

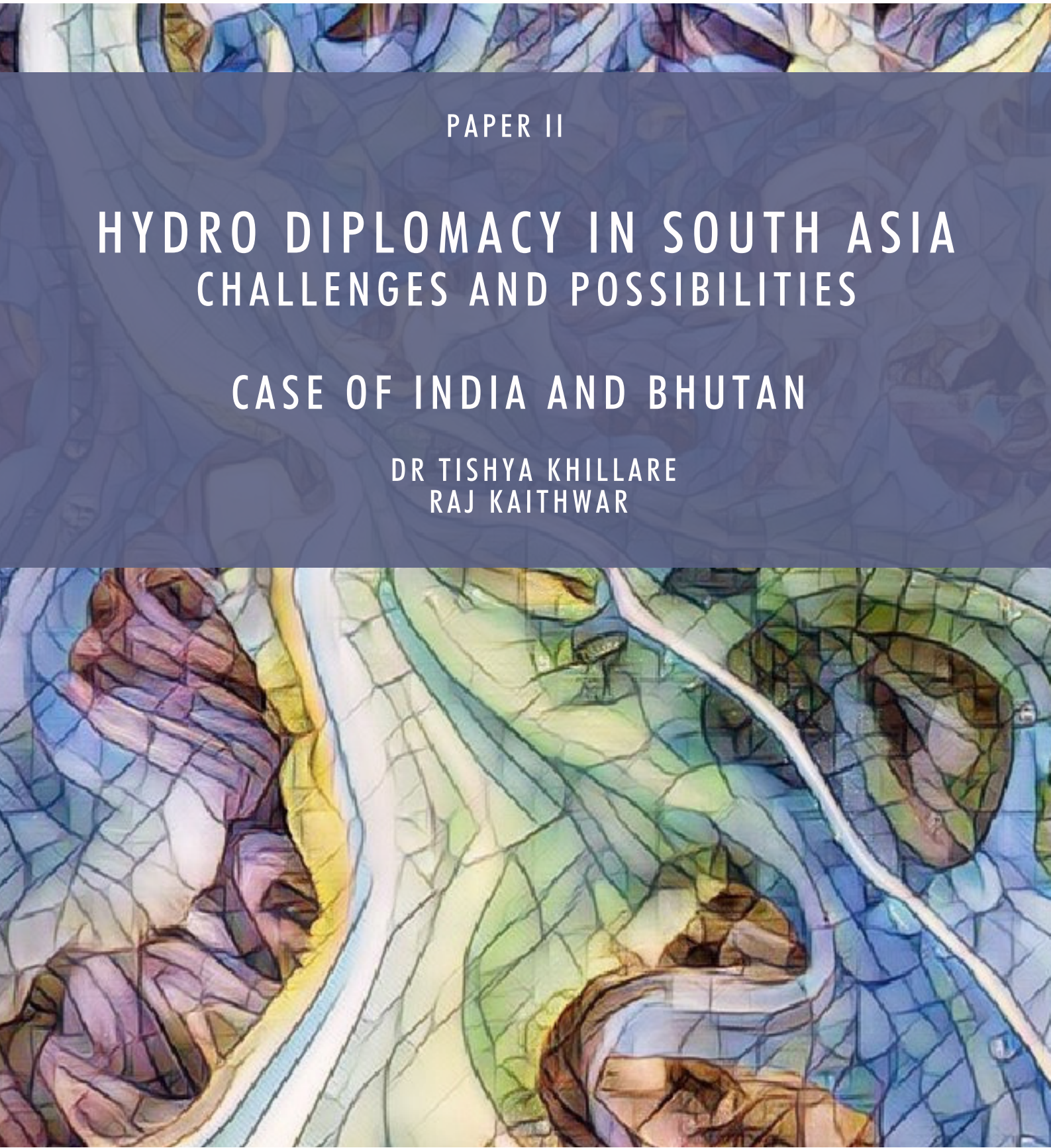
SOUTH ASIA WATER DIPLOMACY INITIATIVE

PAPER II

HYDRO DIPLOMACY IN SOUTH ASIA CHALLENGES AND POSSIBILITIES

CASE OF INDIA AND BHUTAN

DR TISHYA KHILLARE
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EXECUTIVE SUMMARY

- India-Bhutan relations on water are more in the realm of cooperation than conflict. To further build on the relationship, certain emerging issues need to be addressed by both states. The authors have suggested win-win pathways for policymakers to explore.
- First, energy trade forms the backbone of Indo-Bhutan relations, which is at a crucial juncture as it enters a new phase. Hydropower as a 'clean energy' source also forms the backdrop of clean energy transition in the region. Third, Bhutan's growth needs, which are dependent on hydropower generation and trade with India, ensure that the relationship is largely mutually beneficial. Fourth, 'foreign policy considerations of India and Bhutan' drive continued partnership between the two states.
- Indian and Bhutanese beliefs differ with respect to:
 1. 'Fair financing modalities' for hydroelectric power projects,
 2. 'Fair tariff rates' for energy exported to India,
 3. 'Project implementation culture',
 4. Transboundary environmental governance, particularly in the context of Bhutan's Gross National Happiness philosophy and the environmental impacts of India supported HEP projects, and
 5. Bhutanese stakeholdership in India supported HEPs.
- The authors propose a Zone of Possible Agreement constituted by seven policy issues where win-win options can be explored by the two states. First, is the revival of the Empowered Joint Group to overcome differences and reenergize cooperation. Second is development of a framework for project implementation modalities which caters to expectations of both states.
- Third is working together on power tariffs by exploring possibilities of tariffs on the basis of market rates in India and differential rates for different seasons. Fourth is offering a bigger market to Bhutan through the regional power grid. Fifth is providing higher importance to biodiversity conservation in India supported projects.
- Sixth is expanding the wheeling of power benefits for borderland communities in Bhutan. Seventh is scaling up and institutionalizing local innovations in bilateral relations.

