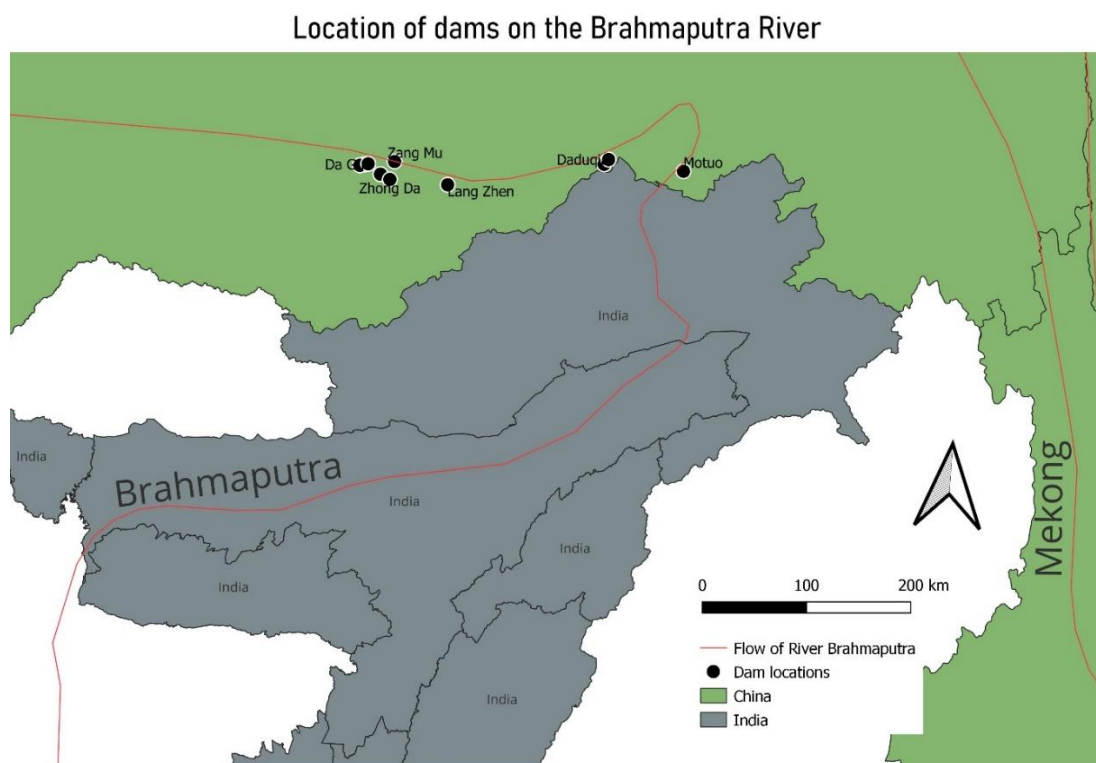
Asia						
	<i>Security Professionals</i>	<i>Referent Object</i>	<i>Threat</i>	<i>Security Practice</i>	<i>Functional Actor</i>	<i>Extraordinary measures</i>
<i>Structural Act</i>	Engineers at Central Water Commission, Govt of India	Food and water security in North-eastern India; Prior use rights over water flow	Water diversion, holding back river silt by China,	Building of the Upper Siang project dam, downstream of the Chinese dam	Local communities, NGOs, and advocacy groups	N/A
<i>Institutional Act</i>	Diplomatic Corp, Armed Forces	Food security in the Ganga plain, India's river interlinking plan, and sovereignty over Kalapani	Cessation of the river interlinking and agricultural transformation plans; Losing sovereignty over the Kalapani region	Inclusion of Ministry of External Affairs officials in Pancheshwar Development Authority; Intervention by Ambassadors in the project negotiations; Intervention by India's Chief of Army Staff	N/A	Escalating project planning and negotiations at the diplomatic level
<i>Statutory Act</i>	Officials at the Central Electricity Authority	The centrality of India in the region's energy politics; the position of India as the exclusive economic actor in Nepal's water sources	Trilateral or regional groupings could negate India's influence; and Chinese investments could replace Indian investments	Placing conditions on using Indian infrastructure and regional trade	Nepali and Bhutanese government officials The civil society of Nepal and Bhutan	Acting against the South Asian Association for Regional Cooperation pledge for regional electricity trade and against Indian ambitions for global grid connectivity

6.3.1 STRUCTURAL ACTS

Structural acts are actions with physical and material results that are meant to allude to or address security threats. For instance, building roads or airstrips at international borders. These allow quick and easy mobilization of armed forces to the border, make supplies to these forces possible, and display the seriousness of the state to defend its sovereignty. The results of these actions—border roads, airstrips, naval bases, and the construction of bunkers—are physical and tangible. In the context of this research, the structural act is the plan to build a dam by a section of Indian hydrocrats in Arunachal Pradesh on the Siang River to mitigate the impact of the upstream dam by China. Indian hydrocrats believe that China's dam on the river (called Yarlung Zangbo in China) could potentially impact the flow of water in downstream Arunachal

Pradesh and Assam.⁵² The declaration of the dam by officials in India’s Central Water Commission illustrates their view of Chinese construction close to the border through a securitised prism. The dam of concern—close to the river bend that enters India—is reported to be a 60 GW hydropower project on the lower section of the Brahmaputra River that is three times the size of the Three Gorges Dam. Almost immediately an official from India’s Jal Shakti Ministry announced India’s plan to build a multipurpose project in Arunachal Pradesh that will offset the impact of the Chinese dam. This project is called the Upper Siang project and is envisioned as a 10 GW hydropower project on the Siang, the principal constituent river of the Brahmaputra.

Figure 6.1: Location of dams on the Brahmaputra River



Source: Created by the author using data available publicly

⁵² For details, see this report tabled in the Indian Parliament: Ministry Jal Shakti. (2021). Flood Management in the Country including International Water Treaties in the field of Water Resource Management with particular reference to Treaty/Agreement entered into with China, Pakistan, and Bhutan. In Lok Sabha Secretariat. http://164.100.47.193/lsscommittee/Water_Resources/17_Water_Resources_12.pdf and Lok Sabha. (2018, December 26). Unstarred question no 2520 Dams on Brahmaputra by China. Government of India. <http://164.100.47.194/Loksabha/Questions/QResult15.aspx?qref=75761&lsno=16>

Indian officials believe a dam close to the ‘great bend’ can have an impact on the flow of water in Brahmaputra and water diversion by China can cause water insecurity along the river.⁵³ With a dam, the Indian officials believe, China can regulate the flow of water and can cause floods. There are also fears of altering the quality of water. A dam of this magnitude can hold back huge silt carried by the river. This silt is essential for the fertility of agricultural lands downstream and, by extension, for food security. While Indian political leaders have so far refrained from speaking about the dam as a security threat, there are structural arrangements (or *acts*) designed by hydrocrats that allude to the ‘threats’ posed by the Chinese dam on the Great Bend to India’s environmental security. The timing of the project and the statements issued by officials in India’s Central Water Commission indicate that one of the main purposes of the project is to counter the impacts of the Chinese dam.⁵⁴

Other than countering the physical impact of the Chinese dam upstream, officials in various Indian government ministries have also been looking to strengthen its prior use rights over the Brahmaputra.⁵⁵ Under Articles V and VI of the UN Watercourses Convention (UNWC), a state building a dam upstream should utilise the resource in an “equitable and reasonable” manner that does not impinge upon the “existing and potential uses of the watercourse” by another [downstream] state (UN, 1997: 4-5). Building a dam downstream gives the Indian side legal cover for the continued flow of water, and the right to utilize the watercourse, and mandates China to cooperate and consider the interests of the downstream states (India and Bangladesh). It is worth noting while India is building the dam to strengthen its prior use rights under the UNWC, it is not a signatory to the convention (and neither is China). Additionally, even if India seeks to have the legal cover of UNWC, it assumes that China would adhere to the principles laid out by international laws. The functional actors in this scenario are the NGOs, advocacy groups and the local communities that affect the status of the dam. While various advocacy groups have criticised the project on environmental grounds, local communities view the Chinese dam upstream as a threat (Parashar, 2017; PTI, 2021).⁵⁶ It is difficult to ascertain

⁵³ See Ministry Jal Shakti. (2021). Flood Management in the Country including International Water Treaties in the field of Water Resource Management with particular reference to Treaty/Agreement entered into with China, Pakistan, and Bhutan. [http://164.100.47.193/lssccommittee/Water Resources/17_Water_Resources_12.pdf](http://164.100.47.193/lssccommittee/Water%20Resources/17_Water_Resources_12.pdf)

⁵⁴ For instance, see Arora, N., & Ghoshal, D. (2020, December 1). India plans dam on Brahmaputra to offset Chinese construction upstream. Reuters. <https://www.reuters.com/article/us-india-china-hydropower-idUKKBN28B4NN>

⁵⁵ Bhaskar, U., & Ghosh, P. (2010, January 8). Panel to work for stronger prior use claim on Brahmaputra. Livemint. <https://www.livemint.com/Politics/oIETW0tPWW0CbCEJfaZ6iJ/Panel-to-work-for-stronger-prior-use-claim-on-Brahmaputra.html>

⁵⁶ In Oct 2021, towns on the Indian side of the India-China border in Arunachal Pradesh blamed Chinese construction activities and water diversion for polluting the river and causing a mudslide that turned the a river black (PTI, 2021).

what, if any, are the extraordinary measures in this securitising move. It is understood that the pre-feasibility study of the project is underway *after* the project has been approved. However, in the knotty and often chaotic hydropower sector in India, it is not unusual for feasibility studies to be re-conducted if the previous assessments have expired.⁵⁷ This cements the assertion made by Balzacq (1998) that extraordinary measures may not be necessary even if a securitising move has been made. To take another example, while conscription or levying of taxes are ‘extraordinary measures’, the securitising actor(s) may decide not to take these measures in case the state already has sufficient soldiers in the armed forces or if the state treasury has enough resources. The negation of these measures does not invalidate securitising moves.

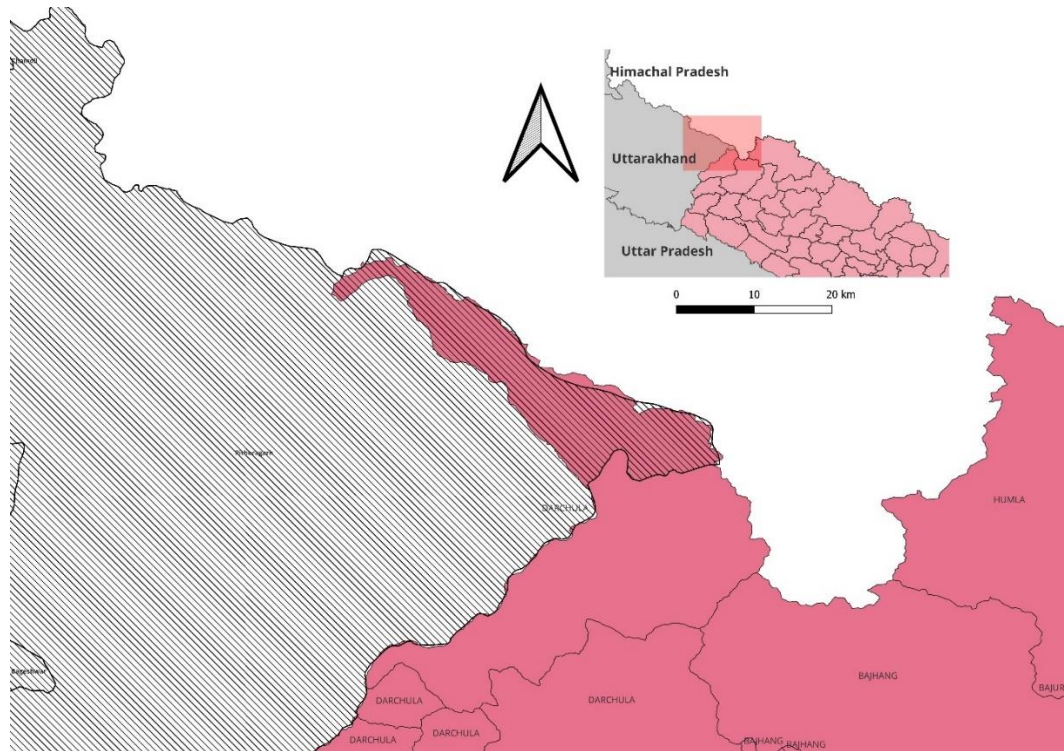
6.3.2 INSTITUTIONAL ACTS

Institutional acts of securitisation are actions made to or within an institution as a response to an external threat or seeing the institution as the referent object that is being threatened. The exclusion of certain institutions from public scrutiny or transparency reflects the securitised nature of that institution. For instance, removing an institution from the remit of acts like the Freedom of Information Act (the UK) or the Right to Information Act (India) or making budgetary allocations to certain institutions (intelligence agencies) classified or confidential. By taking these institutions out of public scrutiny, the securitised nature of either the institution or certain actions undertaken within those institutions is indicated. Other instances of institutional acts of securitisation could be the exclusion of civil society from decision-making processes or the inclusion of armed forces, diplomatic corps, or intelligence agencies in institutions *outside* of their usual remit (Fischhendler, 2015). The institution in question could well be the referent object that is under threat. For instance, the outbreak of the SARS-CoV-2 (COVID-19 virus) was seen by states across the world not only as a (biological) threat to public health but also as a threat to their public health institutions like the National Health Service, UK. The securitisation of the pandemic—where the referent objects were public health, and the associated institutions—allowed for extraordinary measures like public lockdowns, mandatory health screening, quarantine, etc.⁵⁸

⁵⁷ The Environmental Impact Assessments (EIA) undertaken for projects in India are valid for five years. Often times, the EIA has to be retaken due to delays in project operationalisation.

⁵⁸ a, S. J., & Rousseau, E. (2022) studied the discourse around COVID-19 outbreak and the securitised responses to it in the UK and US. See Baele, S. J., & Rousseau, E. (2022). At war or saving lives? On the securitizing semantic repertoires of Covid-19. *International Relations*, 0(0). <https://doi.org/10.1177/00471178221122957>

Figure 6.2: The disputed territory of Kalapani, Lipulekh, and Limpiyadhura that is claimed by India and Nepal (territory stripped in pink)



Source: Created by the author.

In the context of this research, the Pancheshwar Multipurpose Project, to be developed jointly by Nepal and India, has gained strategic importance since it is viewed by Indian hydrocrats as crucial to food security in the Ganga plain and an important link in the ambitious interlinking of Indian rivers project.^{59,60} The project is the centrepiece of the 1996 Mahakali treaty between India and Nepal. Under the treaty, both sides sought to build a dam upstream of the Tanakpur Barrage on the Mahakali River that forms Nepal's western border with India. Indian hydrocrats see this project as essential not only for food and water security but also for national security. The Kalapani trijunction, where the Mahakali River is believed to originate is claimed by both India and Nepal.⁶¹ The trijunction is seen by Indian officials as strategically important since it

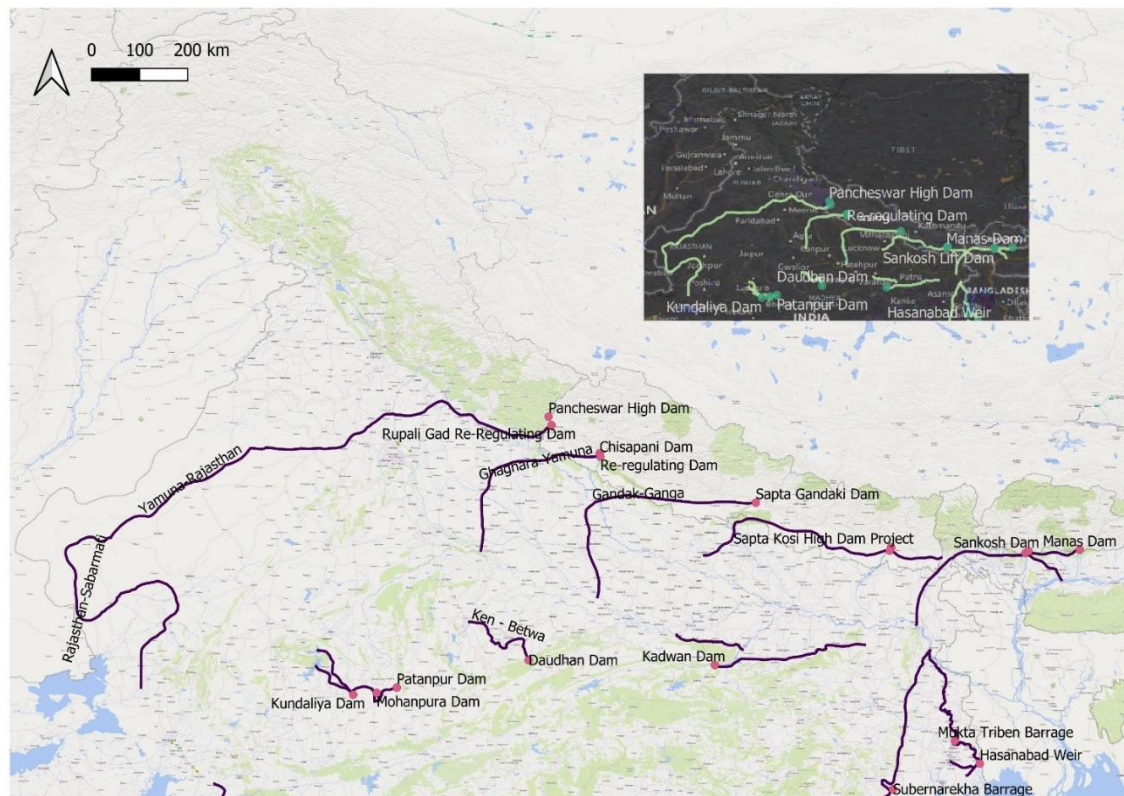
⁵⁹ Personal communication, former Ambassador of India to Nepal, 09/10/2020.

⁶⁰ The Pancheshwar project seeks to ensure year-round irrigation of land under the Sharada command (1.61 million hectares) by providing water in the dry season (WAPCOS, 2017). It is also a link in the Himalayan component of the river interlinking plan. The river interlinking plan has been on the drawing board since the 1970s with various governments seeking to act upon the ambitious plans. Prime Minister Narendra Modi, however, has gone ahead with the Ken-Betwa River linking project at a cost of Rs. 460 billion with five other such river linking projects being finalised (Sharma, 2022).

⁶¹ Sovereignty over the Kalapani trijunction depends on the origins of the Mahakali River, and the origins of the river itself are disputed by governments of India and Nepal. Nepal's western boundary with India was marked out of the Treaty of Sagauli between the East India Company and Nepal in 1816, following the Anglo-Nepalese War of 1814–16. According to the treaty, territory west of the river lies with Nepal while territory east of the river

borders China, and sovereignty over it can help in the speedy mobilisation of troops to the border (PTI, 2020). Additionally, for Indian policymakers, the Kalapani region offers an advantageous position as it is located at an altitude of approximately 20,000 feet and can be used as an observation post overlooking Chinese territory (Subramanian, 2020).

