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Stagnant Rivers: Transboundary Water Security in South and Southeast Asia

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Received: 5 November 2018; Accepted: 7 December 2018; Published: 10 December 2018



Abstract: Transboundary rivers are increasingly difficult to govern and often involve issues of national security, territoriality, and competition. In developing countries, the management and governance of these rivers is dominated by a particular decision making group, often comprised of politicians, bureaucrats, and engineers. These groups perpetrate a technocratic paradigm towards the management of transboundary water, with limited genuine international cooperation. The transboundary water situation in South and Southeast Asia is becoming increasingly fraught as the geopolitical context is changing due to China's increased involvement in regional issues and climate change. With over 780 million people dependent on these rivers, their governance is vital to regional and international stability. Yet, the technocratic management of transboundary rivers persists and is likely to become increasingly unsustainable and inequitable. A discourse-based approach is applied to consider transboundary water governance in the shifting South and Southeast Asian context. The result is an alternative perspective of why governance approaches on transboundary rivers have resisted meaningful reform.

Keywords: transboundary water; water governance; discourse; hydrocracy

1. Introduction

Water governance and management is a challenge for governments, particularly those in the developing world [1]. Transboundary rivers present additional complications and often involve issues of national security, territoriality, and competition. The management and governance of transboundary rivers in developing countries is dominated by a particular decision-making group, often comprised of politicians, bureaucrats, and dominated by engineers and technocrats [2]. These groups perpetrate a technocratic paradigm towards the management of transboundary water, which is characterised by large, often unilateral infrastructure projects with limited genuine international cooperation.

The transboundary water situation in South and Southeast Asia is becoming an increasing concern with a changing geopolitical context, which includes China's increased involvement in regional issues and climate change. With over 780 million people dependent on transboundary rivers [3,4], the future of their governance is vital to regional and international stability, yet, the current approach of management is likely to become increasingly unsustainable and inequitable.

Transboundary water governance in South and Southeast Asia is examined within its regional context to identify the current management approach being undertaken, as well as changes in the region. In particular, the implications of climate change and China's increasing regional activity are highlighted. A discourse-based approach is applied to analyse the Ganges-Brahmaputra, Mekong, and Indus Rivers, which allows insights into decision making processes, policy decisions, state priorities, and the likely course of states action. Areas of potential tensions, and so where political attention should focus, are highlighted and provide an alternative perspective of why governance approaches on transboundary rivers have resisted meaningful reform. Essentially, this paper investigates how the hydraulic mission is maintained despite having been demonstrated as conflicting with sustainability-orientated approaches.

Transboundary Water Management in South and Southeast Asia: Outdated Management in a Rapidly Changing Region

In developing Asian countries, the state is often dominant in water governance. As a result, water governance tends to be dictated by state-centric thinking and bureaucratic management policies that support the state's role [5]. Even in the era of governance and decentralisations, governments are reluctant to concede sovereignty and so states often retain power through re-regulation. This redraws the boundaries of a state's mandate and shifts power structures without detracting from state power [6].

The group responsible for water governance is termed the 'hydrocracy' [2], or the hydraulic bureaucracy [7]. This group comprises of bureaucratic agencies responsible for designing, planning and implementing water resources management, and elite decision makers. The decision makers are those who hold influence and responsibility for actions concerning water allocation, utilisation, and general transboundary water resources management. In the developing world, this group is often dominated by engineers and technocratic thinking. The hydrocracy is, in essence, a state creation, and consequently reflects state objectives and concerns. As such, states can utilise this group to strengthen their legitimacy [7], and the hydrocracy commonly maintains that the state has a duty to develop its water resources [2].

The hydrocracy has a history of dominance in governing transboundary water [8]. Its power largely relies on maintaining the cyclical planning-to-construction process of hydraulic infrastructure development. Consequently, the interests of the hydrocracy are often shared by politicians, construction companies, landed elites and development banks. This actor constellation is described as forming an 'iron rectangle' between businesses, politicians, bureaucrats and development banks in the developing world [7]. As a result, alternative groups and interests are largely excluded from transboundary water management.