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ABOUT THE PAPER SERIES

The South Asian Region is one of the most densely populated regions, with rapidly expanding development needs, and ever-increasing freshwater scarcity. According to a 2017 report by The World Bank, per capita water availability in the region is 1,106 m³, much below the international standard of 1,700 m³, and dangerously close to the water scarcity threshold of 1,000 m³. Estimates suggest that by 2025, South Asia will be facing extreme water distress owing to inefficient water use. In addition, water-led migration has a significant likelihood of emerging as a point of concern in the mid to long term future.

As development priorities undergo transformation, the nature of geopolitical relations change and the role of non-state actors becomes more significant. South Asia must begin to imagine a new kind of regional cooperation around shared water resources, one that is able to move beyond issues that currently saddle cooperation, by identifying and respecting each other's political redlines and forging cooperation on issues on which positive policy movement is possible.

To this end, this paper series presents the findings of the SAWDI project which mapped issues that have a higher potential for agreement and cooperation in bilateral water sharing relationships between India and its neighbouring countries- Nepal, Bhutan, Bangladesh and Pakistan.

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INTRODUCTION

India-Bhutan relations on water are more in the realm of cooperation than conflict. "Bilateral cooperation on water began in 1955 with the establishment of numerous rain gauges and river flow stations in Bhutan sponsored by the Indian Ministry of External Affairs for the purpose of improving flood warning measures".[i] However, hydropower cooperation has been the defining feature of the relationship.

Hydropower cooperation began with the signing of Jaldhaka Project in 1961. This was followed by Chukha Hydroelectric Project (HEP) on Wangchhu (Raidak river) signed in 1974, Kurichhu HEP on Kurichhu signed in 1994, and Tala HEP on Wangchhu (Raidak river) signed in 1996. Bhutan's objective has been to develop its economy off revenues earned from hydropower projects. Image 2.1. below shows the major rivers of Bhutan. For India, there has always been a need to harness power sources to meet its ever-growing energy demands. Over the years, export of surplus power from these HEPs to India has funded many development initiatives in Bhutan like the provision of free basic healthcare.[ii]



Image 2.1: Glaciers and rivers of Bhutan

While the framework of the above projects was derived from the Indo-Bhutan Friendship Agreement of 1949, the ongoing cooperation takes its cue from the 2006 Agreement on Cooperation in Hydropower, and the 2009 Protocol to the 2006 agreement. Taking Indo-Bhutan cooperation further, India had agreed, under the 2009 protocol, to develop 10,000 MW of hydropower in Bhutan by 2020 and import surplus electricity. An Empowered Joint Group of Ministers, set up under the Protocol to the 2006 agreement with the aim of expediting hydropower project development in Bhutan, took this decision in its first meeting in March 2009.[iii] However, in recent years the meetings of the Group have not been regular, an issue highlighted by a former high-level official from Bhutan.

This paper discusses various aspects of the India-Bhutan transboundary water relationship through the concept of Normative Systems and Zone of Possible Agreement (ZOPA). Citing a 2001 piece by Jones and Carmo, Boella and Torre define Normative multiagent Systems as "sets of agents (human or artificial) whose interactions can fruitfully be regarded as norm-governed; the norms prescribe how the agents ideally should and should not behave. [...]".[iv]

This series of papers views various bilateral water sharing relationships as normative multiagent systems with the Indo-Bhutan hydro relationship constituting one such system. Using the concept of Normative multiagent systems allows us to understand issues that drive a particular relationship and the nuances beliefs held by various agents involved in a particular relationship. Based on the analysis of Indo-Bhutan hydro relationship as a normative system and drawing on multi stakeholder interviews, the paper highlights a ZOPA consisting of issue areas which have the maximum potential for uptake in the water, hydropower and foreign policy communities along with the public of both states for enhancing cooperation.[v]

This paper is part of a series produced by the South Asia Water Diplomacy Initiative (SAWDI) project carried out by the Council for Strategic and Defense Research in partnership with the Hans Seidel Foundation, India in 2021. For details regarding the research methodology followed in this paper series, please consult the methodology paper.

THE NORMATIVE SYSTEM OF THE INDO-BHUTAN HYDRO RELATIONSHIP

The discussion in the following paragraphs deals with the norms that shape and carry the potential to change the dynamics of Indo-Bhutan hydro relationship, in other words the normative system of the Indo-Bhutan hydro relationship. Boella and Torre describe the normative system as being constituted by regulative and constitutive norms. They define regulative norms as "goals of the normative system, and constitutive norms as beliefs of the normative system". In the Indo-Bhutan relationship, Energy trade is a regulative norm, i.e., it is a "motivation and not a belief"[vi], whereas fair electricity tariff is a constitutive norm. According to Searle, for the construction of social reality between multiple agents, constitutive norms define that "something counts as something else for a given institution"[vii]. India and Bhutan differ in the case of their perceptions of fair electricity tariffs and hence it may be regarded as a constitutive norm. Constitutive norms help identify issue areas where various agents may have to be more sensitive to each other's divergent views when introducing changes in the normative system.