Figure 6.3: Himalayan component of the interlinking of Indian rivers with storage reservoirs in Nepal and India



Source: Created by the author using geospatial data from Higgins et al. (2018)

The institutional act of securitisation here is the inclusion of the diplomatic corps and armed forces in agencies and institutions meant to deal with the Pancheshwar project and the escalation of the Pancheshwar Development Authority (PDA) to the diplomatic level. The

belonged to then British India (Gyawali & Dixit, 1999). The differing interpretation of the source of the river has caused territorial disputes. Indian side believes that the river originates in the Kalapani region at an elevation of about 7,820 metres and is part of Uttarakhand's Pithoragarh district. In contrast, the Nepali side states that the river originates either in Limpiyadhura (15 km from Kalapani) or in Lipulekh and is part of its Dharchula district (Jha, 2020; Rising Nepal, 2020; Shukla, 2019). Some account suggests that the river originates from a stream in Limpiyadhura, northwest of Lipulekh—thus making Kalapani, Limpiyadhura and Lipulekh, fall east of the river and part of Nepali territory (Subramanian, 2020). Whereas Indian position is that the source of the river is well below the Lipulekh pass, and while the Sagauli treaty does not demarcate the area north of the springs, administrative and revenue records from the 19th century show Kalapani on the Indian side and considered as part of present-day Pithoragarh district in Uttarakhand (ibid).

PDA, an “independent, autonomous” bilateral body established to “finalise the detailed project report” and expedite implementation of the project, has in its governing body officials of foreign affairs ministries along with Ambassadors of both sides.⁶² The breakdown of negotiations over the Pancheshwar project has also led to intervention by India’s Ambassador to Nepal. Such an intervention by the Ambassador was categorized as important due to the “strategic” nature of the project.⁶³ There has been a shift in the justification of the project as well. While official documents, as well as personal communication with hydrocrats from India and Nepal, reveal that the project is primarily aimed at storing water for temporal and spatial transfer intended for irrigation in the Sharada command in Northern India, a recent statement by a minister in the Govt of India suggests flood control is being touted as the primary aim of the project.⁶⁴ This shift in project justification seems deliberate since any flood moderation benefits from Pancheshwar were stated to be “incidental” at best (WAPCOS, 2017). Furthermore, the armed forces intervened in the project either directly or by expressing concerns over the river’s origin and the sovereignty over Kalapani. The project was on the agenda of the Chief of the Indian Army when he visited Nepal in 2020 (Bhalla, 2020; IANS, 2020). The Army Chief also suggested that Nepali officials have been protesting the Indian road to Lipulekh pass "at the behest of someone else."⁶⁵

The interventions by top-tier Army officials, the inclusion of diplomatic corp in the PDA, and interventions by the Ambassador can be classified as *extraordinary measures*. The referent objects, in this case, are food and water security in the Ganga plain, and territorial sovereignty over the Kalapani trijunction. The threats are the loss of augmented water that will be used to provide year-round irrigation of land under the Sharada command (1.61 million hectares) by providing water in the dry season, as well as the loss of the Pancheshwar component of the river interlinking project. The institution (PDA) is seen as a tool to respond to threats and the securitising act is its escalation to diplomatic levels and interventions by armed forces.

⁶² See MoEWRI. (n.d.). Pancheshwar Multipurpose Project. Govt of Nepal. Retrieved October 7, 2022, from <https://www.pmp.gov.np/acts-and-regulations.php>

⁶³ Personal communication, former Ambassador of India to Nepal, 09/10/2020

⁶⁴ See ANI. 2020. “Problem of Flooding in Bihar, UP and Jharkhand Would Be Resolved by Constructing Dam in Pancheshwar, Nepal: Nitin Gadkari.” ANI News Agency. <https://www.aninews.in/news/national/politics/problem-of-flooding-in-bihar-up-and-jharkhand-would-be-resolved-by-constructing-dam-in-pancheshwar-nepal-nitin-gadkari20200913084237/> (December 29, 2020).

⁶⁵ See The Indian Express. (2020, May 16). Road row: As Army Chief sees hand of third party, Nepal threatens action. The Indian Express. <https://indianexpress.com/article/india/army-chief-general-mm-naravane-china-nepal-border-issue/>

6.3.3 STATUTORY ACTS

Statutory acts of securitisation are legislative or legal provisions that practise security. The acting agency or institution seeks to signify particular security threats from a source to a referent object using its powers to declare statutes or laws. In 2016, India’s Central Electricity Authority (CEA) issued guidelines that termed electricity trade as a matter of “strategic, national and economic importance” (CEA 2016: 03). The guidelines also laid down conditions that made cross-border electricity trade difficult for Nepal (and Bhutan). The guidelines allowed “participating entities” to trade electricity from only those generation projects owned or funded by the Government of India, Indian public sector undertakings (PSUs) or private companies with 51% or more Indian ownership. The guidelines allow Indian companies to import electricity from generators owned or controlled by the government of the neighbouring country after seeking a one-time approval. These two clauses give preferential treatment to Indian entities and make investments in Nepal’s hydropower sector by any third party (read: China) uncertain and financially precarious. Large hydropower projects in Nepal depend on Indian acquiescence to buy surplus electricity since energy consumption in Nepal is low. In effect, these guidelines make India the sole possible foreign investor should Nepal agree to develop large hydropower projects. The governments of Nepal and Bhutan vehemently protested these guidelines and as a result, the updated guidelines removed the restrictive clauses (Guidelines for Import/Export [Cross Border] of Electricity-2018, 2018). However, in February 2021, the CEA issued “procedures” for any entity to import or trade electricity from a generating station located outside of India using the Indian electricity grid. These procedures have repeated the restrictive clauses that make regional electricity trade dependent on New Delhi’s consent and deny the use of Indian grids by any electricity generation projects owned or controlled by any third country sharing a “land border” with India (CEA 2021: 15).

The trade of electricity creates regional interdependencies that India can use to assert its political and economic centrality in the region since inter-regional trade would not be possible without using Indian infrastructure. Indian hydrocrats have been protective of their geoeconomic position in South Asia—especially in Nepal. These guidelines reaffirm India’s centrality—something New Delhi views as being *threatened*—by discouraging trilateral trading of electricity or regional groupings among South Asian states that could stand up to India.⁶⁶ According to one former Joint Secretary in India’s Ministry of Power, Chinese

⁶⁶ Personal communication, former Ambassador of India to Nepal, 09/10/2020

investments in Nepal's hydropower could replace India as the sole economic actor in the sector.⁶⁷ These guidelines, hence, offset Chinese influence in the energy and water resources sectors of Nepal.⁶⁸ The *extraordinary measure* that makes the issuing of these restrictive guidelines a *securitising move* is that they go against the spirit of energy cooperation as endeavoured by Indian officials and politicians. India has proclaimed ambitions of global grid connectivity to offset the need for energy storage, balance electricity grids, and encourage energy transition (Modi, 2021). India also pledged at the 2014 SAARC (South Asian Association for Regional Cooperation) summit to encourage regional electricity trade. The *functional actors*, in this case, are the members of Nepali and Bhutanese civil society and government officials who protested the promulgation of the guidelines.

6.4 CONCLUSION

This chapter has illustrated the various ways Indian hydrocrats practise security. These practices are either to allude to what the hydrocrats perceive as a security threat or to address it. Their institutional knowledge and technical expertise are employed under the structure set by elites. How this structure is established by the elites could be a subject of future research, but what is important to note here is the agency of the epistemic community (hydrocrats) in matters of securitisation. For instance, Indian hydrocrats used their knowledge of procedural and legal requirements of regional electricity trade to ensure India retains its centrality in the region and also remains the only hydropower developer in Nepal (statutory act). Similarly, the building of a reservoir to offset—what these hydrocrats perceive to be a threat to water security in Northeast India as well as India's claim to prior use rights under international water law—can be seen as a result of their institutional expertise (structural act).

This focus on an epistemic community helps address the criticism of the securitisation theory among a section of scholars that view the traditional view of securitisation as elitist and ignoring the Weberian routines of rationalisation. Scholars of international relations may find the role of hydrocrats in securitising and responding to securitisation interesting as it highlights the constructivist nature of international politics. The findings of the chapter aim to contribute to the growing debate on securitisation as understood by scholars Balzacq, Bigo, and Floyd.

⁶⁷ Personal communication, former Joint Secretary, Ministry of Power, Govt of India, 14/10/2022 and former Ambassador of India to Nepal, 09/10/2020.

⁶⁸ Personal communication, former Joint Secretary, Ministry of Power, Govt of India, 14/10/2022.

It should be noted that the three acts of security identified in this research—structural, institutional, and statutory—are not mutually exclusive. A structural act (of promulgating a dam to claim prior rights) or statutory act (of publishing guidelines reinforcing the centrality of India in the region’s energy politics) are conducted within an institution (Central Water Commission and Central Electricity Authority, for instance). These two acts have a legitimate claim to be institutional in nature along with being ‘structural’ or ‘statutory’.

The practices discussed in this chapter are by no means exhaustive. There may be other practices in the hydrocracy’s ‘toolbox’ to deal with matters of security that may be unexplored in this research. Further research could reveal other methods of securitisation by hydrocrats. Moreover, this chapter did not focus on counter-securitisation conducted by Nepali and Chinese hydrocrats. These could be interesting opportunities for further research.

CHAPTER 7: LOCATING INTERNATIONAL LAW IN HYDROPOLITICS

7.1 INTRODUCTION

The uniqueness of water resources that are shared by states can be understood from the fact that globally there are 286 transboundary rivers and lake basins (UN-Water, n.d.), and 468 aquifer systems outside the EU, Switzerland, and Norway (IGRAC, 2021). At least 153 countries have territories within these transboundary rivers and lakes, and almost every country has a territory with a transboundary aquifer. Despite the ubiquity and centrality of transboundary water resources in a state’s freshwater resources, only 24 states have reported that their transboundary basins are covered by cooperation arrangements and only 32 states have 90% or more of their transboundary basin area covered by operational arrangements (ibid). As states turn to dams to address climate change impacts (see Ahlers et al., 2015; Dye, 2019; Gerlak et al., 2019; Karambelkar, 2017), it is becoming increasingly essential to address the inadequacies of international water law. Having saturated domestic rivers, often enough these dams are on shared, transboundary rivers (Elhance, 1999). Transboundary water resources face challenges arising from increasing population, urbanisation, industrialisation, degradation of the environment, and hydrological variability (Salman, 2007b). As we will see, asymmetrical power equations over these transboundary water resources governance and negotiations are further complicated due to ambiguous and ineffectual international laws.

Table 7.1. Incentives for cooperation, case studies, and mechanisms for sharing benefits.

Incentive for cooperation	Case study	Type of benefit-sharing mechanism
Cooperation leads to higher gains compared to unilateral action	Development of dams on river Senegal by Mali, Mauritania, and Senegal	The cost of the project is shared proportionate to the benefits received by each state
Altering the design of a dam upstream will increase aggregate net benefits	Columbia River Treaty between Canada and the United States	The party altering its unilateral dam design is compensated for any losses it incurs as a result of this alteration, and net benefits of cooperation are shared
Locating a dam upstream will increase aggregate net benefits	Lesotho Highlands Water Project on the River Senqu-Orange:	The downstream state convinces the upstream state to build a dam, covers the cost and shares the net benefits derived from the dam
Compensating for the negative impacts of projects will preclude conflict	Aswan High Dam on the Nile River	The downstream state compensates the upstream for the damage caused by the project and shares project benefits

A joint dam on a border river will produce mutual benefits	Kariba Dam on the River Zambezi (Zambia, Zimbabwe); Itaipu Dam on the Río Paraná (Brazil, Paraguay)	The cost of the project Is shared proportionate to the benefits received by each state
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Source: Hensengerth et al. (2012)

This chapter examines how the inadequacies and incongruities of the UN Watercourses Convention (UNWC) stifle cooperation between India and Nepal on multipurpose reservoirs in the Mahakali and Koshi basins. In particular, I show how international water law fails to provide a resolution on issues such as benefit-sharing, prior vs equitable rights, equal vs equitable use, and calculating benefits. This chapter also illustrates how the two sides have varying interpretations of international water law and the implications of these laws in governing the projects on shared rivers. These interpretations are often self-serving and at odds with the principles that have guided the governance of transboundary rivers elsewhere (see Table 7.1). I further argue that these distinct views on the principles of water laws also reflect asymmetrical powers. These asymmetrical powers range from bargaining power to geographical, material, and ideational power (Cascão & Zeitoun, 2010). As mentioned in the introduction, the chapter uses the case studies of the Pancheshwar Multipurpose Project and Saptakoshi High Dam Multipurpose Project, and SunKoshi Storage Cum Diversion Scheme—the latter two being elements of the same project and jointly referred to as the SKSK (SaptaKoshi-SunKoshi) project from hereon.

Previous work on the India-Nepal water relationship demonstrates that large infrastructure projects on shared rivers are often the source of acrimonious bilateral relations (see Bhushal, 2014; Dhungel, 2009; Dixit & Gyawali, 2010; Gyawali, 2018; Mirumachi, 2013; Pun, 2008; Swain, 2018). Be it the Tanakpur barrage or Sharda barrage on the Mahakali River, or the Koshi barrage on the Koshi River, building structures that impact the natural flow of water has invariably led to tensions and conflict between the two states (Dhungel, 2009; Mirumachi, 2013). The Pancheshwar dam, designed to be 315 metres in height, will be the tallest globally, with a surface area of 116 sq. km. Among other elements of the integrated project, the SKSK is designed to have a high dam of height 269 metres (the Saptakoshi High Dam) and is seen as a way to tame the Koshi, referred to as the “sorrow of Bihar” and responsible for its annual flooding. The projects (Pancheshwar and SKSK) are also a lynchpin for the proposed interlinking of Indian rivers. The Pancheshwar will link Mahakali with the Yamuna, and the SKSK will link Koshi with Ghagra (see Figures 3.4 and 6.3). The scale, size, and importance

of these projects mean they are ideal units to study the factors that impede cooperation between India and Nepal on shared waters and how the inadequacies of international water laws manifest themselves in bilateral negotiations on water governance.

Data from fieldwork in New Delhi and Kathmandu suggests that at the root of the conflict is the inability to agree on (a) cost apportionment, (b) the calculation of downstream benefits, (c) benefit-sharing mechanisms, (d) the meaning of equitable entitlement to water, and I the validity of India's claim of prior rights over the water of Mahakali.

7.1.1 HYDROPOLITICS OF TRANSBOUNDARY WATER RESOURCES

Until recently, the literature on hydro-politics of transboundary water resource governance had not considered power asymmetry between states (Vij, Warner, & Barua, 2020). There have been recent attempts to address this power blindness. A special issue of *Water International* tried to investigate the impact of various forms of power on hydro-diplomacy and transboundary interactions between states.⁶⁹ Other attempts to understand the various forms of power as variables in transboundary water interaction include Woodhouse & Zeitoun (2008), Zeitoun & Allan (2008), Cascão & Zeitoun (2010), Zeitoun & Warner (2006), Mirumachi (2015, 2020), Daoudy (2008); Vij, Warner, Biesbroek, et al (2020). These scholars identified the various forms of power in the transboundary context. Some of the forms of power are economic, military (or 'hard power'), ideational power, and geographical power (see Cascão & Zeitoun, 2010). A state with higher financial resources can afford to better exploit shared rivers, even if unilaterally, and military power can be used by states to compel riparian neighbours over shared rivers—should the state decide to use covert force. However, it is important to note here how ideational or geographical power plays a role in the hydro-politics of shared water resources. For instance, in order to interpret and use international laws, multilateral treaties, or lobby in international organisations, states may require the power of ideas or expertise. A useful measure of this ideational power can be the sizes of states' delegations to international organisations (the UN or WTO for example) since delegations could build alliances with fellow riparians, lobby with the chair of the organisation, prepare drafts for negotiators, counter the ideational power of the stronger riparian. Another measure of ideational power can be the ability of states to use legal representation (often very expensive), or the availability of research organisations or think tanks domestically to research and equip the organisations with arguments (see Panke, 2012a, 2012b). Ideational power is

⁶⁹ See *Water International*, volume 45, issue 4 (2020), special issue 'Power in water diplomacy.'

often derived from financial power. Geographical power matters immensely in the governance of shared rivers, though not conclusively, and the discussion on water law that follows in this chapter highlights how riparian positions often determine how resources will be managed. Cascão & Zeitoun (2010) argue that upper riparians have a distinct advantage as they can divert or dam rivers, though the geographic position is not the ultimate factor and can be subservient to financial power.

An interview with a Nepali scholar revealed how the lack of established think tanks (private and government-funded) relative to India puts Nepal in a weaker position in negotiations with India.⁷⁰ This is corroborated by Viji, Warner, Biesbroek, et al (2020) who argue that India uses its ideational and material power to maintain the status quo in the Brahmaputra basin with Bangladesh. The emphasis here is on the material and ideational powers, but the paper also deals with geographical variables, namely India's position as the upstream state vis-à-vis Bangladesh. This geographical power allowed Indian policymakers to make unilateral decisions (ibid). To be sure, it would be incorrect to claim India as a hydro-hegemon going by definition set by Zeitoun & Warner (2006). Hanasz (2017) maintains that while India has not (yet?) become a hydro-hegemon, it has also not been able to engage in positive-sum interactions on transboundary water resource governance. In other words, neither hegemon nor ally.

Taking a considered view of power as a variable in bilateral riparian relations, this chapter focuses primarily on how the inadequacies of international water laws manifest themselves in bilateral negotiations on water governance between India and Nepal. It departs from the literature on power in hydro-politics to locate the role of international water laws in transboundary disputes. Section 6.2 introduces international water law, locates the principles of benefit-sharing in the law, and presents the conflicts between Articles V-VI and Article VII of the UN Watercourses Convention (UNWC). Section 6.3 introduces and discusses the findings of the research. It locates how the inadequate benefit-sharing principles in UNWC and the confusion over calculating benefits stifle cooperation between Nepal and India. I discuss how disputes over Article VI on UNWC that determine the factors leading to equitable utilisation, the struggle over prior use and equitable use, and the confusion over equal and

⁷⁰ Personal communication with Nepali Scholar, 6 March 2021.

equitable rights hinder meaningful cooperation over shared rivers between the two sides. Lastly, section 6.4 concludes the chapter and discusses the way forward.

7.2 WATER LAWS AND BENEFIT-SHARING

7.2.1 GENESIS OF INTERNATIONAL WATER LAW

In May 1997, the UN General Assembly adopted the UN Watercourses Convention—formally called the Convention on the Law of Non-Navigational Uses of International Watercourses. States looking to develop and manage shared water resources look at the Convention for guidance (Hensengerth et al., 2012; Lee, 2015; Tawfik & Ines, 2018; Upadhyay & Gaudel, 2017; Yihdego et al., 2017). With just 16 signatories and 37 ‘parties to the convention’ (neither India nor Nepal is a signatory or party to this Convention), most states remain outside the Convention's purview. However, its adoption in the UN General Assembly gives states a point of reference during negotiations. The UNWC itself succeeded the Helsinki Rules⁷¹ adopted by the International Law Association (ILA) in 1966. The principle of ‘reasonable and equitable utilisation of water’ was established by the Helsinki Rules (Salman, 2007a). Although the Helsinki Rules are not legally binding, they are the “single most authoritative and widely quoted set of rules” governing transboundary waters (Salman, 2007a: 630). In August 2004, a revised form of the Helsinki Rules was approved by the ILA called the Berlin Rules. These rules are more extensive than the Helsinki Rules and UNWC and try to conciliate the conflict between the principles of reasonable and equitable utilisation and the obligation to not cause harm. However, Salman (2007a) states that instead of clarifying the relationship between these two principles, the Berlin Rules have added to the confusion.