GOALS OF INDO-BHUTAN HYDRO RELATIONSHIP: REGULATIVE NORMS

1. Energy Trade

Trade in energy, particularly hydropower, has been the backbone of the mutually beneficial India-Bhutan relationship. India has been able to receive power from a trustable source, filling the void in northeast India and during peak-hour summer shortages. Bhutan has been able to develop its economy, and other sectors, through earnings from selling surplus power to India.[viii]

Both India's and Bhutan's energy trade policies are at a crucial juncture. If interests are synergized, and new avenues harnessed in a timely manner, there is scope for a new phase of energy trade between India and Bhutan. The key facets of this emerging new phase are: India's regional grid policy, Bhutan's need to expand and diversify its energy market, Bhutan's dependence on energy trade to grow its economy, and India's growing need for power and also for meeting its climate goals.

The trust between the two states on hydropower trade can be gauged by the fact that "during the 2012 blackout the Indian government approached Bhutan for assistance to meet its power deficit. The emergency power brought in on a priority basis was used to electrify the Delhi Metro, the prime minister's residence as well as a leading hospital in the national capital and restore the Eastern grid".[ix]

To both countries, hydropower cooperation is important and both have repeatedly highlighted the mutual benefits.[x] They are also investing in safeguarding hydropower production and trade from future risks. In partial response to Bhutan's concerns about its high dependency on Indian monopsony and resulting keenness for diversification[xi], India is investing in the idea of converting its Northeast region "as a transit corridor for power transfer to neighbouring countries including Bangladesh and Myanmar" as detailed in the Hydro Carbon Vision 2030 document released by the Government of India.[xii]

Further, under the current dispensation of PM Modi, a cross-border energy trade initiative is being pushed as part of the neighbourhood policy. The intent is to build a South Asian energy security architecture. As part of this policy, Indian Energy Exchange (IEX), in April 2021, announced the "commencement of the Cross Border Electricity Trade (CBET)" on its platform. A statement by IEX on CBET read "This is a first-of-its kind initiative for the exchanges to expand their power markets beyond India to the South Asia region towards building an integrated South Asian regional power market...Nepal, Bangladesh and Bhutan are to be among the first beneficiaries, owing to the connectivity with the Indian electricity grid".

On its part, to safeguard hydroelectricity production and trade from fluctuating hydrological flows, Bhutan desires to shift to large-reservoir dams that are less susceptible to changes in hydrological flows caused by erratic rainfall patterns due to climate change. For instance, in a 2018 interview, the managing director of Druk Green Power Corporation had expressed his apprehensions about climate change impacts on water flows and power generation. Bhutan's prioritization of the Sankosh project, its first reservoir based dam, reflects this sentiment. Kuri-Gongri and Manas projects are also envisioned as large reservoir initiatives.

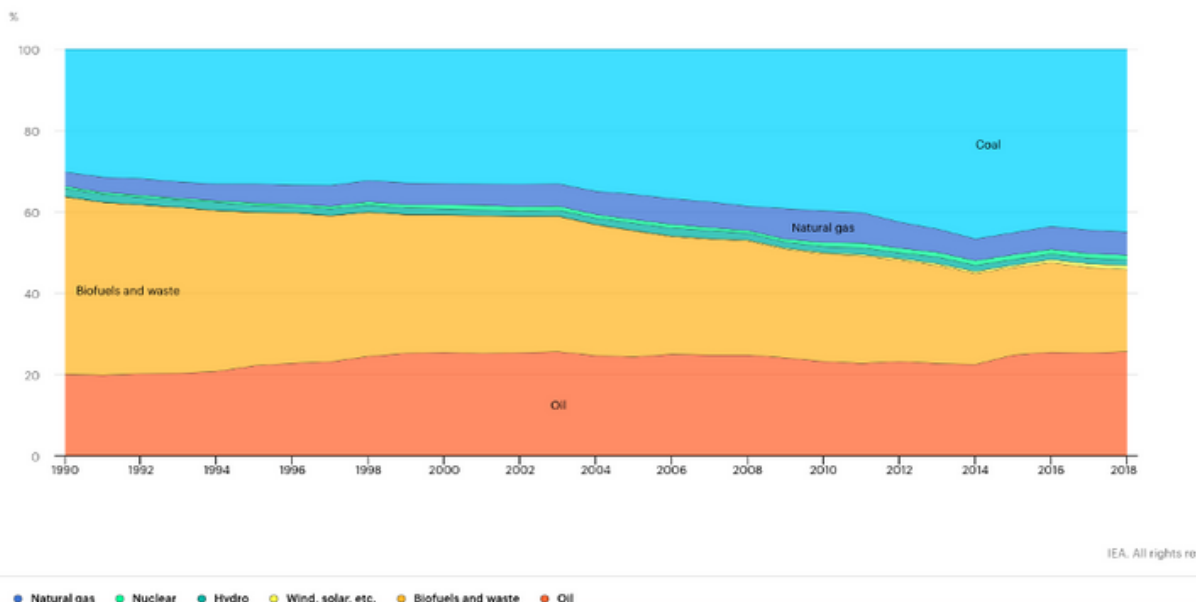
1. Clean Energy

Clean energy have come into prominence across the globe. Global conversations, particularly in United Nations Framework Convention on Climate Change (UNFCCC), are promoting clean energy dependence to mitigate and adapt to climate change. Be it Bhutan or India, the future energy policy outlook of the two states is increasing reliant on clean energy. While Bhutan intends to have 4100 MW of power from renewable sources by 2030, India will meet 50% of its energy requirements from renewables by the same time.

Hydropower holds an important place in the clean energy understanding of South Asian states. The policy thinking in India is that hydropower will provide a strong base to achieve India’s clean energy transition goals by 2030. Particularly with respect to India’s Northeast region, there is strong interdependence between the region’s energy demands, India’s clean energy goals, and Bhutan’s hydropower sector.

Despite having upwards of 90% of hydropower generation potential, the North-East region of India remains untapped because of multiple reasons.[xiii] Right since India’s independence, the state was reluctant to make heavy investments in the region because of it being a security frontier with high insurgency risks. Even prior to India’s independence, the region was treated as a security frontier. In recent years, issues of environment, land acquisition, public resistance, and lack of infrastructure have prevented development of the hydropower sector in the northeast. These factors have nudged India to look towards Bhutan, among other sources, for providing electricity to the region.

As a neighbour with vast energy needs, Bhutan’s potential to generate clean energy is of much value to India as it transitions to clean energy in line with its 2030 commitments. India needs to add “between 196 and 276 GW of renewable energy sources”[xiv], if it has to meet its intended Nationally Determined Contributions targets under the UNFCCC of shifting 40% energy capacity to renewables. At present, India is heavily reliant on fossil fuel and with rapid development stressors it has been looking to diversify its energy basket by investing in clean energy. The following graph depicts the share of various sources of energy in India.



Graph No. 1.3: Total Energy Supply by Source in India 1990-2018. Source: International Energy Agency (IEA).

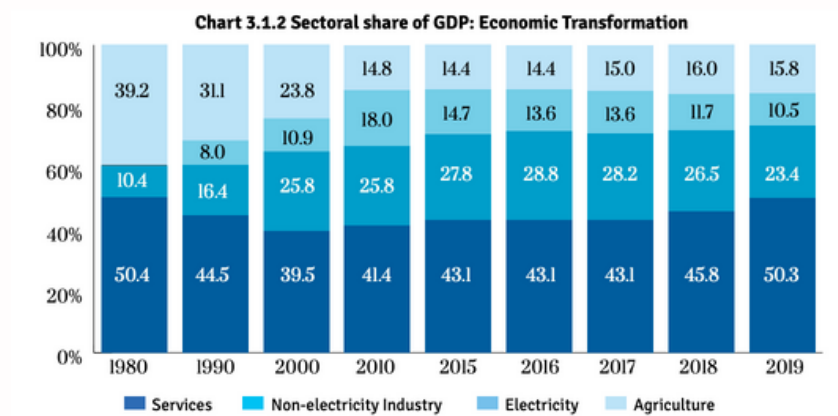
On the other hand, Bhutan has not diversified its energy basket and has limited itself to hydropower given its clean energy credentials and economic advantages. Hydropower as a form of clean energy has enabled Bhutan to have a carbon negative growth. It also sits well with its philosophy of Gross National Happiness which emphasizes environmental conservation and sustainable economic development. The mountainous terrain of Bhutan provides 30,000 MW of hydropower potential to be realised, making hydropower economically beneficial as well for the state.[xv] Hydropower has contributed close to 14% to the country's GDP in the 2000s, and is responsible for 63% of its exports. While Covid-19 has hit all the economies of the world, the view in Bhutan is that the path to recovery is through investments in hydropower projects "which are expected to expedite major capital works", bringing the GDP growth to 5.4 percent annually.[xvi] It is in this respect that Bhutan's relationship with India gains salience as its economy is closely linked with India, particularly through grants, loans and revenues earned through export of hydropower.

3. Bhutan's Growth Needs

Bhutan economic growth relies heavily on the hydropower sector. The other two major sectors of the economy are agriculture and tourism which do not bring as much foreign currency as hydropower. Bhutan has expanded its economy by leveraging its hydropower potential and the sector continues to remain highly profitable for the country.[xvii] The importance of the hydropower sector to Bhutan's economic growth was made stark when in 2018 growth slowed down to 3% from the previous year's 4.7%. This slowdown was attributed mostly to the decline in hydroelectricity production at Chukhha and Tala plants (owing to reduction in hydrological flows). The electricity sector's Gross Value Added (GVA) fell by 14.9% in 2018.[xviii]

Alternatively in 2019, Bhutan's GDP grew at 5.5% as compared to 3.1% in the previous year. The Annual Report for 2020 by the Royal Monetary Authority of Bhutan states that: "The growth was largely contributed by the hydropower, and education and health sectors. The commissioning of the Mangdechhu hydro power project combined with favorable hydrological conditions supported the revival of the hydropower sector from negative 14.9 percent in 2018 to 12.1 percent in 2019".[xix]

The following Graph compares the contribution of the Hydropower sector to Bhutan's GDP over the years.