7.2.2 LOCATING BENEFIT-SHARING IN INTERNATIONAL WATER LAW

The concept of benefit-sharing does not have an authoritative definition since it is not explicitly mentioned in either of the international water laws. Nevertheless, it has been defined by some scholars as “any action designed to change the allocation of costs and benefits associated with cooperation” (Sadoff & Grey, 2005: 422). Benefits here have been defined as “economic, social, environmental, and political gains” (ibid: 421). While these laws do not explicitly deal with benefit-sharing, their principles on “equitable and reasonable utilisation of international

⁷¹ Formally known as the Helsinki Rules on the Uses of the Waters of International Rivers and succeeded by the Berlin Rules on Water Resources in 2004. Neither Helsinki Rules nor Berlin Rules differs from conventions or treaties and have no legal binding. They, however, reflect customary principles.

watercourse,”⁷² on the “obligation of states not to cause significant harm to co-riparians,”⁷³ address the same contentious issues of benefits-sharing in transboundary water resource governance. These contentious issues include questions over the sharing of water for various uses—irrigation, drinking, maintaining environmental flows, flood control, and hydropower generation. It could also involve questions of who pays how much as compensation to the affected communities, the legal validity of prior rights over water, and which side gets how much share of the hydroelectricity.⁷⁴ The provisions under “equitable and reasonable utilisation” and “not causing harm” are meant to help in addressing these fractious questions.

Hensengerth et al (2012: 02) interpret benefit-sharing as the “translation into practice” of international water law—translation, especially, of the principles of equitable and reasonable utilisation and the absence of harm. Data gathered from India and Nepal reveals that it is these questions over benefit-sharing that are a hurdle to cooperation between the two states (more on this in the following sections). It is then essential to locate benefit-sharing in international water law and examine why it is proving to be ineffectual in the Indo-Nepal case.

The practice of benefit-sharing in international watercourses is believed to have started with the 1961 Columbia River Treaty between Canada and the United States (McIntyre, 2015; Tarlock & Wouters, 2007). This treaty deals with the development and operation of four dams on the upper Columbian River to generate electricity, water for irrigation, and flood control. The treaty addresses the issues of benefit-sharing between Canada and the US wherein upstream Canada is entitled to receive compensation for the downstream benefits accrued by the US. The treaty was facilitated by an International Joint Commission (IJC) established in 1909. The two states requested the IJC to develop principles that will govern the sharing of benefits. The joint commission’s report states that it was guided by the concept that the principles recommended in the report should result in the “equitable sharing of the benefits” and that these benefits “should result in an advantage to each country as compared with alternatives available to that country” (IJC, 1959: 02).

⁷² Articles 5 and 6 in the UNWC, Articles 4 and 5 in the Helsinki Rules, and Articles 12 and 13 in Berlin Rules

⁷³ Article 7 in the UNWC, Article 16 in the Berlin Rules

⁷⁴ Benefit-sharing here is in the context of transboundary water resources. In different contexts, benefit-sharing means something else. For instance, in the case of mining natural resources, it could mean sharing benefits with the local community that has been uprooted from their lands in the form of compensations, monetary or otherwise.

7.2.3 FIRST DEVELOPERS VERSUS LATE DEVELOPERS

Some scholars have argued that international water law is biased towards first developers as the principle of equitable utilisation and doing no harm are biased in favour of early developers as all three conventions have clauses that specify the precedence of any existing treaties between riparians, even if the existing treaties are inequitable or unjust (Wegerich & Olsson, 2010). This, it is argued, leaves the late developers with no incentive to subscribe to such rules or conventions. This is contested by Zeitoun (2015: 950), who argues that international water law is relevant to late-developing upstream states and that the “chief legal instruments are found to contain no provisions which compromise upstream development or privilege downstream development.”

Wegerich and Olsson (2010) argue that since the three conventions do not supersede any existing arrangements between states, first developers can use existing treaties (even if they are unequal) to counter the more egalitarian principles of international water law embodied by the three conventions (ibid). Furthermore, Article 6 of the UNWC is seen as ambiguous, which could potentially steer riparians towards “equalising” shares of water while creating an “illusion of guiding equitable water allocation” (Lankford, 2013: 131). This is due to the insufficient level of detail and necessary mechanism required in an international treaty to take water allocation to an unambiguous conclusion (ibid). Article 6 could lead to confusion in non-common law countries where the notion of equity may be lacking (Dellapenna, 2001)⁷⁵. The confusion over equal share instead of equitable share could be problematic since it does not recognise differing demands and needs in different states or the difference in the size of the state, population, or irrigation demand. Lankford (2013) argues that an equal share of water resources without an appreciation for differing needs could also lead to inefficient use of water resources.

Moreover, some scholars argue that international water law has been blind to hydro-hegemony and the relative powers of states (Tarlock & Wouters, 2007; Woodhouse & Zeitoun, 2008).⁷⁶ Fair and just sharing of benefits from transboundary developments depends on the weaker state’s bargaining leverage or the generosity of the stronger riparian. Woodhouse and Zeitoun

⁷⁵ Common law refers to legal systems that give great importance to judicial precedents in matters where the law is unclear, or the parties disagree on the interpretation of the law. In common law the style of judicial reasoning is inherited from the English legal system. In contrast to common law, there are other legal systems which could be civil law, customary law, religious law, or a combination of two or more of these systems.

⁷⁶ These powers could be bargaining, ideational, material or geographical powers as Cascão and Zeitoun (2010) explain.

(2008: 103) argue that international water law is “blind” to hydro-hegemony where powerful states use “covert power” to impose “inequitable “and “unreasonable” water-sharing arrangements. The covert actions could include “incentives, coercion, manipulation and mild forms of thought-control” (ibid: 104). These covert actions are typically used in negotiations between riparians to influence the discourse or ideas of the co-riparian (ibid).

7.2.4 SIGNIFICANT HARM VERSUS REASONABLE, EQUITABLE USE: CONTENTIOUS INTERPRETATIONS BY STATES

Interpretation of the principles of the UNWC has been a contentious issue between states. The source of conflict is the often self-serving interpretation by states of the Convention’s articles on ‘equitable and reasonable utilisation and participation’ and the ‘obligation not to cause significant harm’ (UN, 1997). Upstream states have tended to favour the principle of equitable and reasonable utilisation of the UNWC during negotiations, while downstream states invoke the obligation of states not to cause significant harm (McIntyre, 2015; Salman, 2015). Many upstream states believe that the Convention is biased against their interest and favouring downstream states due to Article 7 calling for watercourse states to take “appropriate measures to prevent the causing of significant harm to other watercourse states” (Salman, 2015; UN, 1997: 05). The obligation of not causing significant harm is perceived by upper riparian states to be stacked against them as it forecloses their options of utilising water resources within their boundary and protects the existing use of transboundary rivers by lower riparian states against the activities of upper riparians (Salman, 2010, 2015). The upper riparians favour Articles 5 and 6 which call for ‘equitable and reasonable utilisation and participation’ of watercourses by states in their respective territories (UN, 1997: 04).

On the other hand, downstream states express their annoyance at the perceived subordination of the ‘no-harm’ principle to the ‘equitable and reasonable utilisation’ principle by abstaining from the 1997 UN General Assembly vote on the Convention (Salman, 2015). Downstream states subscribe to the no-harm obligation as they believe that this principle protects their existing use against any projects or measures that could affect the water flow (Salman, 2007b). Additionally, downstream states believe this principle mandates upstream states to notify them of any project and assure them such measures would not harm their interests (ibid). As we shall see in the following section, the relationship between these two principles and disagreements over which principle takes precedence continues to cause misunderstandings, particularly in the India-Nepal riparian relationship when they debate over the legal validity of the lower Sharda barrage and how to divide the waters of Mahakali.

Cooperation between states on building and governing projects on shared rivers depends on geography, the position of states in the basin, and power structures. Hensengerth et al (2012: 32) state that cooperation between states depends on “hydrological and political boundaries and the location of the dam in relation to them.” The incentives for states to cooperate on transboundary development, the case studies that illustrate incentives, and the mechanism for sharing benefits in these case studies are illustrated in Table 7.1. Sadoff & Grey (2005) state that benefit-sharing arrangements involve payments for benefits or compensation for costs. In some cases, the downstream states may pay the upstream state for watershed management that benefits the former, such as reduced flooding and sediment load (ibid). More generally, benefit-sharing is valuable since it focuses on sharing benefits from the transboundary river beyond merely sharing volumetric quantities of water (Sadoff & Grey, 2002).

Critics of the benefit-sharing framework argue that it prematurely apportions future usage of the benefits and ignores the detrimental effects on the aquatic ecosystem of the rivers (Tarlock & Wouters, 2007: 524). Shared benefits also ignore questions of social justice, poverty alleviation or the failure of these projects to benefit the affected communities (ibid). Though this chapter is not intended to look at the role of large dams in alleviating the impacts of climate change or examining the social implications of dam-building, it is important to note that Tarlock & Wouters (2007) have criticised the benefit-sharing framework for not engaging with these larger debates.

7.3 FINDINGS

7.3.1 BENEFIT-SHARING IN THE INDO-NEPAL HYDROPOWER CONTEXT

The root cause of the conflict lies in the disagreements between the two countries on sharing water and benefits, cost-apportionment, the interpretation of the source of the river, the status of the lower Sharda barrage, and calculating downstream benefits. The share of each side towards the project’s cost depends on its respective benefits (Mahakali Treaty, 1996). Benefits, in this case, are calculated as hydroelectricity, and the additional volume of water available after the project comes up. This water would be used for irrigation, flood control, interlinking of rivers, inland navigation, maintaining existing canal networks etc. However, some of these benefits are contested by the downstream country—India—as the chapter will illustrate in sections 7.4.3 and 7.4.4. While it is not yet decided how the costs of the SKSK project will be shared, it is widely assumed in both countries that it will follow the principle set in the Mahakali treaty of cost-sharing according to the benefits accrued. Nepali officials accuse India of

underplaying the benefits that it will receive from these projects as a strategy to undercut its share of the cost towards the project.⁷⁷

7.3.2 FACTORS DETERMINING EQUITABLE SHARE AND TERRITORIAL DISPUTES OVER MAHAKALI

According to Article V of the Helsinki Rules and Article VI of the UNWC, the factors that determine a reasonable and equitable share of the benefits include the geography and hydrology of the basin. In particular, the extent of the “drainage area in the territory of each basin State” and the “contribution of water by each basin State” (The Helsinki Rules On The Uses Of Waters Of International Rivers, 1967: Article V). There is a consensus among serving and retired Indian hydrocrats from various departments that such is the geography of the Mahakali River basin where the Pancheshwar project is supposed to be built, that 80% of the catchment area is within India and only 20% within Nepal; 80% of the rainfall that feeds the river is within India, and 67% of the submergence due to the dam is also on the Indian side.⁷⁸ The area that will be submerged and affected on the Indian side is densely populated compared to Nepal. Therefore, displacement and the consequent costs of resettlement and rehabilitation of people are higher on the Indian side.⁷⁹ While customary laws like Helsinki Rules have guided the drafting of the Mahakali Treaty, there is an assertion among Indian hydrocrats that India has been generous with Nepal, despite much lower costs (in terms of submergence and people to be resettled), and despite international law on their side. Nepal’s insistence on sharing the benefits of the project *equally* is the source of frustration among these hydrocrats.⁸⁰

However, a member of the Nepali delegation for the 1996 Mahakali Agreement pointed out that the catchment area of a river depends on the source of the river, and since the source of the Mahakali is bitterly contested by both countries, it is not possible to claim that 80% of the catchment area is within India.⁸¹ One former Joint Secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, argues that if a similar logic is applied, then 100% of the catchment area of Koshi and Gandak rivers lies within Nepal, and “despite this,

⁷⁷ Personal communication with retired and serving members of the Nepali Civil Service

⁷⁸ Personal communication with current and retired members of the Indian Civil Service that work on hydropower development and governance, irrigation management, and flood control.

⁷⁹ According to the Detailed Project Report, of the 116 sq.kms of land that will be submerged from Pancheshwar, 76 sq.kms lie in India, and the rest in Nepal. 123 ‘revenue villages’ lie in India, while 25 Village Development Committees lie in Nepal. Similarly, the project will affect 31,023 families in India, and 2786 families in Nepal.

⁸⁰ Personal communication with serving and retired bureaucrats in the Ministry of Jal Shakti, Central Water Commission, and Pancheshwar Development Authority.

⁸¹ Personal communication with a member of the Nepali team that negotiated the Mahakali treaty in 1996, 18 April 2021.

India has constructed barrages at the India-Nepal border’ and consumes “90-95% of the water.”⁸² India is not entitled to “a drop of water” from these rivers in such a case, the official asserts.⁸³ The catchment area of some South Asian rivers is in China; such logic would be dangerous for India, the official added.

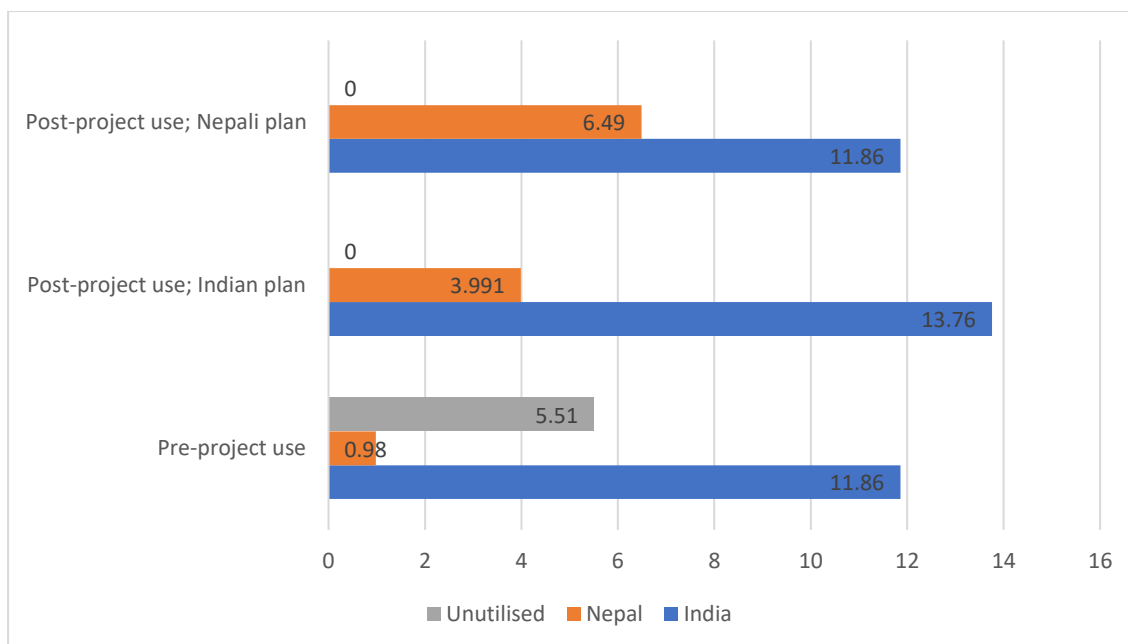
7.3.3 PRIOR USE VS EQUITABLE USE: LOWER SARADA BARRAGE

For the Indian side, the Pancheshwar and SKSK projects are crucial for building surface water irrigation infrastructure in the Gangetic plain. The Pancheshwar project, for instance, aims to ensure year-round irrigation of land under the Sharada command (1.61 million hectares) by providing water in the dry season (WAPCOS, 2017). However, questions have been asked about the economic value of this augmented flow during the dry season since agricultural productivity remains low in the Ganges basin, and water is not seen as a constraint to this low productivity (World Bank, 2014). According to the World Bank (2014), agricultural productivity in the basin can be increased through policy reforms, modernisation, and changes in farming practices. Additional water may be a “welcome resource for some communities,” but upstream dams alone would not be able to modernise agriculture in the Gangetic Plain and require “national-level investments and policy reforms” (World Bank, 2014: 14). The report suggests that better groundwater utilisation and water storage in underground aquifers could be a more sustainable alternative to upstream storage dams (like Pancheshwar and SKSK). Nevertheless, successive Indian governments have seen the low agricultural productivity as a problem that can be addressed by providing water in the dry season by storing it in dams instead of the long-drawn process of reforming and modernising agriculture. In this context, water from the Mahakali River is proposed to provide year-round irrigation in the Sharda command.

Figure 7.1 Utilising Mahakali River

⁸² Personal communication with a former Joint Secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, 15 March 2021.

⁸³ Personal communication with a former Joint Secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, 15 March 2021.



The annual water availability in the Mahakali is estimated to be around 18.35 BCM. Out of this, 11.86 BCM is being utilised by India currently in the existing irrigation projects in the Sharda basin. Nepal utilises 0.98 BCM of water from the Upper Sharda barrage. The balance of the water is unutilised and passes off as floods into the sea, having traversed the breadth of India. Of the 11.86 BCM of water used annually by India, roughly 7 BCM / year is drawn from the Upper Sharda barrage and 5 BCM from the lower Sharda barrage that lies 160 km into the Indian side of the Indo-Nepal border. According to the plans prepared by WAPCOS,⁸⁴ once the project comes up, of the unutilised water (5.51 BCM), Nepal will be entitled to get 3.011 BCM of water, and India will be entitled to 1.90 BCM. These plans are unacceptable to the Nepali hydrocrats, who believe that the 5 BCM of water that India is using at the lower Sharda barrage resulted from unilateral construction by India and that the barrage has no status in the Mahakali treaty.⁸⁵ A former Nepali Water Resources Minister and a retired Joint Secretary at MoEWRI assert that once the project comes up, India cannot claim rights over the 5 BCM of water it uses at the lower Sharda barrage as existing consumptive use.⁸⁶ Nepali officials state that once the project is built, India can *rightfully* take the 5 BCM of water at the lower Sharda barrage (something India does currently anyway), and Nepal should be entitled to the entire 5.51 BCM

⁸⁴ Water and Power Consultancy Services, Indian state-owned consultancy organisation

⁸⁵ Personal communication with a former water resources minister in the Nepali govt, 29 November 2020.

⁸⁶ Personal communication with a former water resources minister in the Nepali govt and a former joint secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, 29 November 2020, and 15 March 2021.

(that currently flows into the sea).⁸⁷ This would take Nepal's share of water from 0.98 BCM to 6.49 BCM (0.98 BCM that it currently draws plus the 5.51 that will be available after the dam comes up).⁸⁸ While India's share would remain at 11.86 BCM.⁸⁹ The claims of both sides, along with current usage, are illustrated in Figure 7.1. The claims of existing usage foreclosing water utilisation by upstream states have been a bone of contention among states sharing rivers (Salman, 2010, 2015).