Graph No 1.1: Sectoral share of Bhutan's GDP 1980-2019.

Source: Royal Monetary Authority of Bhutan (2020)

Once operational, hydropower projects provide steady revenues, especially through the export of surplus energy to India. Furthermore, in times of economic crises, such as the COVID-19 pandemic, the hydropower sector was able to absorb shocks to Bhutan's economy, as its primary driver-the service sector-was impacted. According to the 2020 RMA report, "hydropower generation and transmission from the existing projects continue to remain resilient and have shielded the economy from deeper negative consequences."^[xx] Hence, it is vital for Bhutan to protect investment and revenue collection from its hydropower sector for long-term, steady growth. As mentioned earlier, this explains the reason behind Bhutan's desire to shift to large-reservoir dams that are less susceptible to changes in hydrological flows, caused by erratic rainfall patterns due to climate change.

4. Indian & Bhutanese Foreign Policy Considerations

India's policy in South Asia has been termed as internationalist in its early days, interventionist in 70s and 80s, and accommodative of the interests of its neighbours after 1991.^[xxi] With respect to Bhutan, the relationship has been viewed as "interest-driven cooperation based on mutual benefits".^[xxii] India has used mechanisms of foreign aid, as well as financial and technological assistance, particularly in the water sector, to further its strategic objectives. However, in recent years, the nature of the challenges the two countries face and the form of cooperation between the two is undergoing a gradual change because of domestic, bilateral and regional factors.^[xxiii] India has now been giving relatively greater weightage to the economic aspect of its hydro-relationship as Bhutan's capabilities undergo an improvement. It is also factoring the increasing presence of China, at the borders and in developmental terms, as it redefines its relationship with Bhutan. Additionally, India is having to contend with changing domestic sentiments in Bhutan towards cooperation.

Bhutan's foreign policy, on the other hand, is intrinsically tied with the Treaty of Friendship it signed with India in 1949 and re-negotiated in 2007. It captures the importance of Bhutan's relationship with India from a cultural, economic and security perspective. Despite apprehensions, its leadership on various occasions has asserted the importance of its relations with India.^[xxiv] Bhutan seeks to strengthen and economically leverage its energy infrastructure to sustain economic growth for which it is seeking new avenues in its relations with India. In addition, limitations of previous Indian projects and an increasingly vocal electorate is building pressure on Bhutanese leadership to demand more accountability and parity in project decision making. Despite this, given Bhutan's close relations with India on development and security, Bhutanese foreign policy seeks greater accommodation without undermining the larger structure of the relationship.

China's overt footprints, affecting the sovereignty of Bhutan and security of India can be seen through Amochhu (Trosa) river. In 2020, China initially built Pangda village on the west bank of Trosa river which is alleged to be 2.5km inside Bhutanese territory. It is important to note that the village is merely 9km away from the Doklam plateau where a standoff between India and China happened in 2017. Reports in December 2020 stated that China has further enhanced its construction activity in the region by constructing another village in the vicinity of the previous village. China has also constructed a bridge across the river. It is believed that these villages are not being used for civilian purposes but as military

extensions of Chinese cantonments. In this context, it's important to note that the 2007 version of the Indo-Bhutan Friendship treaty states, "Neither Government shall allow the use of its territory for activities harmful to the national security and interest of the other" confirming that the two countries' foreign policies recognize that this partnership is crucial for safeguarding each other's national security also.

INDIAN AND BHUTANESE BELIEFS ABOUT THEIR HYDRO RELATIONSHIP: CONSTITUTIVE NORMS

1. Fair Financing Modalities

The financing modalities between India and Bhutan to support HEP production in Bhutan have been termed 'generous' by Bhutan in the past. Perceptions regarding fairness of financing modalities have been so strong that it has influenced the speed of cooperation between the two countries and determined the viability of certain projects. As strategic interests and economic stature of the two states undergo changes, the nature of financial assistance has also changed and required several rounds of norm re-negotiation for various projects.

In the first phase of India-Bhutan hydro-cooperation till 2006, financial grants to Bhutan were accorded an important role. Almost all the projects during this phase—Chukha, Kurichhu or Tala HEPs—had a 60% grant component and 40% loan component. Even the loans were provided at low interest rates due to Bhutan's economic condition and its need for support from India for economic growth. India had completely financed the first two five- year plans of Bhutan launched in 1961. Grants played a crucial role in reducing Bhutan's financial burden.

The second phase of cooperation, 2006 onwards, witnessed a shift in the financial modalities of the HEPs. India successfully pursued an increase in the loan component of financial assistance with a decrease in grants component.[xxv] There were differences between the early projects of the second phase and those passed later. For Punatsangchhu-I, the grant and loan ratio became 40 and 60, and for Punatsangchhu-II it further changed to 30 and 70. It is believed that these changes gradually contributed towards increasing the debt burden of the Bhutanese government.

India continues to seek amendments in the financial arrangements of inter-governmental hydropower projects. In the latest round of negotiations on the Sunkosh project, India is pushing for a 20:80 arrangement. India's argument is that since Bhutan's economic condition has improved over the years, it makes sense to change the terms of financial assistance. India now views the projects from a more commercial lens, arguing that such an approach will bring greater accountability. There has also been an increase in the interest charged on the loan component in recent years. These changes have made India vulnerable to accusations of increasing conditionality and "undermining the interests of the Bhutanese state".[xxvi] However, there is also a view that such changes help Bhutan claim a greater, a more equal, influence over the projects and become a stakeholder on equal terms.

Nevertheless, India's consistent changes in loan and grant components of financial

assistance has become a sticking point between the two countries. Bhutan does not find such a proposition to be favourable because of rising debts from hydropower sector loans provided by India. As of 2019, Indian Rupee debt constituted more than 74 percent of Bhutan's total debt and hydropower loans accounted for 90 percent of the total Rupee loan. Because of a significant amount of hydropower loans, the country's debt to GDP ratio was 111 percent. Punatshangchhu I has an outstanding debt of Nu 46 billion and Punatshangchhu II has Nu 40 billion. Mangdechhu project has accrued a total loan of Nu 34 billion. Adding to Bhutanese financial concerns are incessant construction delays on Puna-I and Puna-II projects.

Major international donors, such as the World Bank and IMF, acknowledge the rising public debt of Bhutan but they consider it a moderate risk. These institutions argue that "current and future revenues from hydropower exports will improve Bhutan's debt situation in the long run". [xxvii] However, the World Bank's position on promotion of dam building has been severely criticized by activists in the region and beyond.[xxviii]

India's narrative emphasises on "how most developing nations on the path to high economic growth and development grow on the backbone of large public debt, and so public debt in itself should not be a matter of huge concern".[xxix] This lays out the complexity of the situation and presents the interaction between differing beliefs. It also displays the overwhelming impact of financial modalities as a constitutive norm in Indo-Bhutan hydro relations.

2. Fair Tariff Rates

Apart from increasing loan components at higher interest rates, the tariff rates at which India imports hydropower is another aspect of the financial modalities constitutive norm that holds significant impact on the relationship. In Bhutan there is a view that India is able to coerce Bhutan into fixing low tariffs for imported electricity . For example, in 2017, the tariff rate on the import of hydroelectricity from the Tala hydroelectric project by India was 1.80 Bhutanese Ngultrum [₹1.83] per unit. This was much below the domestic market price in India which was around ₹7 to ₹8 per unit.[xxx] A consequence of such apprehensions has been that the power tariff rates for the Kholongchhu project have not yet been finalized, and will be negotiated as the project nears completion.

In its defence, India argues that tariffs are revised regularly. Taking the case of Chukha HEP, India contends that tariff revision is supposed to take place after every four years according to the bilateral agreement. In reality, the revision takes place before the four-year mark. However, when bilateral ties have not been warm, India has exercised its muscle through tariff revision discussions. For instance, in the previous decade, India had delayed tariff revision on the Chukha HEP.

Another point to note with respect to tariffs is that owing to the lesser grant component from India in recent years, Bhutan has a greater say in determining export price of electricity. For instance, Tariff negotiations on the Mangdecchu project reflected this sentiment wherein the two governments reached a mutually beneficial agreement on the tariff rate after prolonged discussions. It is clear from the previous discussion that fair tariff

rates are a constitutive norm which has exercised pulls and pushes on the bilateral relationship between India and Bhutan and will continue to impact the health of this relationship.

3. Project Implementation Culture

Given the primacy of Indian presence in the Bhutanese hydropower sector, Bhutan has been a primary witness of Indian project implementation style w.r.t development cooperation. HEP projects in Bhutan are generally implemented by Indian firms, employing Indian citizens in decision-making bodies, as well as Indian contract workers. It is alleged that Indian project implementation is usually delayed. While there have been varied reasons for it, almost all Indian funded projects have been delayed resulting in rising costs and derailed development plans for Bhutan. The table below shows the status of various planned India-Bhutan HEPs.

Many India supported HEPs in Bhutan have witnessed significant delays in completion. Tala HEP project was delayed by 3 years, Puna-I and Puna-II are yet to be finished even though construction work on the former had started in 2008 and on the latter in 2010. India's latest commissioned project, Mangdechhu, had also witnessed a two-year delay in completion. No progress has happened on the site of Kholongchhu HEP, the first Joint Venture project being led by Satluj Jal Vidyut Nigam (SJVN) Ltd and Druk Green Power Corporation (DGPC), despite its foundation stone being laid by the Indian PM in 2014.

In February 2018, India's Foreign Secretary, Vijay Gokhale, while reporting to the Parliamentary Committee on External Affairs (2018-19) on the status of India-assisted on-going hydropower projects in Bhutan, stated that "spending on the hydropower projects has temporarily slowed because in two of the three projects, Punatsangchu-I and Punatsangchu-II, we have faced some geological surprises recently".[xxxvi] The delays have impacted India's reputation of efficiently delivering on commitments.

Project delays impact project costs and also the interest amount charged on the principal amount. According to a report by the Bhutan Electricity Authority in 2017, the cost overrun for the Punatsangchu-I project has been a whopping 166 percent, for Punatsangchu-II project it is 93 percent, and for the Mangdecchu project it was almost 40 percent. and Out of these, work on Puna-I and Puna-II has still not been completed and costs will increase even further. As a result of these delays, more than one fourth of Bhutan's hydropower export earnings is being directed towards debt clearance.