Hydrocrats from the Central Water Commission, New Delhi, insist that they have been using the water flowing from Nepal into the lower Sharda barrage for irrigating 1.61 million hectares of land on the Gangetic plain since the 1970s, and to now rescind such usage would nullify the water benefits that Pancheshwar will provide India. A former member of the Pancheshwar Development Authority remarked that after Pancheshwar is built, "India will only augment the supply of water during the dry season to areas that are already irrigated using the existing canal network."⁹⁰ Engineers at the CWC and their counterparts in Nepal's WECS (Water and Energy Commission Secretariat) noted that India wants any calculation on water-sharing should recognise that the five BCM of water it receives at lower Sharda should continue to be calculated as "pre-project use" and should be earmarked for India.⁹¹ Officials in the CWC insist that Nepal utilise the Mahakali River as much as possible and leave the rest flowing into India. In other words, India has rights over any unutilised portion of water from Mahakali.⁹²

Such an assertion from India is opposed by Nepali hydrocracy which believes that such prior use stricture forecloses Nepal's options of receiving an additional volume of water. According to a former water resources minister in the Nepali Government, the claim of prior rights over five BCM of water received at the lower Sharda barrage is dubious since, according to him, the water from Mahakali dries up in the dry season and is not enough to irrigate the command area.⁹³ There is also a belief among Nepali hydrocracy that once the project comes up, the volume of water at the lower Sharda barrage will decrease enormously (owing to the changed

⁸⁷ Personal communication with a former water resources minister in the Nepali govt and a former joint secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, 29 November 2020, and 15 March 2021.

⁸⁸ Personal communication with Chief Engineers in Central Water Commission, New Delhi; serving and retired bureaucrats, Water and Energy Commission Secretariat, Kathmandu.

⁸⁹ Seven BCM from upper Sharda plus five BCM from lower Sharda.

⁹⁰ Personal communication with former member of the Pancheshwar Development Authority, 21 July 2021.

⁹¹ Personal communication with Chief Engineers in Central Water Commission, New Delhi; serving and retired bureaucrats, Water and Energy Commission Secretariat, Kathmandu

⁹² Personal communication with senior bureaucrats in the Central Water Commission, New Delhi, and PDA, New Delhi, 12 December 2020.

⁹³ Interview with a former water resources minister in the GoN, 29 November 2020.

flow of the river), and hence India cannot claim the same amount of water it is currently withdrawing.⁹⁴ Indian engineers and policymakers believe the rationale behind Nepal's firm stance on the *equal entitlement* of water (as opposed to an *equitable* share of water)—despite their limited domestic need—is an attempt to “monetise” the water flowing into India from the river.⁹⁵ This monetisation would mean India paying Nepal for allowing the water to flow into India naturally. “Nepal has not been able to build the canal structure that will allow them to use water from the Tanakpur barrage. During negotiations, we asked them to show us the area where they plan to take such a volume of water,” a former member of the PDA remarked.

7.3.4 EQUAL VS EQUITABLE ENTITLEMENT

Article three of the Mahakali treaty states that “both the parties agree that they have *equal entitlement* in the utilisation of the waters of the Mahakali River *without prejudice to their respective existing consumptive uses* of the waters of the Mahakali River” (1996). But as one former Joint Secretary in the MoEWRI (Ministry of Energy, Water Resources and Irrigation, Government of Nepal) put it, the “equal entitlement” has no meaning since it is not clear if the equal entitlement to water is before the project or after the project.⁹⁶ Blaming wily Indian negotiators, a senior Nepali bureaucrat remarked that equal entitlement has no meaning since Nepal cannot hold its share of water for even a month (because of the lack of storage reservoirs) or transfer the water elsewhere. This means that water flows into India by default. The inability of Nepal to absorb such a large volume of water, due to its smaller geography and lesser irrigable land, is a fact well-known to the Indian negotiators; and something that they are too happy to exploit by insisting on *sharing water not benefits*.⁹⁷

The “equal entitlement” to water and respect for the “existing consumptive uses” of the water was further reiterated in an exchange of letters between the two countries’ foreign ministers (the Lohani-Mukherjee exchange of letters) in 1996. Clause three of the letter emphasises that Article 3 of the Mahakali treaty “precludes the claim, in any form, by either party on the unutilised portion of the shares of the waters of the Mahakali River of that Party without affecting the provision of the withdrawal of the respective shares of the waters of the Mahakali

⁹⁴ Interview with a senior member of the Water and Energy Commission Secretariat, Government of Nepal, 10 March 2021.

⁹⁵ Interview with engineers and bureaucrats in the Central Water Commission, New Delhi; and Ministry of Jal Shakti, New Delhi.

⁹⁶ Personal communication with a former Joint Secretary at the Ministry of Energy, Water Resources and Irrigation, Government of Nepal, 15 March 2021.

⁹⁷ A consensus among Nepali elites as reflected in the interviews and evident also from Indian stance on letting Nepal ‘use as much water as it can’ and leave the rest for India.

River by each party under this Treaty” (Dhungel, 2009: 58). In other words, neither India nor Nepal can claim rights over the unutilised portion of the Mahakali River without affecting the other. Some in Nepal believe this clause prevents Nepal from claiming financial benefits from its equal entitlement to the waters if Nepal fails to use this water within its territory and allows it to flow downstream (Gyawali & Dixit, 1999: 19-20). However, even if Nepal cannot use its share of water, it can trade it or exchange it for something else, a former Water Resources Minister in the Nepali Government remarked. Indian hydrocrats see this assertion of exchanging its share of water for something else as a ploy by Nepal to monetise shared waters.

There is a belief among Nepali elites that the treaty was ramrodded through the Nepali Parliament without adequate discussion despite a two-thirds majority (Gyawali & Dixit, 1999). The members of the Nepali negotiating team later regretted the addition of Article III of the treaty, with a member of the team ruminating whether the Parliament should have stood by the treaty or accepted the lapse of judgment and called for re-negotiation (Dhungel, 2009). Rather than the two options, the Nepali Parliament ratified the treaty in September 1996 with a stricture binding on the Nepali Government. The elements of the stricture were:

1. Nepal’s electricity to be bought by India will be sold as per the “avoided cost” principle.⁹⁸
2. When the Mahakali Commission is constituted, it will be done only upon agreement with the main opposition party in Parliament and parties recognised as national parties.
3. “Equal entitlement in the utilisation of the waters of the Mahakali River without prejudice to their respective existing consumptive uses of the Mahakali River” means equal rights to all the waters of the Mahakali; and
4. Saying that “Mahakali is a boundary river on major stretches between the two countries” is the same as saying it is “basically a border river” (Dhungel & Pun, 2009: 412-13)

This stricture precludes any Nepali Government from going ahead on the Pancheshwar Dam without an agreement on equal entitlement on the Mahakali River even if Nepal cannot utilise this water for its domestic use.

⁹⁸ Here avoided cost would mean the purported costs towards rehabilitation of people after a flood, the revenue forgone due to poor irrigation network, and generally the expenses incurred due to non-development of the Pancheshwar project.

7.3.5 DOWNSTREAM BENEFITS

The large dams planned on the Mahakali and Koshi rivers will—along with generating electricity—also provide water for irrigation during the dry season (temporal and spatial transfer of water), provide some ability to manage flood peaks, assist in interlinking of Indian rivers, and build inland waterways in India. The Nepali hydrocracy is united in its belief that India has been dishonest about its real intention behind these projects: lean season augmentation of water for irrigation and not hydroelectricity or flood control. As a strategy to reduce their share of cost towards the project, India does not acknowledge the downstream benefits of the Pancheshwar and SKSK projects.⁹⁹ The Pancheshwar environmental impact assessment also asserts that the project is “primarily aimed at energy production” (WAPCOS, 2017: 01). Conversation during negotiations on Pancheshwar revolved around hydroelectricity and how this energy will be shared and traded.¹⁰⁰ However, as a former water resources minister in the Nepali Government said, Indian interests are not electricity but water. During the critical dry season (December-May), Nepal’s glacial-fed Himalayan rivers contribute 70 per cent of the Ganges water during the dry season (Khadka, 2019). The Ganges basin is home to 37 per cent of India’s population (Sharma, 1997). One retired Director of the Nepal Electricity Authority remarked that India’s most significant problem in the Ganges basin is water during the dry season [not hydroelectricity as Indian negotiators often assert].¹⁰¹ Another explanation is that the 2,500 MW of electricity that will be each state’s share from Pancheshwar is a “trickle” for India, and Indian hydrocrats would not spend so much time and political capital on electricity.¹⁰² India’s real interest lies in seeing the water of Mahakali stored and augmented during the lean season for various downstream services.¹⁰³

Nepali hydrocrats who were part of the negotiating team also pointed out that India has been downplaying its flood control benefits. According to the Pancheshwar DPR (Detailed Project Report) prepared by the Indian side, “since no dedicated storage is proposed for flood control, benefits on account of reduced floods are *incidental*” (PDA, n.d.). The DPR, prepared by WAPCOS¹⁰⁴, states that the flood control benefits to India and Nepal, once the project is developed, are estimated at INR 740 million and INR 160 million, respectively, at the 2015

⁹⁹ A consensus among Nepali elites as reflected in the interviews.

¹⁰⁰ Personal communication with a member of the 1996 Nepali team that negotiated the Mahakali treaty, 16 April 2021.

¹⁰¹ Personal communication with former Director of Nepal Electricity Authority, 25 July 2020.

¹⁰² Personal communication with an energy expert, 08 September 2020.

¹⁰³ Interview with a senior member of WECS, 10 March 2021.

¹⁰⁴ Water and Power Consultancy Services, Indian state-owned consultancy organisation

price level (ibid). Nepal believes India has discounted the flood control benefits that it will receive to reduce its share of the project cost.¹⁰⁵ Such an approach will hinder progress on the SKSK project as well once an agreement on the project is reached, according to one former Joint Secretary in Nepal's MoEWRI. Furthermore, India's reluctance to divulge details of the Sharda-Yamuna link is a testimony to its overlooking of the downstream benefits of multipurpose projects on shared rivers.¹⁰⁶ The Sharda-Yamuna River link is part of the Pancheshwar project and an important component of the interlinking of Indian rivers that depend on storing water in reservoirs upstream in Nepal.

The principle of equal entitlement is problematic since neither Nepal has use for such large volumes of water as confessed by sections of Nepali society,¹⁰⁷ nor does it have the infrastructure to store this water. Nepal, aware of the value of freshwater that flows into India from its territory, is convinced that it deserves compensation for allowing *its water* to flow into India uninterrupted. With larger reservoirs that will store and release water during the lean season to drier parts of India, the value of this water further increased. Insisting on equal entitlement to water may well be Nepal's negotiation approach to compel India to share benefits.

7.4 CONCLUSION

This chapter used the case study of multipurpose reservoirs in the Mahakali and Koshi basins to be built jointly by India and Nepal to show how the inadequacies of international water laws manifest themselves in bilateral negotiations on water governance. The varying and self-serving interpretations of international water law, particularly the UNWC, hinder meaningful cooperation on the governance of shared rivers. Even though the UNWC does not explicitly mention benefit-sharing, this chapter has tried to locate the principles that can assist in equitable sharing and utilisation of water (Articles V, VI, and VII). However, the use of various provisions of the UNWC as leverage during negotiations by both upstream and downstream states has only managed to convolute the negotiations and exposed the fissures within some provisions of the watercourses convention.

¹⁰⁵ Interviews with Nepali hydrocrats, 10 March 2021, 25 March 2021, 01 April 2021, and 13 April 2021.

¹⁰⁶ Interviews with Indian bureaucrats in the CWC, 15 December 2020.

¹⁰⁷ Personal communication with former Joint Secretary, MoEWRI, 15 March 2021.

7.4.1 EQUALITY DILEMMA

The principles of equitable and reasonable utilisation of water are prone to misinterpretation by states to suit their own needs as the sections above show. Upstream states may construe equitable utilisation of water as an equal entitlement to water as in the case of Nepal in the Mahakali River Basin. Nepali negotiators' demands of equal entitlement to the water of the Mahakali (see table 2) despite its limited domestic needs (see section 6.3) or even its inability to hold onto the quantity of water (lack of large reservoirs in Nepal) has led to Indian negotiators' accusations of monetisation of water by upstream Nepal. International water law emphasises equitable utilisation of water. However, what this equity means is open to interpretation. The factors relevant to equitable and reasonable utilisation¹⁰⁸ attempt to provide a framework for calculating equity but fall short of clarifying that benefit-sharing ought to move beyond traditional water sharing or water allocation. Definitive provisions on calculating equitable benefit-sharing in international laws would have made negotiations between India and Nepal less hostile. The longstanding weakness of UNWC and Berlin Rules on the conflict between Articles V & VI on 'equitable and reasonable utilisation and participation' and Article VII on 'obligation not to cause significant harm' continues to cause confusion on the status of the lower Sarada barrage.

7.4.2 PRIOR RIGHTS VS EQUITABLE RIGHTS

Another hurdle to the application of reasonable and equitable rights of the utilisation of watercourses is the claim of states of existing/prior rights over the use of water and the debate over which takes precedence over the other—reasonable and equitable use or the obligation not to cause significant harm (prior use rights). Nepali hydrocrats argue that Indian policymakers' claim of prior rights over the water of Mahakali at Lower Sarada is unfair and unjust. As a response to this claim, the Nepali Parliament passed strictures that have added another level of complexity.

Point three of the Nepali Parliamentary strictures asserts Nepal's *equal* rights to *all* the water of the Mahakali (emphasis added). This assertion of equal rights over all the water is in direct contention with Article III of the Mahakali treaty which declares that the equal entitlement in the utilisation of the Mahakali River should be "without prejudice to their respective existing consumptive uses of the Mahakali River" (Mahakali Treaty, 1996: 03). This means that both

¹⁰⁸ See Article VI of the UNWC, Article V of the Helsinki Rules, and Article XIII of the Berlin Rules.

India and Nepal agree not to claim any share of water that the other has been utilising before the signing of the treaty. This conflict between the treaty and what the Nepali Parliament declared has led to a deadlock. Any attempts to progress on the Pancheshwar project would mean amendment of the strictures (if not outright nullification). The history of mistrust between India and Nepal on shared rivers makes it politically inexpedient for Nepali political leadership to amend or ignore the Parliamentary strictures.

At the same time, when it comes to claiming prior rights over the water of Mahakali on account of using it for decades, it is important to refer to a letter written by former Indian Prime Minister Jawaharlal Nehru to Pakistani President Ayub Khan in which he contested Pakistan's (the lower riparian to India) rights to "proceed unilaterally with projects, while the upper riparian [India] should not be free to do so" (Crow et al., 1995: 89). The Indian Prime Minister warned that unilateral construction by Pakistan would "enable the lower riparian to create, unilaterally, historic rights in its favour and go on inflating them at its discretion, thereby completely blocking all development and uses of the upper riparian" (ibid). India, being an upper riparian to Pakistan on the Indus Basin, clearly stated its opposition to unilateral action by a downstream state that would enable the latter to claim historical rights (or prior rights/existing rights) and foreclose the options of the upper riparian state. Nevertheless, when it comes to Nepal, Indian officials have been staunch in claiming five BCM of water from the lower Sarada barrage due to its historic rights and prior usage principle.

7.4.3 BENEFIT-SHARING VS WATER-SHARING

A lasting legacy of international water law has been the debate on the meaning of benefits sharing. Downstream states prefer to see it as the classic apportionment of the volume of water. This problem has been observed in various basins. The Kariba Dam and the Lesotho Highland Water Project (on River Senqu-Orange) are similar in terms of the location of dams to the Pancheshwar and SKSK projects, respectively. The Kariba Dam and Pancheshwar Dams are on a border river and the Lesotho Highland Water Project and SKSK dams are in the upstream state. The problems faced during negotiations over the Kariba Dam by Zambia and Zimbabwe and the Lesotho Highland Water Project by South Africa and Lesotho are similar to the ones India and Nepal face currently. The difference is that states living in the Kariba and Senqu-Orange basins did not let fractious negotiations get in the way of realising their projects.

In the context of the Mahakali basin, Indian officials from the CWC claim that the Nepali side can and should utilise all the waters it can from its rivers but leave the rest flowing into India

once the Pancheshwar dam comes up. In other words, these officials insist on equitable sharing of water, not benefits. This is problematic since the principle of equitable utilisation mandates states to go beyond the “classic apportionment” of water to share benefits accrued from such projects (see Tarlock & Wouters, 2007: 527). Some scholars have argued that some uses of water are more valuable than others and the objective of efficient utilisation requires water to be allocated to the most valuable use (ibid). If this means that some states may have to forego the actual use of water, they must be entitled to compensation from the other riparian states for allowing the water to go to its most efficient use. This compensation may be monetary or a share of the project’s benefits. In other words, they pay the riparian for their ecological services. Perhaps it is time for water law to clarify once and for all that, the principle of benefit-sharing goes beyond the sharing of water to include project benefits. This could assist weaker riparians in countering any hegemonic attempts.

7.4.4 DOWNSTREAM BENEFITS

Indian negotiators’ reluctance to acknowledge its downstream benefits and obfuscate its real intentions behind Pancheshwar and SKSK, i.e., storing water for lean season augmentation, gives credibility to Nepali negotiators’ charges of India’s unfair and opaque negotiations. It also highlights the difficulty of calculating benefits. For equitable development of transboundary water resources, it is imperative for states to be honest and transparent. The lack of a framework or procedure under water laws makes it easier for stronger riparians to apply their hegemony. To be fair, the ‘relevant factors’ under UNWC and/or Berlin Rules describe how drainage areas and the contribution of water determine the share of the benefits. However, in the India-Nepal case, the territorial disputes over the source of the river hinder cooperation.

7.4.5 THE WAY AHEAD

As states turn to large dams over shared rivers to address the impacts of climate change, there is an opportunity for international water law to not only ensure the application of reasonable and equitable use of water resources, and to engage with the difficult questions of benefit-sharing between states, but also address power equations on basins. In particular, it could assist the weaker riparians in resisting hydro-hegemony. This would ensure a less conflictual future of transboundary water resource governance.

For policymakers in India, as one former Indian Ambassador to Nepal put it, projects like the Pancheshwar dams and SKSK dams are “strategic” in nature since they have transformational

impacts.¹⁰⁹ In the case of the Pancheshwar dams, it is touted to transform the agro-economy along the Ganges plain. Indian officials should then override tricky negotiations by being munificent with neighbours.

This chapter has discussed how the inadequacies and incongruities of international water laws manifest themselves in bilateral negotiations on water governance between India and Nepal. It has located the role of international water laws in transboundary disputes and how the varying interpretations of water laws affect the governance of projects on shared rivers.

¹⁰⁹ Personal communication, former Indian Ambassador to Nepal, 09 October 2020.

CHAPTER 8: NEITHER HAWKS NOR DOVES: UNDERSTANDING THE PERSPECTIVES OF INDIAN HYDROCRATS

8.1 INTRODUCTION

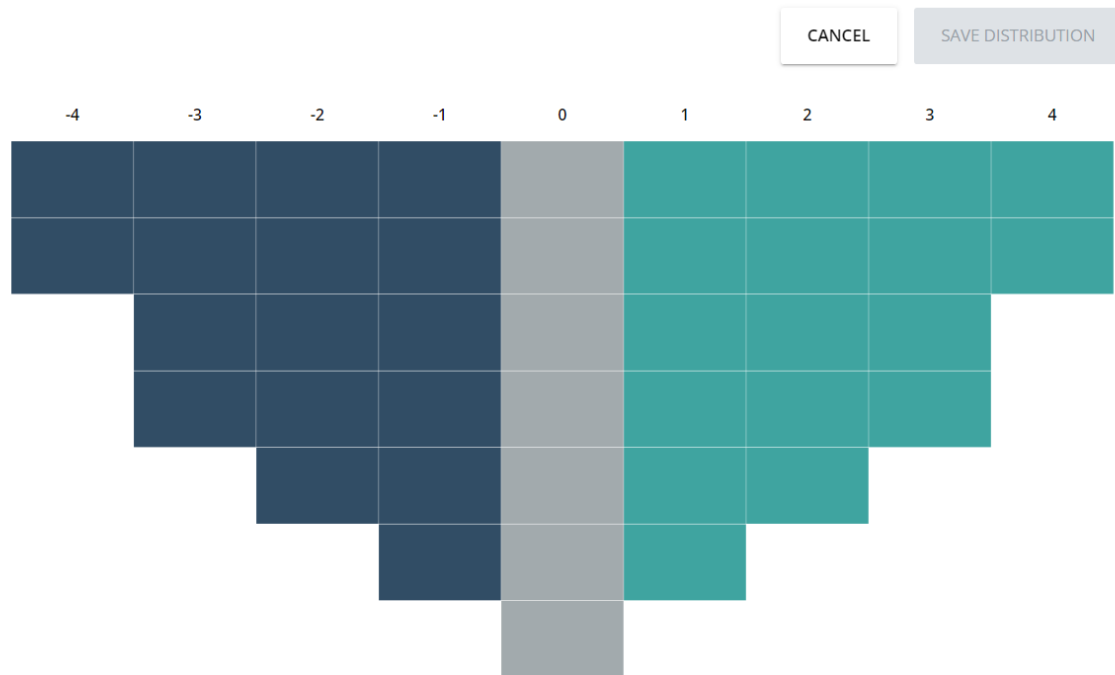
This chapter assesses the perceptions of Indian hydrocrats on the governance of transboundary rivers. It also triangulates the findings from previous chapters using a systematic discourse analysis methodology called Q methodology or Q-Sort Analysis (QSA). QSA is a mixed-methodological approach that combines qualitative and quantitative methods to investigate the subjective viewpoints of the study participants on a topic (Coogan & Herrington, 2011). It does this by getting a closely selected group of participants to rank and sort statements (concourse) onto a grid box. These statements are closely related to a narrowly defined topic of study and represent different viewpoints on the topic. QSA will examine the discourse and perspectives of these officials statistically and holistically; meaning, this chapter presents the perceptions of these officials in their entirety without omitting any part of the concourse. At the same time, this study will illustrate areas of consensus and dissensus among the participants. Watts & Stenner (2012: 46) describe QSA as a useful tool to identify “main or majority viewpoints... relative to a particular subject matter and for these knowledge structures to be rendered empirically observable.”

For the results of this methodology to be accurate, it is essential for the participants to have a similar profile. Depending on the research topic, this could be their profession, education, age, experience, etc. For this research, the participants were carefully selected—all the participants are Indian government officials who have worked on bilateral projects with Nepal. These participants were also interviewed during my field visit to New Delhi. As a result of the shortened fieldwork due to the COVID-19 pandemic, I decided to use QSA to offset the impacts of the reduced time in the field. To conduct the QSA, participants were asked to familiarise themselves with the list of statements that together comprise the concourse (see Figure 8.1) and place the individual statements onto a grid box depending on the number of statements. Figure 8.1 shows the grid box that was presented to the participants. These participants were asked to drag statements onto a box according to their agreement/disagreement with that statement. The idea was to gauge the position of statements relative to other statements. Once all the participants placed the statements onto their grid boxes, this data was factor analysed to reveal groups of individuals (or factors) who ranked the

statements in a similar order. The final output by each participant (placing the statements onto the grid box) is called a Q-Sort. Since eleven Indian hydrocrats participated in this study, I have 11 Q Sorts.

Factors are groups of participants with similar viewpoints. In other words, these are groups of Q Sorts that are similar in their ranking of statements. Each factor then represents a viewpoint or a school of thought. Factors (also called factor arrays) are the “composite Q-sort summarising the viewpoint of all the persons loading on any one factor” (Valenta & Wigger, 1997: 510). For example, as we will see in the following section, factor one has three Q sorts *loading* on it—meaning, three people had statistically similar views and were clubbed together, making them one factor. Factor one as represented in Figure 8.1 is then a summary of the three different Q sorts (made by the three individuals loading on factor one) intended to show what these three Q sorts would look like if they were one homogenous Q sort. Watts & Stenner (2014: 141) state that the “main goal of a factor array is to provide the best possible estimate of the relevant factor and, in so doing, to give a sense of what its 100% or perfectly loading Q sort might actually look like.”

Figure 8.1 Screenshot of the grid box from *Qmethodsoftware*



Participants are asked to place a statement in each of the grid boxes depending on their agreeability with the statement (from -4 to +4). The list of statements is available in Table 8.1.

In order to capture the perceptions of the hydrocrats, bespoke online software (qmethodsoftware.com) was used. This software provided a clean and easy-to-use interface for the participants to familiarise themselves with the statements. It also explained how to participate in the study. Participation was then divided into two parts. In the first part, participants were asked to read each of the statements and use icons of thumbs up, thumbs down, and a question mark (showing neutrality) to categorise the cards into three boxes. This allowed a preliminary assessment of the concourse and familiarisation with the statements. In the second step, the participants were introduced to the grid box and were asked to place the statements (from the three boxes) into the grids that went from -4 to +4. This forced the participants to prioritise the views presented in each statement. The participants were allowed to remove and replace cards in the grid box until they were satisfied with the final result (they were encouraged to rejig the grid until they were satisfied with it). The process of limiting and prioritising their beliefs on a Likert-scale-like grid is inherent in a Q methodology. This allows the participants to rank the statements relative to each other. Finally, participants were asked to confirm that they were satisfied with the final grid box. Participants were encouraged to comment on any aspect of the study they disagreed with or had questions with. However, this exercise did not reveal any major queries or disagreements from the participants.

The concourse for the study was derived from the interviews conducted with Indian officials in New Delhi. The scope of the study was limited to the issues that were discussed with these officials. Within the broad range of transboundary water governance, specific issues related to multipurpose dams on Mahakali and Koshi rivers, the China factor in India-Nepal riparian relations, India's energy transition, and hydropower as a sector in the region were chosen for building the concourse. In the following section, quantitative data from QSA will be supplemented throughout the chapter with qualitative data from interviews. When discussing particular statements, they will be mentioned in parenthesis for easy reference.

As mentioned earlier, eleven officials participated in the study making 11 Q sorts with each sort reflecting a set of opinions on transboundary water governance. Details of the home institutions, their designations, and their service status (retired or serving) are given in Appendix B. A total of 22 hydrocrats were selected for participation across 11 institutions in India. Of these 11 chose to participate making 11 Q sorts. These sorts were then put through factor analysis using qmethodsoftware and then cross-analysed on another software called KADE. Four factors were extracted for further analysis out of a possible seven factors. The four factors cumulatively explained 43% of the study variance. Factor analysis examines correlations between Q sorts. Q sorts that are highly correlated with one another are banded together. Factor analysis tells us how many different factors there are. It depends on the researcher to decide how many factors to extract from the study. This decision can be made based on different features like the study variance, the eigenvalue, the number of Q sorts that load significantly on each factor, etc. Watts and Stenner (2012) even suggest that the researcher decides on how many factors to extract based on the researcher's experience. In this study, I have extracted four factors out of seven possible factors based on the criteria of study variance and the principle of having at least two significant loadings on the factor.

The availability of newer softwares has made it easier to conduct QSA studies. These softwares allow not only for the factor analysis of data, but they also have an easy-to-use interface that allows remote collection of data. The science behind Q methodology, the development of a concourse, the method of data collection, the process of analysis, and the many elements within QSA have been studied in some fundamental texts and 'primers.'¹¹⁰ The mechanics of QSA will not be elaborated here for the purpose of brevity and to avoid digression. However, it is important to point out that the decisions made during analysis (how many factors to extract,

¹¹⁰ See for instance (Brown, 1980; R. Brown, 1993; Stephenson, 1975; Watts & Stenner, 2012)

which principles to follow, which ‘rotation’ to use, etc) were made using the guides written by Watts & Stenner (2012). Appendix C provides details of the process of analysis and the meaning of the various steps taken during analysis. The concourse was designed using the data gathered during fieldwork in India and Nepal (as recommended by Watts and Stenner to create a balanced concourse). Q Sort Analysis has been used by hydro scholars previously to understand the perspectives of various actors in this sector. Schulz & Saklani (2021) conducted a QSA to understand and assess the views of the private sector in Nepal’s energy market. Similarly, Ho et al. (2019) used this methodology to map the views of experts on the Brahmaputra River to illustrate how different ideas and perceptions shape state behaviour and interests.

What makes QSA unique is that it considers “data in terms of the individual’s whole pattern of responses, a self-reference rather than looking for patterns among people. In effect, people and not tests are the variables” (Coogan & Herrington, 2011: 24). Any given Q sort (the placement of statements on a grid box by individuals) or even the place of a particular statement by a participant assumes significance only in the context of the overall configuration. For instance, in the sections below, we will discover some ‘distinguishing statements’ at $p < 0.05$ or $p < 0.01$. What makes these statements distinguishing is that the participant on a particular factor (say factor one) placed that statement in a box (for example on +4; see figure 8.1) that is *significantly different* to where all the participants who have loaded on the other factors (two, three and four) have placed that particular statement (on boxes -1, -3 or 0 for example). How factors are derived, how many factors are derived, to what extent they represent the official viewpoints, etc., are answered in the following section. Another way to look at Q methodology is that it is a study to find a correlation between individuals who have a similar profile or background.

As the following sections reveal, the factors with the largest study variance and the eigenvalue (factor one) align with the findings from semi-structured interviews and documentary analysis. Eigenvalue provides information on the *commonality* relative to each factor. It is indicative of the factor’s explanatory power and statistical strength (Watts & Stenner, 2014). The eigenvalue of factor one at 2.5297 is much higher relative to the eigenvalues of the other factors at 0.7334, 0.574, and 0.6336, respectively. This makes the views of factor one (technically the participants who loaded on factor one) the most prevalent views among all the participants. However, beyond confirming the findings from previous chapters, the rest of the factors show that the differences within the hydrocracy barely feed into policymaking. This may be because such an

incongruous opinion may be held by a) a minority within India's hydrocracy, b) retired officials who may have changed their minds after the end of their tenure or c) these officials may have decided against expressing opinions that went against the prevailing discourse in their institutions while they were in service.

While chapters five and six are based on an analysis of data derived from interviews with a diverse set of key informants, it is illuminating to narrow down the focus on the subjective view of hydrocrats. This is because it was observed during the fieldwork that these hydrocrats had an outsized and disproportionate impact on issues beyond their remit which is the bureaucratic functioning of water and energy. Their perceptions fed into policymaking at the ministerial level, and their expertise was sought in foreign policymaking when it came to bilateral relations with riparian states. Due to the technocratic nature of projects, their beliefs drove policymaking at the highest level. For instance, the belief among these engineers that hydropower projects in the Himalayas were not an ecological danger since they are built after careful examination of the foundation—done after excavation and exploring the strength and size of the rock on which the dam will be built—often overrode concerns among other, more environmentally-concerned government officials. I do not intend to address whether there is merit in the arguments of these officials, however, it is an example of the impact they have on policymaking. During an interview with a retired official who served in various government departments providing an engineering perspective, it was made clear how the Ministry of External Affairs (Government of India) relied on officials from Central Electricity Authority, and Central Water Commission to draft policies in neighbouring states. This was then triangulated with other participants.

8.2 RESULTS

The table below lists the concourse used in the study containing 39 statements. It lists the standard score of each statement (z-score), and the relative ranking of each statement in the four factors (QSV). The z-score is the average of the values that the Q-sorts (QSV) are most closely related to the factor given to a statement. Z-scores show the “level of agreement/disagreement among statements” within each factor (Valenta & Wigger, 1997: 510). The QSV is based on the z-score—it is a reconstruction of a Q-sort of the factor to be used for interpretation. In other words, the QSV is the hypothetical score given by a factor if the participants loading on that factor were not individuals but one, single entity. For instance,

three people load on factor one; the QSV of the first statement (3) is the hypothetical value given to that statement by a unified responder or merger of the three people.

Table 8.1: Statements, their z-scores, and Q-sort values (QSV) across the four factors.

St. no.	Statement	Factor 1		Factor 2		Factor 3		Factor 4	
		Z-score	QSV	Z-score	QSV	Z-score	QSV	Z-score	QSV
1	Hydropower should play an important role in meeting India's renewable energy target	1.27	3	-1.31^b	-3	1.66	4	0.98	2
2	The declaration of large hydropower projects (> 25 MW projects) as renewable will help the hydropower sector	-0.49	-1	-1.6^b	-4	0.77	1	0.07	0
3	The hydropower sector needs more power purchase obligations from industry and distribution companies	0.09	0	-1.27^b	-3	0.26	1	0.12	1
4	Hydropower cannot help in flood control and flood moderation	-1.9^a	-4	-0.99	-2	-0.62	-1	-0.64	-2
5	Hydropower can assist in addressing climate change-induced rainfall pattern changes by temporal and spatial transfer of water for irrigation	0.93	2	0.02	0	-0.54	0	0.56	1
6	Hydropower tariff is artificially high and needs government intervention	-1.55^b	-4	-0.39	-1	1.57^b	3	-0.09	0
7	The government of India needs to scout for more hydropower locations	0.68	1	-1.52	-3	-0.88	-2	1.16	3
8	The government of India's pursuit of river-linking projects is ecologically irresponsible	0.02	0	2.06^b	4	-0.96	-2	-1.75	-3
9	Transboundary cooperation on hydropower with Nepal is important for water security in Northern India	0.79	2	1.46	3	-0.12^a	0	2.25^a	4
10	China's dam-building on the lower reaches of Brahmaputra is a threat to environmental security in Northeast India	1.61^b	3	-0.6	-1	-1.09	-3	0.47	1
11	International water law is inadequate to facilitate international hydropower cooperation	0.61	1	0.95	2	-0.58	-1	-0.12	0
12	There is a state-centre conflict in India making hydropower projects difficult and expensive	-1.38	-3	0.51	1	-1.43	-4	0.19	1
13	Hydropower projects in the seismic Himalayan zone are dangerous	-1.35	-3	1.44^b	3	-0.79	-1	-1.84	-4
14	China is the main factor behind the lack of trust between India and Nepal	-0.81	-2	-0.41	-1	0.01	0	0.8	1

15	Water issues are under-represented in India's energy transition	-0.66	-1	0.25	0	1.02	2	-0.23	0
16	Proposed hydropower projects like Pancheshwar and SaptaKoshi-SunKoshi to be built by India and Nepal have the potential to transform agriculture in the Ganga plain	0.83	2	-0.68^b	-1	1.11	2	0.85	2
17	A hydropower market can be created if its ancillary services like quick start and stop, meeting peak demands, and ability to balance the grid are valued	1.89	4	0.26	0	1.23	3	-0.6^a	-1
18	The difficulty in accessing credit is one of the biggest hurdles to the building of Hydropower projects	0.7	1	0.7	1	-1.09	-3	-0.46	-1
19	India needs to be generous in negotiating hydropower projects with Nepal	-0.16	0	0.97^b	3	-0.84	-2	-1.23	-3
20	Nepal's demands during negotiations are fair and reasonable	-0.9	-2	0.63^b	1	-1.85	-4	-1.28	-3
21	Climate change has made cooperation over international rivers critical	0.8^b	2	-0.91	-2	-0.88	-2	-0.48	-1
22	India has not been able to disconnect everyday political issues with South Asian neighbours from water and hydropower cooperation	-0.71	-1	0.9^a	2	-1.34	-3	0.04	0
23	The government of India should explore pumped hydropower as an electricity storage mechanism	0.21	1	0.71	2	1.99	4	1.36	3
24	Central Electricity Authority's guidelines on electricity trade restrict South Asian electricity integration and development of a regional energy market	-0.8	-2	0.56^a	1	-0.33	0	-0.62	-1
25	Cooperation between India and Nepal on multipurpose dams like Pancheshwar and SaptaKoshi-SunKoshi is important for water security in the Ganga plain	2.35^a	4	-0.73^a	-1	0.14	0	1.44^a	4
26	There is a trust deficit between India and Nepal leading to a lack of cooperation between India and Nepal	0.68	1	1.4	3	1.32	3	-1^b	-2
27	Large dams like Pancheshwar and SaptaKoshi-SunKoshi have national security implications for India	-1.03	-2	-1.36	-3	0.09	0	-0.67	-2
28	As a response to China's dam on the lower reaches of Brahmaputra, India should build a dam in Arunachal	0.64	1	-1.79^b	-4	0.9	1	1.34	3
29	The long gestation time to build dams has distressed the sector	-0.59	-1	1.7	4	0.14	0	1.06	2

30	Indian agriculture needs reforms from the demand side to ensure sustainable development and water security	0.95^{c e}	3	0.09^{c e}	0	0.98^e	2	0.79^e	1
31	The lack of a water-sharing treaty between India and China makes cooperation difficult	-0.01^{d f}	0	-0.67^{d f}	-1	-0.62^{d f}	-1	-0.51^{d f}	-1
32	Nepali political leaders lack the political capital to go ahead with mega projects with India	0.96	3	0.75	2	0.43	1	-0.64^a	-2
33	India should encourage trilateral and regional cooperation on electricity trade in South Asia	-0.47^{c e}	-1	0.39^{c e}	1	-0.62^{c e}	-1	-0.26^e	0
34	The perception of the Koshi and Gandak treaty being unfair to Nepal is causing tensions in contemporary projects	0	0	-1.06^b	-2	0.68	1	-0.01	0
35	Proposed multipurpose dams in Nepal are a major factor in India's plan of interlinking its rivers	-0.57	-1	-0.93	-2	-1.34	-3	1.38^b	3
36	India is interested in the water resources of Nepal, not electricity	-1.03	-3	0.27^a	1	-0.75	-1	-1.86^a	-4
37	Water-sharing is a major impediment to the India-Nepal water relationship	-0.25^f	0	0.1^f	0	0.18^{d f}	1	-0.49^{d f}	-1
38	Cost-sharing is a major impediment to the India-Nepal water relationship	-1.28	-3	0.09	0	1.02^a	2	-1.1	-3
39	Nepal is trying to monetise its share of water from this project	-0.09	0	0	0	1.19	3	1.01	2

^a Indicates distinguishing statements at p<0.05.