The impact of delays and cost escalation has directly affected the bilateral arrangement between the two states. Bhutan now wants to shift gears on hydropower development with India by targeting one mega project at a time. At the same time, Bhutan is expanding its regional engagement, possibly to manage India's singular dominance in Bhutan's HEP sector. It pushed for a trilateral Dorjilung HEP involving Bangladesh in 2017, but India has so far shown zero active interest.

Name	Installed Capacity (MW)	Estimated Cost (Rs.)	Implementation Model (Loan-Grants Ratio)	Status
Punatsangchhu -I	1200	9775.19 cr (12/2013)	Inter-governmental (IG) (60:40)	Under construction
Punatsangchhu -II	1020	7290.62 cr (03/2015)	IG (70:30)	Under construction
Mangdechhu	720	5012.63cr	IG (70:30)	Commissioned
Kholongchu	600	3088.52 cr (02/2019)	Joint Venture (JV) (70:30)	Concession agreement signed in 2020
Dagachhu HEP	126	USD 201.50 million	JV (60:40 debt equity)	Commissioned
Sankosh HEP	2585	12382.04 cr (04/2016)	IG	Under discussion (Detailed Project Report (DPR) appraised)
Bunakha HEP	180	2685.16 cr (04/2015)	JV	DPR appraised
Wangchhu HEP	570	3291.19 cr (10/2014)	JV	DPR appraised
Chamkharchhu-I	770	5058.01 cr (01/2014)	JV	DPR appraised
Amochu Reservoir HEP	540	3738.37 cr (09/2011)	IG	DPR appraised
KuriGongri HEP	2640	-	IG	DPR under preparation

Table No. 1.1:HEPs developed or under development as part of Indo-Bhutan Cooperation
Source: Central Electricity Authority, India (2020)

4. Transboundary Environmental Governance

Environmental governance is accorded significant priority in Bhutan where the environment is one of the four pillars of the state's Gross National Happiness philosophy, requiring the state to maintain 60% of its land under forest cover at all times. While the two states have developed various environmental governance regimes, which are discussed below, their performance and emergence of new challenges such as climate change leave much to be desired. For India, mitigating the impact of floods on downstream areas bordering Bhutan is a significant concern. For Bhutan, it is crucial to mitigate the environmental impact of India supported HEP projects.

Flooding in borderlands of both countries, particularly India, has been a recurring issue. To address this, India's Ministry of External Affairs had set up the "Comprehensive Scheme of hydro-meteorological and Flood forecasting network on rivers common to India and Bhutan" in 1955[xxxii]. While the control of wireless stations for data collection is with the Royal Government of Bhutan (RGoB), the Central Water Commission in India utilises the collected data for flood forecasting. A Joint Experts Team is in place to oversee the work of this scheme and release of funds for its purpose to the RGoB.[xxxiii]

Despite the above arrangement, failure to adequately predict and prepare for flash floodshas been a recurring feature of India-Bhutan borderlands. The two countries have also established a joint institutional arrangement to tackle this issue, known as the Joint Group of Experts (JGE) on Flood Management. The JGE assesses "probable causes and effects of recurring floods and erosion in the southern foothills of Bhutan and adjoining plains in India" in order to suggest appropriate measures to the two governments. Nine JGE meetings have happened since 2004 with the last meeting happening in January 2020 at Punakha, Bhutan.

The two countries also have a Joint Expert Team (JET) "to oversee and review the comprehensive scheme for establishment of Hydro-meteorological and Flood Forecasting Network on Rivers Common to India and Bhutan". It has been operating since 1979. Despite these arrangements in place, the two countries have not been able to check the impact of frequent flash floods in border areas.

There exists a view in India that "although there is an agreement between India and Bhutan to share information on the release of water from the Kurichu dam, Bhutan allegedly continues to release water from the dam without sharing the information with the Indian (Assam) authorities". Studies have also predicted a possible threat from the Mangdechhu HEP to the Manas National Park which, in the past, has also witnessed numerous instances of flooding because of the Kurichhu HEP.[xxxiv]

Bhutan on the other hand contends that the hydropower projects such as Kurichhu HEP do not have storage capacity and hence Bhutan does not have much control over the release of water. It has no option but to release excess water as and when it comes. Various studies conducted throughout Bhutan highlight that as temperatures increase, there will be an increase in rainfall with a greater intensity of precipitation. It will not only affect live storage and turbine life of hydropower plants but also increase instances of Glacial Lake Outburst Floods.[xxxv]

In addition, ecological impacts of HEPs pose a serious challenge within Bhutan. Increasing number of hydropower projects in Bhutan will significantly affect aquatic ecosystems in the region, as well. According to the World Bank, "if all the projects that are being studied at the pre-feasibility and reconnaissance phase are developed, the free-flowing river network could be reduced to 50 percent of the total system", having a serious impact on the health of fish populations.[xxxvi]

What makes these environmental concerns peculiar is the fact that Environmental Impact Assessment of India supported projects either did not take place (for HEPs before 2000) or they remain out of public knowledge. It makes it difficult to assess the quality of mitigation measures due to complete absence of information and also gives rise to critical views of India. At the same time, given how important environmental issues are to both countries, there also exists significant scope for cooperation in this field, along with an enhancement of existing mechanisms.