^b Indicates distinguishing statements at p<0.01

^c Indicates consensus statements at p<0.01

^d Indicates consensus statements at p<0.05

^e Indicates consensus statements across all factor arrays at p<0.01

^f Indicates consensus statements across all factor arrays at p<0.05

8.2.1 FACTOR 1: PRO-DAM HAWKS

Composite Q sort for Factor 1

-4	-3	-2	-1	0	1	2	3	4
**◀ Hydropower tariff is artificially high and needs government	India is interested in the water resources of Nepal, not	Central Electricity Authority's guidelines on electricity	India should encourage trilateral and regional cooperation on	The hydropower sector needs more power purchase obligations	The difficulty in accessing credit is one of the biggest hurdles to the	Hydropower can assist in addressing climate change-induced	**▶ China's dam-building on the lower reaches of Brahmaputra is	*▶ Cooperation between India and Nepal on multipurpose dams like
*◀ Hydropower cannot help in flood control and flood moderation	Cost-sharing is a major impediment in the India-Nepal water	China is the main factor behind the lack of trust between India	The declaration of large hydropower projects (> 25 MW projects) as	* The government of India's pursuit of river linking projects is	The government of India needs to scout for more hydropower locations	Proposed hydropower projects like Pancheshwar, aKoshi-SunKoshi	Hydropower should play an important role in meeting India's	A hydropower market can be created if its ancillary services like
	Hydropower projects in the seismic Himalayan zone are dangerous	Nepal's demands during negotiations are fair and reasonable	Proposed multipurpose dams in Nepal are a major factor in	The perception of the Koshi and Gandak treaty being unfair to Nepal	There is a trust deficit between India and Nepal leading to a	**▶ Climate change has made cooperation over international	Nepali political leaders lack the political capital to go	
	There is a state-centre conflict in India making hydropower	Large dams like Pancheshwar and aKoshi-SunKoshi have national security	The long gestation time to build dams has distressed the sector	The lack of a water-sharing treaty between India and China makes	As a response to China's dam on the lower reaches of Brahmaputra,	Transboundary cooperation on hydropower with Nepal is important for	Indian agriculture needs reforms from the demand side to ensure	
			Water issues are der-represented in India's energy	Nepal is trying to monetise its share of water from this project	International water law is inadequate to facilitate international			
			India has not been able to disconnect everyday political	India needs to be generous in negotiating hydropower projects with	The government of India should explore pumped hydropower as an electricity			
				Water-sharing is a major impediment in the India-Nepal water				

Legend

- * Distinguishing statement at $P < 0.05$
- ** Distinguishing statement at $P < 0.01$
- ▶ z-Score for the statement is higher than in all other factors
- ◀ z-Score for the statement is lower than in all other factors

This factor explains 23 per cent of the study variance and three Q sorts load significantly on it. The respondents in the first factor present a hawkish view of transboundary water resources in the region with security concerns intrinsically linked with the governance of the rivers. These respondents can also be classified as 'pro-hydropower sector' as their Q sorts indicate. The securitisation of transboundary rivers among these hydrocrats is evident when they agree that China's dam-building activities in the lower reaches of the Brahmaputra, close to Indian borders, are a threat to the environment in Northeast India (10). In late November 2020, Chinese officials proposed building a series of dams on the Yarlung Zangbo ahead of China's

14th five-year plan (PTI, 2020). Among the series of dams, the one close to the river bend on the Indian border, and the one that Indian officials are concerned about, is reported to be a 60 GW hydropower project on the lower section of the Brahmaputra River, called the Yarlung Tsangpo in China. The official discourse is that a dam close to the ‘Great Bend’ can have “damaging implications”, and water diversion by China can cause water insecurity along the Brahmaputra (Ministry Jal Shakti, 2021; Muraleedharan, 2019). The fear on the Indian side is that China can regulate the flow of water, cause floods, and hold back silt. This silt is essential for the fertility of agricultural lands downstream and, by extension, food security. As a response to China’s dam-building plans, officials from India’s Jal Shakti Ministry announced India’s plan to build a multipurpose project in Arunachal Pradesh that will offset the impact of the Chinese dam (Bhatnagar, 2020). This project is called the Upper Siang project and is envisioned as a 10 GW hydropower project on the Siang, the main tributary of the Brahmaputra. There is unified support among respondents in this factor that, as a response to China’s dam-building activities in the lower reaches of Yarlung Tsangpo, India should act on its plan to build its dam in Arunachal Pradesh (28).

Respondents in this factor were unified in their lack of enthusiasm for the trilateral or regional trade of electricity in South Asia (33). There has been a growing demand from Nepal and Bangladesh to allow the trade of electricity using the Indian grid. Nepali officials have stressed that regional electricity trade, wherein Nepal can sell hydroelectricity to Bangladesh via Indian grids, would be beneficial for Nepal (and Bangladesh—a power-hungry economy). During interviews, a member of Nepal’s Planning Commission remarked that the peak energy demand in Bangladesh coincides when Nepal has low demand for energy—making trade convenient.¹¹¹ As one former member of Nepal’s Planning Commission stated: “Energy banking in South Asia entails Nepal selling electricity to Bangladesh. Bangladesh’s hourly and season demand patterns are such that they want electricity when we have low demand.”¹¹² However, Indian officials have been wary of allowing regional or trilateral trade, especially if it challenges India’s geographical and political centrality in the region’s energy politics.¹¹³ In 2016, India’s Central Electricity Authority (CEA) issued guidelines that termed electricity trade as a matter of “strategic, national and economic importance” (CEA, 2016: 03). These guidelines promulgated conditions that made cross-border trade of electricity difficult without India’s

¹¹¹ Personal communication, Member of Nepal’s National Planning Commission, 25/03/2021

¹¹² Personal communication, Member of Nepal’s National Planning Commission, 25/03/2021

¹¹³ Personal communication, MEA official, 09/10/20

acquiescence. Respondents in this factor do not view the guidelines as restricting South Asian electricity integration and the development of a regional energy market (24).

Hydrocrats in this factor believe that the development of multipurpose projects like Pancheshwar and SaptaKoshi-SunKoshi are important for water security in the Ganga Plain (25). Such a view has been controversial since environmental activists have been critical of an engineering-led, supply-side policy response. These projects are being built to improve the irrigation network in northern India and to wean agriculture from groundwater extraction (JPO-SKSKI, 2015; WAPCOS, 2017). Strangely, despite equating these multipurpose projects with water security, respondents have rejected the Nepali assertion that India is interested in these dams for water, and not their hydroelectricity (36). During interviews with Nepali hydrocrats, they expressed their view that the Indian side is interested in Nepal's freshwater resources to be used for irrigation and interlinking of Indian rivers in northern India. The rationale is that Indian officials wish to build large reservoirs in Nepal to store its freshwater that can then be used for temporal and spatial transfer using India's vast canal network in the Ganga plain. To be sure Indian side acknowledges that irrigation is the primary output from these dams. The SaptaKoshi-SunKoshi (SKSK) multipurpose project, to be built on river Koshi, will irrigate 13 districts or 0.77 million hectares of land in Bihar (JPO-SKSKI, 2015). The SKSK project will also generate 3,300 MW of electricity (MoEWRI, n.d.). Similarly, the Pancheshwar project aims to ensure year-round irrigation of land under the Sharada command (1.61 million hectares) by providing water in the dry season with an electricity generation capacity of 5040 MW (WAPCOS, 2017). During interviews, Nepali officials claimed that India has been dishonest about its real intentions behind these projects and that the primary aim behind these dams is to ensure the continued flow of water into India by locking Nepal into mutual dependence.¹¹⁴ Nepali officials also claimed that not acknowledging all the benefits that will be accrued to India from dams in Nepal is a strategy to reduce India's share of cost towards the project as the share of cost is proportionate to the share of benefits that each side will receive from the projects.¹¹⁵ The Pancheshwar environmental impact assessment also asserts that the project is "primarily aimed at energy production" (WAPCOS, 2017: 01).

While other respondents have expressed strong views about the ecological sustainability of the ambitious interlinking of rivers project, respondents from factor 1 have stayed neutral about

¹¹⁴ Personal communication, Nepali water resources experts, and a former Water Resources Minister.

¹¹⁵ A consensus among Nepali elites as reflected in the interviews.

this (8). The ambitious and controversial project of interlinking Indian rivers to address the variance in water availability (across space and time) is dependent on storing water in large reservoirs in Nepal. This is because Nepal's glacial-fed Himalayan rivers contribute 70 per cent of the Ganges water during the dry season (Khadka, 2019). According to the blueprint for the Himalayan component of the interlinking of Indian rivers, the Pancheshwar dam will link Mahakali with the Yamuna, and the SKSK dams will link Koshi with Ghagra.

Among all the factors, only the respondents in this factor agree that climate change has made cooperation over international rivers critical (21). Respondents in this factor have a strong pro-dam view. They insist that a hydropower market can be created if its ancillary services like quick start and stop, meeting peak demands, and ability to balance the grid are valued (17). During interviews, a senior hydrocrat stated that the tariff for hydroelectricity is artificially high since construction companies have to often provide a substantial amount of free electricity to the province where the dam is being built. Furthermore, builders find it increasingly difficult to access credit since banks are not willing to lend money for dams. This is because dams are seen as controversial projects that can face resistance at any time and the fact that it takes almost a decade or more for the projects to reach the operational stage.¹¹⁶ These respondents believe that dams can be used for flood control and flood moderation (4). They also emphasise that hydropower should play an important role in meeting India's renewable energy target (1). However, despite such a pro-dam standpoint, they reject the need for government intervention in the sector or the opinion that the tariff for hydropower is artificially high (6).

¹¹⁶ Personal communication, former Managing Director, NHPC, 4/11/2020

8.2.2 FACTOR 2: DOVISH ENVIRONMENTALISTS

Composite Q sort for Factor 2

-4	-3	-2	-1	0	1	2	3	4
**◀ The declaration of large hydropower projects (> 25 MW projects) as	**◀ The hydropower sector needs more power purchase obligations	Climate change has made cooperation over international	Hydropower tariff is artificially high and needs government	* A hydropower market can be created if its ancillary services like	The difficulty in accessing credit is one of the biggest hurdles to the	International water law is inadequate to facilitate international	Transboundary cooperation on hydropower with Nepal is important for	**▶ The government of India's pursuit of river linking projects is
**◀ As a response to China's dam on the lower reaches of Brahmaputra,	**◀ Hydropower should play an important role in meeting India's	Proposed multipurpose dams in Nepal are a major factor in	China is the main factor behind the lack of trust between India	Water issues are der-represented in India's energy	**▶ Nepal's demands during negotiations are fair and reasonable	*▶ India has not been able to disconnect everyday political	**▶ Hydropower projects in the seismic Himalayan zone are dangerous	The long gestation time to build dams has distressed the sector
Large dams like Pancheshwar and aKoshi-SunKoshi have national security	Hydropower cannot help in flood control and flood moderation	China's dam-building on the lower reaches of Brahmaputra is	Water-sharing is a major impediment in the India-Nepal water	*▶ Central Electricity Authority's guidelines on electricity	Nepali political leaders lack the political capital to go	There is a trust deficit between India and Nepal leading to a		
The government of India needs to scout for more hydropower locations	**◀ The perception of the Koshi and Gandak treaty being unfair to Nepal	The lack of a water-sharing treaty between India and China makes	Indian agriculture needs reforms from the demand side to ensure	There is a state-centre conflict in India making hydropower	The government of India should explore pumped hydropower as an electricity	**▶ India needs to be generous in negotiating hydropower projects with		
		**◀ Proposed hydropower projects like Pancheshwar, aKoshi-SunKoshi	* Cost-sharing is a major impediment in the India-Nepal water	India should encourage trilateral and regional cooperation on				
		*◀ Cooperation between India and Nepal on multipurpose dams like	Hydropower can assist in addressing climate change-induced	*▶ India is interested in the water resources of Nepal, not				
			Nepal is trying to monetise its share of water from this project					

Legend

- * Distinguishing statement at $P < 0.05$
- ** Distinguishing statement at $P < 0.01$
- ▶ z-Score for the statement is higher than in all other factors
- ◀ z-Score for the statement is lower than in all other factors

Factor two explains seven per cent of the study variance and three Q sorts load significantly with this factor. Respondents in this factor can be classified as environmentalists with an idealistic foreign policy. Q sorts in this factor do not agree with many of the ambitious ideas of the government of India. For instance, respondents in this factor believe that the government of India's ambitious interlinking of rivers project is ecologically irresponsible (8). They also agree that hydropower projects in the seismic Himalayan zone are dangerous (13). The idea that large reservoirs in the Himalayas can be used to store water to be used for irrigation during

the lean season and provide year-round irrigation to the agriculture sector in the Ganga plain is rejected by respondents in this factor (16).

In 2019 the government of India declared large dams (those with electricity generation capacity over 25 MW) as a ‘renewable source of energy’. Respondents in this factor believe that such a decision won’t help the distressed hydropower sector (2), and nor should hydropower play a role in meeting India’s renewable energy target (1). In 2016, the Indian government declared a goal of achieving 175 GW of renewable energy production by 2022. As of March 2022, this capacity stood at 157 GW. At the COP26 meeting in Glasgow, the Indian Prime Minister declared that India will further its renewable energy drive with a goal of 500 GW of renewable energy capacity by 2030—of this 70-100 GW is to be generated from hydroelectricity (PTI, 2021). They also reject the idea that the compulsory hydropower purchase power obligations for distribution companies will help the sector (3). These obligations were introduced in 2019 as a way to promote the sector, especially among the private sector. Participants in this study are officials from water and energy ministries and departments. It is revealing that some of the officials agree with environmental groups opposing dams in the Himalayas.

When it comes to cooperation with Nepal on multipurpose projects, it is surprising to note that respondents in this factor believe that India needs to be generous in negotiating with Nepal (19). The Pancheshwar project has been under negotiation between India and Nepal since 1996 primarily due to disagreements on benefit-sharing (see chapter six). During interviews, Indian officials have largely blamed Nepal for the lack of progress. The admission by a section of India’s hydrocracy that Nepal’s demands during negotiations are fair and reasonable is surprising (20). These respondents assert that India has not been able to disconnect everyday political issues with South Asian neighbours from water and hydropower cooperation (22). They also disagree that large dams are essential for water security in the Ganga Plain (25). The statement on the perceptions of the Koshi and Gandak treaty being unfair to Nepal causing tensions on contemporary projects ranked lower in this factor than other factor arrays, suggesting that the respondents’ view that the problem does not lie in historic events but in present conditions.

These respondents are also critical of the linking of geopolitics with the governance of water and electricity in the region. They agree that the guidelines issued by the CEA on electricity trade in South Asia are restrictive and that India should encourage regional trade (24, 33). Similarly, the statement that large dams have national security implications is ranked lower in

factor 2 than in other factor arrays (27). The statement on whether India should build a dam as a response to China's dam close to Indian borders is the lowest-ranked statement in the array (28).

8.2.3 FACTOR 3: HYDROPOWER PROPONENTS

Composite Q sort for Factor 3

-4	-3	-2	-1	0	1	2	3	4
There is a state-centre conflict in India making hydropower	China's dam-building on the lower reaches of Brahmaputra is	India needs to be generous in negotiating hydropower projects with	International water law is inadequate to facilitate international	* Cooperation between India and Nepal on multipurpose dams like	As a response to China's dam on the lower reaches of Brahmaputra,	Proposed hydropower projects like Pancheshwar, aKoshi-SunKoshi	** ► Hydropower tariff is artificially high and needs government	The government of India should explore pumped hydropower as an electricity
Nepal's demands during negotiations are fair and reasonable	The difficulty in accessing credit is one of the biggest hurdles to the	The government of India needs to scout for more hydropower locations	Hydropower cannot help in flood control and flood moderation	The long gestation time to build dams has distressed the sector	The declaration of large hydropower projects (> 25 MW projects) as	Water issues are der-represented in India's energy	There is a trust deficit between India and Nepal leading to a	Hydropower should play an important role in meeting India's
	India has not been able to disconnect everyday political	Climate change has made cooperation over international	India should encourage trilateral and regional cooperation on	Large dams like Pancheshwar and aKoshi-SunKoshi have national security	The perception of the Koshi and Gandak treaty being unfair to Nepal	* ► Cost-sharing is a major impediment in the India-Nepal water	A hydropower market can be created if its ancillary services like	
	Proposed multipurpose dams in Nepal are a major factor in	The government of India's pursuit of river linking projects is	The lack of a water-sharing treaty between India and China makes	China is the main factor behind the lack of trust between India	Nepali political leaders lack the political capital to go	Indian agriculture needs reforms from the demand side to ensure	Nepal is trying to monetise its share of water from this project	
			India is interested in the water resources of Nepal, not	* ◀ Transboundary cooperation on hydropower with Nepal is important for	The hydropower sector needs more power purchase obligations			
			Hydropower projects in the seismic Himalayan zone are dangerous	Central Electricity Authority's guidelines on electricity	Water-sharing is a major impediment in the India-Nepal water			
				Hydropower can assist in addressing climate change-induced				

Legend
* Distinguishing statement at P< 0.05
** Distinguishing statement at P< 0.01
► z-Score for the statement is higher than in all other factors
◀ z-Score for the statement is lower than in all other factors

This factor explains five per cent of the study variance. Two Q sorts load significantly with this factor. Respondents in this factor believe that hydropower has an important role to play in meeting India's renewable energy target (1) and that the government of India should explore

pumped hydropower as an electricity storage mechanism (23).¹¹⁷ The statement on hydropower tariff being artificially high and needing government intervention (6) ranked higher in factor 3 than in other factor arrays. An official from India's NHPC¹¹⁸ remarked that while solar power was priced at Rs. 2 per unit, hydropower stood at Rs. 5, and hence there was no 'market' for hydropower. To make hydropower competitive, the official suggested, was for the government to give ancillary services their due. These services are the quick start-and-stop ability, and the capability to balance the grid and meet peaking demand. The uncompetitive pricing of hydroelectricity explains the need for the central government to mandate distribution companies to purchase hydroelectricity under renewable energy purchase obligations. Another factor inflating the price of hydroelectricity in India is the unavailability of long-term debt financing from capital markets and the reluctance of banks to provide builders with financing for dams for more than 12 years. However, according to an NHPC official, the government of India intervened in 2019 and asked banks to increase this tenure to 20 years.

In the case of the Pancheshwar project, the dams are designed to operate at a 20 per cent load factor¹¹⁹—under optimum capacity—making electricity even more expensive. One official estimated the price of electricity from Pancheshwar at Rs.10. In ideal conditions, the electricity component of the dam finances the irrigation component; given these conditions, electricity from the Pancheshwar project will need to be subsidised by the government for it to be bought by distribution companies, let alone it being able to finance the irrigation component.

Respondents also point out that water issues are under-represented in India's energy transition (15). While other factor arrays were neutral or negatively rated the statement declaring large dams as renewable sources of energy (2), these respondents agreed with the government of India's standpoint. The statement on a state-centre conflict in India making hydropower projects difficult and expensive was the lowest-ranked statement in this factor array (12). Conflicts between state and central governments are usually over the primary aims of the hydropower project. During interviews, it was understood that the needs of the state and the

¹¹⁷ Pumped Hydropower Storage is a type of hydropower plant wherein two reservoirs are built at different elevations such that electricity can be generated when water is passed from the upper reservoir to the lower reservoir through a turbine. In this way electricity is generated as and when needed, and the hydropower plant acts as a storage mechanism. The water from the lower reservoir is pumped back into the upper reservoir using a mechanised motor.

¹¹⁸ Erstwhile called the National Hydroelectric Power Corporation, it was listed in the stock market in 2009 and is majority-owned by central and state governments (70.95 percent as of 30th June 2022).

¹¹⁹ Load factor is the ratio of how much electricity was/will be produced as a share of the total generating capacity. At 20 percent load factor, Pancheshwar will generate 9116 GWh. The load factor of the Three Gorges Dam, the largest power generating station in the world, generated 87 TWh of electricity at 45 percent load factor.

union governments differed on hydropower projects.¹²⁰ An Engineer in the Bihar Government's Water Resources Department stated that the state government has been pushing the union government over the SKSK project for flood control and that Bihar is not keen on the electricity generation capacity of the project. The state government has insisted that the union government calculate the damages paid after every flood to the state as potential dam benefits.¹²¹ The state vs centre conflict over such projects is usually addressed by providing the state with benefits in the form of royalties and/or a portion of the hydroelectricity for free.

When it comes to the Pancheshwar project, respondents are of the viewpoint that it is the unfair and unreasonable demands made by the Nepali side during negotiations that are causing delays and deadlocks (20). These respondents believe that the major impediments to cooperation on water resources between the two sides are the disagreements on cost-sharing and water-sharing (37, 38). The details of cost-sharing and water-sharing disagreements are elaborated on in chapter seven. While other factor arrays are negatively associated with the statement that large dams are objects of national security, respondents in this factor have stayed neutral on this (27). It is surprising to note that while the respondents agree that India should build a dam as a response to China's dam across India's border, they do not feel that China's dam-building is a threat to environmental security in the region (28, 10).

¹²⁰ The division of powers between the Union and State Governments is listed in the Constitution of India under the seventh schedule. The schedule has the union list, the state list, and the concurrent list. While the union and state list, as the name suggests, contains areas under the legislation of the union and state, the concurrent list has areas which fall under the purview of the Indian Parliament as well as State legislatures. Energy generation currently is on the concurrent list; agriculture and irrigation fall under the state list—making it the responsibility of the state governments. Hence, there may be (and have been) cases where the state and union governments are at odds over hydropower projects or on the primary aim of the project. For instance, the union government may want to focus on electricity generation from the dam, while the state government may want the dam to be used primarily for irrigation and/or flood control.

¹²¹ Personal Communication, Superintendent Engineer, Water Resources Dept, Govt of Bihar, 01/02/2021.

8.2.4 FACTOR 4: DAMS AS VITAL SECURITY OBJECTS

Composite Q sort for Factor 4

-4	-3	-2	-1	0	1	2	3	4
Hydropower projects in the seismic Himalayan zone are dangerous	Cost-sharing is a major impediment in the India-Nepal water	Hydropower cannot help in flood control and flood moderation	The difficulty in accessing credit is one of the biggest hurdles to the	The declaration of large hydropower projects (> 25 MW projects) as	China is the main factor behind the lack of trust between India	The long gestation time to build dams has distressed the sector	**▶ Proposed multipurpose dams in Nepal are a major factor in	*▶ Transboundary cooperation on hydropower with Nepal is important for
*◀ India is interested in the water resources of Nepal, not	India needs to be generous in negotiating hydropower projects with	*◀ Nepali political leaders lack the political capital to go	Climate change has made cooperation over international	India has not been able to disconnect everyday political	Indian agriculture needs reforms from the demand side to ensure	Nepal is trying to monetise its share of water from this project	The government of India should explore pumped hydropower as an electricity	* Cooperation between India and Nepal on multipurpose dams like
	Nepal's demands during negotiations are fair and reasonable	Large dams like Pancheshwar and aKoshi-SunKoshi have national security	Water-sharing is a major impediment in the India-Nepal water	The perception of the Koshi and Gandak treaty being unfair to Nepal	Hydropower can assist in addressing climate change-induced	Hydropower should play an important role in meeting India's	As a response to China's dam on the lower reaches of Brahmaputra,	
	The government of India's pursuit of river linking projects is	**◀ There is a trust deficit between India and Nepal leading to a	The lack of a water-sharing treaty between India and China makes	Hydropower tariff is artificially high and needs government	** China's dam-building on the lower reaches of Brahmaputra is	Proposed hydropower projects like Pancheshwar, aKoshi-SunKoshi	The government of India needs to scout for more hydropower locations	
			*◀ A hydropower market can be created if its ancillary services like	International water law is inadequate to facilitate international	There is a state-centre conflict in India making hydropower			
			Central Electricity Authority's guidelines on electricity	Water issues are der-represented in India's energy	The hydropower sector needs more power purchase obligations			
				India should encourage trilateral and regional cooperation on				

Legend
* Distinguishing statement at P< 0.05
** Distinguishing statement at P< 0.01
▶ z-Score for the statement is higher than in all other factors
◀ z-Score for the statement is lower than in all other factors

This factor explains six per cent of the study variance and three Q sorts load significantly with this factor. This factor views the governance of transboundary rivers through a securitised prism. The highest-ranked statements in this factor link transboundary water cooperation between India and Nepal with water security in northern India, specifically the Pancheshwar and SKSK projects with the water security in the Ganga plain (9, 25). The statement on China being the main factor behind the lack of trust between India and Nepal is ranked higher in this factor array than in any other factor (14). Exasperated officials in Nepal have often explained that India is all too willing to blame “third-party” influences on what are essentially bilateral

disagreements. The view of respondents in this factor array that Nepal and China are colluding against India can sometimes take a tone of conspiracy. An Engineer at the CWC reasoned that Nepal is dragging its feet on the SKSK project since it wants to develop the project with China. Jointly building the project on the Kosi River with India would mean that the design of the project must allow for flood control while building it with China could mean the primary focus being on electricity generation. Nepali officials have acknowledged that for Nepal, the export of surplus energy to India is of primary importance. The parameters of the Pancheshwar project also differ between India and Nepal with the latter claiming that the project will generate an annual 12,333 GWh (against India's 9,116 GWh) and the capacity of the Pancheshwar project is 6720 MW (against India's claim of 5040 MW). Both sides are yet to finalise these differences.

The respondents do not believe that it is the lack of a formal water treaty with China that makes cooperation difficult but rather the wider geopolitical context in which the bilateral relationship is situated and affects the riparian relationship (31). They reject the view that Nepali political leaders lack the political capital to go ahead with India on mega projects like the Pancheshwar dam (32). Similarly, they do not believe (unlike other factor arrays) that there is a trust deficit between the two countries (26). This is peculiar since "trust deficit" as a factor in India-Nepal riparian relations came up in interviews frequently. The perception that Nepal did not benefit from the Kosi and Gandak treaties as much as it should, or that India was deceiving in negotiations on these two treaties and did not pay compensation to the people who lost their land has been a sticking point among the officials from both sides as well as among the ordinary Nepalis. Some of the officials from India even stated that they were threatened by the local communities along the Kosi River when they visited for investigations of the SKSK project.

These respondents acknowledge that multipurpose projects like Pancheshwar and SKSK are a major factor in India's plan to link its rivers (35). The statement on dams in the seismically active Himalayas being dangerous scored the lowest in this factor (13). Among the hydrocracy, there is a firm belief that the design of the project will ensure that seismic activity does not affect the dam in any way. An engineer at the CWC remarked that the design of the project is made "keeping seismicity in mind" and that the area on which the dams are to come up is a "solid rock". Justifying the dams in the Himalayas, the engineer stated that there were similar concerns when the Tehri dam was to be constructed, but it is hailed as a successful project now. "The Himalayas are fragile in general, but this area is stable," the engineer remarked.

8.2.5 CONSENSUS STATEMENTS

Table 8.2: Statements ranked from most consensus to least consensus based on their z-score variance.

S. No	Statement	Z-score variance	Factor 1	Factor 2	Factor 3	Factor 4
31	The lack of a water-sharing treaty between India and China makes cooperation difficult	0.069^a	0	-1	-1	-1
37	Water-sharing is a major impediment to the India-Nepal water relationship	0.073^a	0	0	1	-1
30	Indian agriculture needs reforms from the demand side to ensure sustainable development and water security	0.129^b	3	0	2	1
33	India should encourage trilateral and regional cooperation on electricity trade in South Asia	0.149^b	-1	1	-1	0
24	Central Electricity Authority's guidelines on electricity trade restrict South Asian electricity integration and development of a regional energy market	0.269	-2	1	0	-1
4	Hydropower cannot help in flood control and flood moderation	0.271	-4	-2	-1	-2
27	Large dams like Pancheshwar and SaptaKoshi-SunKoshi have national security implications for India	0.292	-2	-3	0	-2
5	Hydropower can assist in addressing climate change-induced rainfall pattern changes by temporal and spatial transfer of water for irrigation	0.31	2	0	0	1
39	Nepal is trying to monetise its share of water from this project	0.331	0	0	3	2
14	China is the main factor behind the lack of trust between India and Nepal	0.355	-2	-1	0	1
11	International water law is inadequate to facilitate international hydropower cooperation	0.359	1	2	-1	0
32	Nepali political leaders lack the political capital to go ahead with mega projects with India	0.379	3	2	1	-2
34	The perception of the Koshi and Gandak treaty being unfair to Nepal is causing tensions in contemporary projects	0.387	0	-2	1	0
3	The hydropower sector needs more power purchase obligations from industry and distribution companies	0.388	0	-3	1	1
15	Water issues are under-represented in India's energy transition	0.39	-1	0	2	0
23	The government of India should explore pumped hydropower as an electricity storage mechanism	0.451	1	2	4	3
21	Climate change has made cooperation over international rivers critical	0.481	2	-2	-2	-1
16	Proposed hydropower projects like Pancheshwar and SaptaKoshi-SunKoshi to be built by India and Nepal have the potential to transform agriculture in the Ganga plain	0.5	2	-1	2	2
36	India is interested in the water resources of Nepal, not electricity	0.579	-3	1	-1	-4
18	The difficulty in accessing credit is one of the biggest hurdles to the building of Hydropower projects	0.593	1	1	-3	-1
19	India needs to be generous in negotiating hydropower projects with Nepal	0.697	0	3	-2	-3
22	India has not been able to disconnect everyday political issues with South Asian neighbours from water and hydropower cooperation	0.703	-1	2	-3	0
2	The declaration of large hydropower projects (> 25 MW projects) as renewable will help the hydropower sector	0.749	-1	-4	1	0
9	Transboundary cooperation on hydropower with Nepal is important for water security in Northern India	0.757	2	3	0	4
29	The long gestation time to build dams has distressed the sector	0.76	-1	4	0	2

12	There is a state-centre conflict in India making hydropower projects difficult and expensive	0.78	-3	1	-4	1
20	Nepal's demands during negotiations are fair and reasonable	0.844	-2	1	-4	-3
38	Cost-sharing is a major impediment to the India-Nepal water relationship	0.872	-3	0	2	-3
17	A hydropower market can be created if its ancillary services like quick start and stop, meeting peak demands, and ability to balance the grid are valued	0.895	4	0	3	-1
26	There is a trust deficit between India and Nepal leading to a lack of cooperation between India and Nepal	0.931	1	3	3	-2
10	China's dam-building on the lower reaches of Brahmaputra is a threat to environmental security in Northeast India	1.082	3	-1	-3	1
35	Proposed multipurpose dams in Nepal are a major factor in India's plan of interlinking its rivers	1.091	-1	-2	-3	3
7	The government of India needs to scout for more hydropower locations	1.21	1	-3	-2	3
6	Hydropower tariff is artificially high and needs government intervention	1.242	-4	-1	3	0
1	Hydropower should play an important role in meeting India's renewable energy target	1.333	3	-3	4	2
25	Cooperation between India and Nepal on multipurpose dams like Pancheshwar and SaptaKoshi-SunKoshi is important for water security in the Ganga plain	1.397	4	-1	0	4
28	As a response to China's dam on the lower reaches of Brahmaputra, India should build a dam in Arunachal	1.48	1	-4	1	3
13	Hydropower projects in the seismic Himalayan zone are dangerous	1.57	-3	3	-1	-4
8	The government of India's pursuit of river-linking projects is ecologically irresponsible	2.035	0	4	-2	-3

^a Indicates consensus statements at $p < 0.01$.

^b Indicates consensus statements at $p < 0.05$.

Consensus statements are those that do not distinguish between any pair of factors. Table 2 shows consensus statements from most consensual to least. Respondents agree that there is a need for reform in Indian agriculture from the demand side to ensure sustainable development and water security. The argument for this is elaborated at length in chapter five. It is important to note that the hydrocrats are aware that the engineering-led solutions are unsustainable and there needs to be a change on the demand side. It is surprising that the respondents in factor two, who are otherwise not strong proponents of dams, have stayed neutral on this statement and did not express strong views about it. The QSV of this statement in factor two is 0, i.e., neutral.

When it comes to regional trade and cooperation on electricity, the respondents across the factors are unenthusiastic about it as evident from their QSVs (see Table 8.2). Perhaps this indicates their acquiescence to linking economics with foreign policy goals. It is essential to point out how the practices of the Indian state do not align with its discourse on regionalism. During the visit of the Nepali Prime Minister to India, both the leaders affirmed in a Joint Statement their commitment to “expand such cooperation to include their partner countries

under the BBIN [Bangladesh, Bhutan, India and Nepal] framework subject to mutually agreed terms and conditions between all involved parties” (MEA, 2022). The process through which such regional cooperation is scuttled is detailed in chapter six. Respondents do not feel strongly that the suspicion about China’s actions on the Brahmaputra has to do with the absence of a formal water treaty (31). Cooperation between the two states has to do with the wider regional security context according to the respondents.

8.3 CONCLUSION

The factors in the previous section reveal that there is a diversity of opinion within India’s hydrocracy. Some of the hydrocrats that participated in this research have retired from their official positions. This gives them some liberty to express their views frankly. However, as serving officials they may be under pressure to follow the official line set by their peers or passed down in the institutions over time. It can be empirically observed that only one strand of these perspectives is followed in official policymaking. For instance, the more environmentally conscious officials have not been successful in influencing policymaking since plans to build dams in the seismically active Himalayas have not ceased. In this chapter too, the hawkish views on the hydrocracy expressed in factor one have the greatest statistical explaining power (study variance). This factor closely resembles the views from the previous chapters as well.

Except for the respondents in factor two, there is consensus that India should build a dam on the Brahmaputra downstream of the Chinese dam. This dam-for-dam approach to the Brahmaputra basin sets a dangerous precedent as more nations turn to build dams on international rivers. As seen in the chapter on international water law, the contradictions in the law have contributed to India’s decision to build a dam on the river. In order to stall such linkage between regional security concerns and legal claims on the flow of rivers, international water law needs to be reformed. However, it would be naïve to assume that the problem lies exclusively with the law. States need to delink geopolitical concerns with shared natural resources. India has a history of mature handling of shared rivers with Pakistan with which it has fought four wars and numerous smaller violent conflicts. Despite recent statements suggesting the weaponisation of waters, the Indus Water Treaty continues to be a glimmer of

peace and cooperation between the two states.¹²² In this context, a formal water treaty between India and China could forestall the securitisation of the Brahmaputra basin.

¹²² See: The Indian Express. (2016, September 27). Blood and water cannot flow together: PM Modi at Indus Water Treaty meeting. The Indian Express. <https://indianexpress.com/article/india/india-news-india/indus-water-treaty-blood-and-water-cant-flow-together-pm-modi-pakistan-uri-attack/>

CHAPTER 9: CONCLUSION

This research examined the hydropolitics of transboundary water resources in Himalayan South Asia using the case studies of the Mahakali and Koshi basins. Within these basins, I looked at the Pancheshwar and SaptaKoshi-SunKoshi multipurpose projects to be built jointly by India and Nepal to explore how regional geopolitics and geoeconomics play out in the region's shared water resources in the context of the water crisis underway in India. Along with the domestic water crisis, this research is situated in India's energy transition goals—in which hydroelectricity is touted to play an important role. This research contributes to literature not just on environmental security, and the role of water resources in climate change, but also on the conduct of emerging powers like India vis-à-vis infrastructure projects with their smaller neighbours. Before going deeper into the findings and their implications, I will provide an overview of the preceding chapters.

In Chapter One, I laid the foundation for the thesis by introducing the key concepts I am going to study and the research questions I am going to answer. I expounded on the water crisis in India against which this research is situated and the hydraulic mission of India's hydrocracy. Section 1.3 illustrates the significance of this research, followed by the methodology for the thesis. I explained the inductive nature of my research and how the findings and the objectives emerged inductively from the data. I introduced Q methodology and how I used it to triangulate my data methodologically.

Chapter Two provided the historical context for this study. I explained the political, geographical, and riparian geography of India-Nepal relations. I illustrated the perspective of Indian policymakers on having a close strategic partnership with Nepal and ensuring minimal 'outside' interference in what they perceive as their exclusive sphere of influence. This entitlement is resisted by Nepali officialdom and citizenry alike—something evident by their quest to revise the 1950 Treaty of Peace and Friendship. In chapter two, I shed light on China's involvement in the relations between India and Nepal, as well as India's implementation of economic coercion towards Nepal.

In chapter three, I introduce the analytical framework for the thesis. I explained the main tenets of securitisation theory and delineated the areas of my theoretical contribution. I provided an overview of the different schools of thought on this theory and some of its limitations. We looked at the emerging field of hydropolitics and assessed how this study contributes to this field. I demonstrated how using securitisation theory in the study of hydropolitics—as this

thesis does—introduces a constructivist view to a statist field of study. Along with the study of hydropolitics, international water law, and securitisation theory, this research is situated in the field of geopolitics and geoeconomics. In chapter four, I explained the water crisis India currently faces and how this quest for multipurpose reservoirs is attached to this water crisis.

The fifth, sixth, and seventh chapters of this thesis have endeavoured to provide answers to the research questions upon which this study is founded. These questions are:

1. How regional geopolitics intersects with the governance of transboundary rivers in Himalayan South Asia in the context of increasing water scarcity?
2. What role does international water law play in assisting weaker riparians in contesting hydro-hegemony and fostering collaboration over transboundary rivers?

9.1 SUMMARY OF THE FINDINGS

9.1.1 SECURITISATION BY INDIAN HYDROCRATS

Chapter Five illustrates how this thesis contributes to securitisation theory using the case study of large dams in South Asia. In this chapter, I highlight the ways Indian hydrocrats securitise the negotiations, development, and governance of large dams with Nepal and China. Indian hydrocrats look at energy security, trade, and infrastructure through the prism of national security. They use their technical and institutional expertise to practise security. They do this to either address what they perceive as a threat to India's economic, environmental, or national security; or to signal [to elite policymakers] what they think is a threat. The 'practices of security' highlighted in chapter six are classified as structural, institutional, and statutory acts of securitisation. Distinct from the Copenhagen School's view of securitisation, I focus primarily on the mid-level officials in the Indian government, and their practices instead of their discourse. Securitisation is inherently a constructivist theory that emphasises actors and not the overarching structure of global politics. By focusing on the mid-level bureaucracy, I further this constructivist view of international politics. Secondly, by looking at the impact of hydrocrats on matters of foreign policy and geopolitics, I re-imagine the factors that drive the behaviour of states wherein an important role is played by epistemic communities. Lastly, this view of securitisation moves away from an elitist view of the theory to place greater emphasis on professionals of security.

Structural acts of securitisation are actions with physical and material results that are meant to allude to or address security threats. Indian hydrocrats have promulgated a plan to build a reservoir dam in Arunachal Pradesh to offset a perceived threat to water security in India's northeast as well as to strengthen India's legal claim to prior use rights under international water law. The threat to India's water security as perceived by Indian officials emanates from China's plan to build a 60 GW dam close to India's border on the lower section of the Brahmaputra River. Indian officials fear this dam can impact the flow of water in Brahmaputra and water diversion by China can cause water insecurity along the river. With a dam, the Indian officials believe, China can regulate the flow of water and can cause floods. There are also fears of altering the quality of water. A dam of this magnitude can hold back huge silt carried by the river. This silt is essential for the fertility of agricultural lands downstream and, by extension, for food security. The other threat that the officials in India's water and energy ministries perceive has to do with their legal claim over the continued flow of water during the dry season. Under Articles V and VI of the UN Watercourses Convention (UNWC), a state building a dam upstream has the responsibility to utilise the resource in an "equitable and reasonable" manner that does not impinge upon the "existing and potential uses of the watercourse" by another [downstream] state (UN, 1997: 4-5). By building a dam downstream of the Chinese dam, Indian hydrocrats are seeking legal cover for the continued flow of water, and the right to utilize the watercourse. This also mandates China to cooperate and consider the interests of the downstream states (India and Bangladesh). It is worth noting that, while India is building the dam to strengthen its prior use rights under the UNWC, it is not a signatory to the convention (and neither is China). Additionally, even if India seeks to have the legal cover of UNWC, it assumes that China would adhere to the principles laid out by international laws. The act of building a dam as a security measure is categorised as a structural act.