5. Bhutanese Stakeholdership in India Supported HEPs

India has enjoyed, and continues to enjoy, tremendous goodwill in Bhutan. Given the development assistance that India provided Bhutan from the early 1950s onwards, a whole generation of Bhutan grew up with a positive perception of India. Of late, fissures have started emerging with regards to the water sector. For instance, resentment towards complete Indian control of hydropower projects in Bhutan has been steadily increasing. [xxxvii] As Bhutan transitioned into democracy, these voices have only become more vocal in recent years. The previous general elections witnessed a political party openly seeking "sovereignty, security and self-sufficiency" for Bhutan, while others remained silent on matters of foreign policy resulting in speculations that a mandate for change by the electorate might see changes in Bhutan's foreign policy.

There has been growing resentment among the Bhutanese around a lack of, or at best, minimal community participation and public consultation on hydropower projects.[xxxviii] Such resentment has heightened because of three factors. First, there is significant lack of transparency around India funded projects and many project documents are not available for public scrutiny ranging from environmental impact assessments to "project administration memorandum, loan documents, resettlement plans, environmental safeguard compliance assessment, and environmental & social monitoring report".[xxxix] Second, the business community in Bhutan is not adequately represented in development and management of projects. While Bhutanese subcontractors in civil works are engaged, the larger business community is not.[xl] Third, the projects provide limited employment opportunities for Bhutanese youth while there continues to be an influx of Indian labourers and private companies.[xli]

ZONE OF POSSIBLE AGREEMENT

This section lays out a zone of possible agreement (ZOPA) between India and Bhutan on issues in which there are win-win options available for both states to explore. The ZOPA was arrived at based on our analysis of the normative multiagent system discussed above and the expert interviews that were conducted during the course of the project. The experts interviewed were of the view that India and Bhutan may consider working together on the following issue areas as they are mutually beneficial and present opportunities for the two states to come together. In addition, these issues and policy suggestions have been shortlisted because they are considered important for the overall well-being of the basin, its communities, and the two states.

- The Empowered Joint Group between India and Bhutan had served a crucial purpose in reinvigorating the relationship in 2010. It helped in streamlining the processes and erasing various procedural bottlenecks. It can be revitalised with regular meetings to sort out various differences which can negatively impact the state of cooperation. The Group can also act as the source for reenergising the relatively slow state of hydropower cooperation.
- Project implementation modalities present one of the biggest challenges in the relationship between the two states. Interestingly, both states wish to make the implementation process more transparent and accountable. In this light, a framework catering to the above objectives may be established that can reflect the expectations of both states. A more equitable role for Bhutan, particularly as financial arrangements change, will be more beneficial for both countries in the long run.
- Working together on power tariffs can be a meeting ground for both countries and help arrest the developing fissures. In this regard, expert interviewees suggested that determining tariffs on the basis of market rates in India and/or bringing them to a comparable level will help Bhutan, and will not be drastically detrimental to India. Greater flexibility in the form of 'differential tariffs' for different seasons when demand fluctuates can also be implemented to benefit both states.
- Bhutan is heavily dependent on the Indian market for export of its hydropower and it also seeks to prioritize India over others as it plans its future trajectory. Hence, India may work towards offering a bigger market to Bhutan, primarily through the regional power grid. It will not only meet Bhutanese demands but it will also sustain the goodwill that India enjoys among the Bhutanese officials and wider citizenry.
- Biodiversity conservation is accorded immense importance in Bhutan. Efforts can be made to increase its centrality in all India supported projects in Bhutan. Lessons can be learned from the challenges and opportunities that came up during the conservation of White Bellied Heron in the Punatsangchu basin.
- Wheeling of power already occurs through Chukha and Kurichhu power plants to India, which is then re-routed back from West Bengal to South West Bhutan and from Assam

to South East Bhutan. It offers a potential which can be further expanded for the benefit of borderland communities which lie in remote areas of Bhutan where power cannot be supplied from Bhutanese territory due to difficult terrain. Enhancing cooperation on this front will increase inter-dependence and further strengthen inter-state cooperation.

- There are various community-level initiatives being undertaken in the border regions by the inhabitants there, utilizing traditional techniques and modern innovations, for purposes of flood management. These initiatives which have had local government participation on the Bhutanese side reflect potential for scaling and institutionalizing local innovations in bilateral relations.

CONCLUSION

The paper provides an exhaustive overview of the normative multiagent system that forms the India-Bhutan transboundary water relationship. Through these norms, one is able to discern the major issues that cause tensions between the two countries as well as issues that can bridge the gap and enhance cooperation. The normative multiagent system framework also helps explain why certain norms continue to persist while others increase tension and may be managed delicately to reduce friction. It also shows how new norms are emerging that can reframe the relationship.

The Zone of Possible Agreement (ZOPA) provides a number of policy suggestions and issue areas where cooperation can be enhanced between the two countries. It talks about reenergising the Empowered Joint Group for streamlining cooperation and removing bottlenecks, reviewing and updating project implementation modalities, bringing in greater flexibility in power tariff arrangements, recognising and accommodating Bhutanese aspirations on power trade, creatively incorporating biodiversity conservation in hydropower projects and scaling the innovative and inclusive flood management initiatives. These suggestions speak to all the norms at play in the Indo-Bhutan hydro relationship and hold the potential to further enhance cooperation between the two countries.

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