Institutional acts of securitisation are actions made to or within an institution as a response to an external threat or seeing the institution as the referent object that is being threatened. The inclusion of diplomatic corps and armed forces in institutions meant to deal with the Pancheshwar project and the escalation of the Pancheshwar Development Authority (PDA) to the diplomatic level is categorised as an institutional act of securitisation. Not only have Ambassadors and other diplomats from India and Nepal been included in the PDA, which is an "independent, autonomous" bilateral body established to "finalise the detailed project report" and expedite implementation of the project, but the breakdown over project negotiations had also led to diplomatic interventions by Indian Ambassador to Nepal. Such

interventions, not common, were justified by the Ambassador due to the “strategic” nature of the project.

There has been a shift in the justification of the project as well. While official documents, as well as personal communication with hydrocrats from India and Nepal, reveal that the project is primarily aimed at storing water for temporal and spatial transfer intended for irrigation in the Sharada command in Northern India, there seems to be a narrative shift wherein the project is being presented as a panacea to the problem of flooding in the Ganga plain. This shift in project justification seems misleading since any flood moderation benefits from Pancheshwar were stated to be “incidental” at best in official reports (WAPCOS, 2017).

The intervention by armed forces in the project is extraordinary and securitises the project. Besides expressing concerns over the river’s origin and the sovereignty over Kalapani, the project was on the agenda of the Chief of the Indian Army when he visited Nepal in 2020 (Bhalla, 2020; IANS, 2020). The Army Chief also suggested that Nepali officials have been protesting the Indian road to Lipulekh pass "at the behest of someone else." The institution (PDA) is seen as a tool to respond to threats and the securitising act is its escalation to diplomatic levels and interventions by armed forces.

Lastly, statutory acts of securitisation are legislative or legal provisions that practise security. Here the securitising actor(s) uses their power to declare statutes, procedures and/or laws to securitise an issue. The Central Electricity Authority has used this power to strengthen India’s centrality in Nepal’s electricity and water resources sector and cement its influence in the region’s economy and polity. The CEA declared electricity trade as a matter of strategic, national and economic importance” in their 2016 guidelines on energy generation and trade in South Asia (CEA 2016: 03). The guidelines made Chinese investments in Nepal and Bhutan’s hydropower sector financially unviable. According to the guidelines, "participating entities" in the electricity trade are permitted to trade only from those power generation projects that are owned or financed by the Government of India, Indian public sector undertakings (PSUs), or private enterprises with at least 51% Indian ownership. The sale of excess electricity from large hydropower projects in Nepal is reliant on India's agreement, given Nepal's low energy consumption. Consequently, these guidelines effectively grant India exclusive access as a foreign investor if Nepal decides to pursue large hydropower projects. Nepal and Bhutan's governments strongly objected to these guidelines, prompting their revision to remove the restrictive clauses. Nonetheless, in February 2021, the CEA issued "procedures" that reiterate

the limiting clauses, making cross-border electricity trade subject to India's approval and prohibiting the use of Indian grids by any electricity generation projects owned or controlled by any third country that shares a "land border" with India. The view among the hydrocrats is that the trade of electricity generates regional interdependence, which India can leverage to establish its political and economic dominance in the region since inter-regional trade is reliant on Indian infrastructure. Indian officials in the energy sector have been protective of their geoeconomic position in South Asia, particularly in Nepal. These guidelines reinforce India's position of centrality, which Indian officials perceive as being threatened, by discouraging trilateral electricity trade or regional alliances among South Asian nations that could challenge India's dominance. These guidelines counterbalance Chinese influence in Nepal's energy and water resource sectors. The act of issuing these restrictive guidelines is considered a securitising move since it contradicts the spirit of energy cooperation that Indian officials and politicians have strived for. India has expressed its aspirations for global grid connectivity to address the need for energy storage, balance electricity grids, and promote energy transition (Modi, 2021). At the 2014 SAARC (South Asian Association for Regional Cooperation) summit, India also committed to promoting regional electricity trade. The relevant actors in this scenario are the members of Nepali and Bhutanese civil society, as well as government officials, who objected to the implementation of the guidelines.

9.1.2 THE FAILURES OF INTERNATIONAL LAW

In Chapter Six, I examined how the inadequacies of international law manifest themselves in bilateral negotiations on water governance between India and Nepal. The self-serving interpretations of international water law, especially the UN Watercourses Convention (UNWC), hinder meaningful cooperation on the governance of shared rivers. Despite the absence of explicit provisions on benefit-sharing in the UNWC, chapter six attempted to identify principles that promote equitable sharing and reasonable utilisation of water (Articles V, VI, and VII in the UNWC). However, leveraging different provisions of the UNWC during negotiations by both upstream and downstream states has only complicated the negotiations and exposed weaknesses within certain provisions of the watercourses convention.

9.1.3 EQUALITY DILEMMA

The principles of equitable and reasonable utilisation of water are prone to misinterpretation by states to suit their own needs as demonstrated by the case of Nepal's demands for equal

entitlement to the Mahakali River despite limited domestic needs, leading to accusations of monetisation of water by Indian hydrocrats.

Although international water law emphasizes equitable utilisation, its definition remains open to interpretation, and the ‘relevant factors’ fall short of clarifying that benefit-sharing must go beyond traditional water sharing or allocation. Definitive provisions on equitable benefit-sharing would have made negotiations between India and Nepal less hostile, while the conflict between UNWC and Berlin Rules on equitable utilization and causing significant harm continues to cause confusion on the status of the lower Sarada barrage.

9.1.4 PRIOR RIGHTS VS EQUITABLE RIGHTS

The claim of existing or prior rights over the use of water poses another challenge to the application of reasonable and equitable water utilisation rights. There is debate over which takes precedence - reasonable and equitable use or the obligation not to cause significant harm (prior use rights). Nepali hydrocrats argue that Indian policymakers' claim of prior rights over the water of Mahakali at Lower Sarada is unjust and unfair. This claim has led to additional complexity after the Nepali Parliament passed strictures in response.

Point three of the Nepali Parliamentary strictures asserts Nepal's equal rights to all the water of the Mahakali. This assertion of equal rights over all the water is in direct contention with Article III of the Mahakali treaty which declares that the equal entitlement in the utilisation of the Mahakali River should be “without prejudice to their respective existing consumptive uses of the Mahakali River” (Mahakali Treaty, 1996: 03). This means that both India and Nepal agree not to claim any share of water that the other has been utilising before the signing of the treaty. This conflict between the treaty and what the Nepali Parliament declared has led to a deadlock. Any attempts to progress on the Pancheshwar project would mean amendment of the strictures (if not outright nullification). The history of mistrust between India and Nepal on shared rivers makes it politically difficult for the Nepali political leadership to amend or ignore the Parliamentary strictures.

Interestingly, Indian policymakers have accused other downstream riparians of the same allegations that Nepal, the upper riparian, alleges the Indian side of doing. Former Prime Minister of India, Jawaharlal Nehru resisted Pakistan's projects on the Indus Basin on the charge that Pakistan was trying to create historic rights for itself. Nehru warned that unilateral construction by Pakistan would enable the lower riparian to create *historic rights* in its favour and block the development and uses of the upper riparian. However, when it comes to Nepal,

Indian officials claim five BCM of water from the lower Sarada barrage due to the same historic rights and prior usage principles. In other words, Indian hydrocracy has claimed rights over the Mahakali River flow using the principle of prior usage even though it has contested similar attempts by Pakistan.

9.1.5 BENEFIT-SHARING VS WATER-SHARING

The concept of benefits sharing in international water law is a debated topic, with downstream states preferring to apportion the volume of water while upstream states argue for the allocation of benefits based on the most valuable use of the water. The problems faced during negotiations over the Kariba Dam and Lesotho Highland Water Project are similar to those faced by India and Nepal over the Pancheshwar and SKSK projects. Indian officials insist on the equitable sharing of water, but the principle of equitable utilisation mandates states to go beyond the classic apportionment of water to share benefits accrued from such projects. In order to empower weaker riparians in contesting the hegemony of stronger riparians, the principle of equity and equitable distribution ought to make it clear that allocation should be based on the most valuable use of water and the state forfeiting the rights to water is entitled to a share of the benefits. These benefits could be a share of outputs from the project (hydroelectricity, flood control, augmented storage of water, augmented irrigation, etc) or monetary benefits. In doing this, a framework for sustainable allocation of water can be enshrined in law. By attaching a value to ecological services of the natural environment, it may be possible to reform our attitudes towards sustainability.

9.1.6 DOWNSTREAM BENEFITS

The Indian negotiators' reluctance to acknowledge the downstream advantages and their veiled intentions behind Pancheshwar and SKSK, including water storage for augmentation during low seasons, reinforces Nepali negotiators' accusations of India's inequitable negotiations that lack transparency. This situation illustrates the challenge in determining benefits and underscores how honesty and openness are crucial for just development of cross-border water resources. The absence of a legal framework or process underlining water laws facilitates dominant riparians in exercising control over shared waters. As evidenced by this thesis, while guidelines such as UNWC or Berlin Rules propose methods to determine benefit allocation based on factors like drainage areas or contribution levels, territorial disputes concerning the Mahakali River source hinder collaboration between India and Nepal.

9.1.7 Q METHODOLOGY: BETWEEN HAWKS AND DOVES

Chapter Seven used the Q methodology to highlight the divergent views within India's hydrocracy. This diversity of opinion is largely unapparent in other chapters, nor does it reflect in the policymaking that is dominated by one school of thought (factor one—the pro-dam hawks). The reasons for this could be the compulsions of hydrocracy to stick to the prevailing opinion—the other opinions that stray from the current policies are a minority. Bureaucrats could be risk-averse and may choose to follow an official line set by their peers or passed down in the institutions over time. However, since the majority of the participants in this study were retired, the post-retirement liberties may have emboldened them to share their opinions frankly.

As documented in chapter seven, while there is a diversity of opinion with the hydrocracy, policymaking seems to favour a hawkish perspective, as plans to build dams in the Himalayas continue despite [muted] opposition from environmentally conscious officials. There is broad consensus, with the exception of respondents in factor two, that India should build a downstream dam on the Brahmaputra to offset the (real and perceived) impacts of the Chinese dam close to the 'great bend.' However, this dam-for-dam approach could establish a dangerous precedent for other nations building dams on shared rivers. The contradictions in international water law have contributed to India's decision, emphasising the need for reform of the law. But the problem is not solely legal—geopolitical concerns must be delinked from shared natural resources. The Indus Water Treaty between India and Pakistan is a model of cooperation despite a history of conflict, and a formal treaty between India and China could similarly prevent the securitisation of the Brahmaputra basin. Finally, this chapter has aided in triangulating the findings of this research. It has done this by highlighting the muted opposition to some of the policies undertaken by the Indian hydrocracy and emphasising that the prevailing views are congruent with the findings in chapters five and six.

9.2 DISCUSSION AND CONCLUSION

Taking an inductive approach helped me identify the problems as they were, rather than forcing them into pre-existing theories or frameworks. As a researcher, all I had to do was read the writings on the wall, draw inferences from the observations, and identify linkages between issues. In a study of hydropolitics, I chose to bring securitisation to uncover the constructivist nature of international politics. Actors sometimes have influence over certain events that statist theories of IR do not credit them with. I do not argue against the importance of the structure of global politics in determining the behaviour of states or the powerful agents within these states.

However, it is wholly possible for two competing theories to coexist parallelly. I believe my findings are an example of this phenomenon. Geoeconomics in this study shows the motivations of these actors—even though this concept is more latent rather than vocal in this study. This research locates the intersection between geoeconomic motivations, manipulations of international law, and practices of securitisation.

The findings from the research have demonstrated that international law is incapable of challenging power equations over river basins and guiding fair and equitable utilisation of water resources. This weakness of the law has led to perverse incentives—in order to challenge the principle of the prior right, the Indian hydrocracy has declared its plan to develop dams on the Brahmaputra River. This interface of securitisation of water resources and the inadequacies of international law has created a lock-in and could be replicated elsewhere. Whether international law has had a similar effect on other river basins is an interesting avenue for further research.

Scholars of international law may further find the results from chapter six interesting as it highlights the convoluted status of the principle of equity that guides much of natural resource governance. Further, this convolution is (mis)used to securitise shared resources. The debate over equity and equality has driven shared projects between India and Nepal to a standstill.

This research also reveals the role of epistemic communities—like the Indian hydrocracy—in foreign policymaking. These knowledge communities impact the view of security and influence decision-making. Scholars of international relations may find this useful as it highlights the constructivist nature of international politics. Such a view of securitisation also moves away from an elitist understanding of the theory to appreciate the role of mid-level bureaucrats and their actions. It also departs from a discourse-centred reading of the theory. Findings have explicated how the securitisation theory can be used to understand structural, institutional, and statutory acts of securitisation. This means that policymakers and researchers can apply this theory to better understand how security threats are addressed through physical and material actions, through the power of making laws or by changing institutional structures or functioning. As climate change continues to impact the availability of freshwater, securitisation of this resource could increase geopolitical tensions between states. For instance, with increasing precipitation precarity, more states may turn to develop reservoirs on transboundary rivers to store water to be transferred during lean seasons. Such developments have the ability to conflagrate existing boundary disputes or create new ones. A securitised

environmental policy may be followed by a militarised or weaponised environmental policy. This could herald a dangerous era. Chapter Five alluded to this possibility when discussing the Pancheshwar project and the disputed nature of the India-Nepal border near Kalapani. It is also an opportunity for further research—scholars of environmental politics and international relations should take note.

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APPENDICES

Appendix A: Key informants

Organisation name	Location	Number of participants	Retired	Serving
Central Electricity Authority	New Delhi	One		One
Central Water Commission	New Delhi	Six	Two	Four
National Water Development Agency	New Delhi	One		One
NHPC (erstwhile National Hydroelectric Power Corporation)	New Delhi	One	One	
Ministry of Jal Shakti	New Delhi	One	One	
Ministry of Power	New Delhi	One		One
Ministry of New and Renewable Energy	New Delhi	One		One
Ministry of External Affairs	New Delhi	Four	Two	Two
Ministry of Agriculture	New Delhi	One		One
Ganga Flood Control Commission	New Delhi	One		One
Water and Energy Commission Secretariat	Kathmandu	Two	One	One
Ministry of Energy, Water Resources, and Irrigation	Kathmandu	Three	Three	
Nepal Electricity Authority	Kathmandu	One	One	
SJVN Arun-III Power Development Company (SAPDC)	Kathmandu	One		One
Water Resources Research and Development Center	Kathmandu	Two	One	One
National Planning Commission	Kathmandu	One	One	
Department of Electricity Development	Kathmandu	One		One
Jalsrot Vikas Sanstha (JVS)	Kathmandu	One		One
Pancheshwar Development Authority	New Delhi and Kathmandu	Four	Two	Two
Civil society representatives	New Delhi and Kathmandu	Eight		
Water Resources Department, Govt of Bihar	New Delhi	One		One
Journalist	New Delhi	One		One
SJVN Arun-III Power Development Company	Kathmandu	One		One

Appendix B: Participants in the Q Sort Analysis

Institution	Designation	Serving or retired
Ministry of Power	Joint Secretary	Serving
Pancheshwar Development Authority, Central Water Commission	Chief Engineer	Serving
NHPC (erstwhile National Hydroelectric Power Cooperation)	Chief Managing Director	Retired
Water Resources Dept, Govt of Bihar; Niti Aayog	Superintendent Engineer	Serving
National Water Development Agency, Govt of India	Chief Engineer	Serving
Central Water Commission	Chairman	Serving
Ministry of Jal Shakti	Joint Commissioner	Serving
Ministry of Jal Shakti	Secretary	Serving
Pancheshwar Development Authority, Central Water Commission	Chief Engineer	Retired
National Mission for Clean Ganga	Financial Advisor	Serving
Central Water Commission	Member, Design and Research	Retired

Appendix C: QSA data analysis



Factor analysis: Factor analysis is a data reduction technique. Using statistical inspection of correlation between Q sorts, factor analysis attempts to identify similarities between Q sorts and consequently similarities of opinion or viewpoints and bands them together. It reveals patterns of associations between the individual Q sorts that make up a set.

Study Variance: Study variance explains the relationships that hold the Q Sorts in the group. It does this by identifying and referring to “sizeable portions of common or shared meaning” present in the data. These portions are the factors.

Correlation: This is the first step in the factor analysis where correlation between Q sorts are determined. The correlation statistics are employed to measure “the degree of agreement

between two sets of scores from the same individuals' (Kline, 1994: 18). These scores are used to analyse the data and identify patterns of agreement and disagreement among the participants. Correlation measures the strength and direction of the relationship between two variables. Using this I identify the degree of association between the ranking of statements by the participants.

Centroid Factor Analysis: It is the oldest factor extraction technique. In this method, a 'centroid factor' is calculated for each statement, and it represents the average ranking of the statement. Centroid factors then identify the underlying factors that are common among the participants. The process involves calculating the correlations between the centroid factors and the rankings of the statements by the participants. The correlations are used to recognise the factors that are most strongly associated with the subjective viewpoints of the participants. These factors can then be interpreted and labelled based on the content of the statements or items that contribute most strongly to the factor.

A choice exists between choosing centroid factor analysis (CFA) and principal component analysis (PCA). This choice was also offered in KADE—the software used for analysis. CFA was chosen over PCA since the latter is used largely in high-dimensional data while the data I had was low-dimensional with just 11 Q sorts. Important to point out that both the methods deliver the same results through different approaches (Watts and Stenner, 2012). While PCA will "resolve itself into a single, mathematically best solution, which is the one that should be accepted... but it generally isn't attractive in Q methodology" (ibid: 99). In the end, I took the advice of Watts, S., & Stenner (2012) and Kline (1994) and used CFA to extract factors.

Factor extraction: There are various criteria that can be applied when deciding on the number of factors to retain following the extraction. Some of these criteria could be the study variance, the eigenvalue, the number of Q sorts that load significantly on each factor, etc. Watts and Stenner (2012) suggest that the researcher decides on how many factors to extract based on the researcher's experience. A cursory reading of the seven factors revealed overlapping findings in the last three factors. Additionally, the value addition, in terms of study variance was negligible after the first four factors. Hence, I relied on my reading of the factors and objective criteria like study variance and the principle of having at least two significant loadings on the extracted factors and decided to extract four factors for analysis.

Varimax rotation: In order to interpret the factor loadings, researchers need to ‘rotate’ the factor structure in a way that maximises the variance of the squared loadings for each factor. Varimax rotation is the option of choice if the researcher is using an inductive analytic approach, or if the primary objective is to consider the majority viewpoints of the group—both of which are applicable to this study. It is also the more objective choice—as opposed to manual rotation—and hence more common.