The hydrocracy is responsible for implementing the hydraulic mission, which is a top-down, technocratic and engineering approach to water management. It holds that constructing infrastructure to increase water storage is an essential part of national security as it bolsters national independence and sovereignty. As such, this approach entails engineering river flows through major damming and diversion work [8–10]. While this approach has lost traction in the global North, it appears entrenched in the global South [7,8,11].

A Rapidly Evolving Region: China and Climate Change

In South and Southeast Asia, relations between states are described as tense [12]. Despite transboundary rivers being essential to the region's wellbeing, national and international mechanisms and institutions struggle to achieve equitable and sustainable water management [11,12]. The transboundary hydropolitics in the region are seemingly static as the majority of conflict/cooperation trends over the last century have remained largely unchanged [13]. However, changes in the region's geopolitical context, notably increasing Chinese regional activity and climate change, are likely to bring the challenges of transboundary water governance to the forefront of the political agenda. These geopolitical changes have the potential to increase challenges associated with managing and governing transboundary water. This could threaten the region's water security by increasing riparian tensions and acting as a destabilising influence [14]. Chinese downstream involvement is often under the auspices of increasing regional integration and cooperation, with development and sustainability objectives [15]. Therefore, increased Chinese involvement could influence the impact that climate change may have on the region's water resources as well as the actions available to downstream countries.

In 1950, China's annexation of Tibet gave it possession of the headwaters of the region's main rivers. China's policy approach was traditionally to refuse to engage in binding water sharing agreements and was self-centred and agriculture focused [16]. China was also one of three states to reject the 1997 UN Watercourses Convention and its engagement with its western downstream neighbours (China's western neighbours that it shares transboundary rivers with are: Vietnam (Mekong and Red Rivers), Myanmar (Irrawaddy, Mekong and Salween Rivers), Cambodia (Mekong River),

Thailand (Mekong and Salween Rivers), Laos PDR (Mekong River), Pakistan (Indus River), India (Brahmaputra River) and Kazakhstan (Ili, Irtysh and Emil Rivers)) has, until recently, been limited [17].

China possesses a techno-political regime of water management. This approach is infrastructure dominant with deeply embedded notions about the control of nature. Water is considered a key component of national development in China [16]. Chinese state discourse is tied to dam construction. Technocratic narratives of river development are framed as environmental protection through renewable energy and so a necessary part of sustainable development. This results in the discourse being de-politicised and people's rights, social justice, environmental protection, economic distribution and disparate interests are effectively removed from the debate [18].

China has a dual role in Asian transboundary rivers as it is an upstream riparian state and has an interest in downstream infrastructure developments, which have significant hydrological impacts. Infrastructure construction is cited as the most contentious aspects of transboundary water management [13,19]. Upstream, China has built dams on the Indus, Mekong, and Brahmaputra Rivers. Downstream, Chinese state-owned enterprises are involved in hydropower projects in the lower Mekong countries, Nepal and Pakistan, many of which are being undertaken under the auspices of China's Belt and Road strategy [20,21].

As a consequence of China's foreign policies, an estimated 38% of hydropower projects completed, under construction or at the MOU stages undertaken by Chinese state-owned enterprises are in Southeast Asia [22]. It is also under this strategy that the Lancang-Mekong Cooperation mechanism (LMC) was formed. The LMC claims it will promote transboundary water cooperation through maintaining water facilities, Chinese overseas investment, and capacity building [23].

Alongside Chinese actions, climate change is predicted to be the most influential geopolitical factor in transboundary water relations. Regionally, climate change is already being felt [24,25]. The Himalayan region is the world's third largest source of ice and snow and feeds the main South and Southeast Asian rivers. As such, this region is sensitive to rising temperatures and is a climate change related risk area [25]. Most South Asian rivers rely on glacial melt and precipitation. The Indus and some of its sub-basins receive a substantial proportion of their water from snowmelt. The Mekong is also sensitive to climate change as snowmelt and rainfall are significant contributors to the river. The Mekong's flood pulse is highly important for fisheries and agriculture and so disruptions could impact human security in the basin. Downstream, regions such as the Mekong delta are also vulnerable to sea level rise and saline intrusion [24]. The Ganges and Brahmaputra are more reliant on rainfall runoff, so are more vulnerable to changes in precipitation. Much of this is driven by the southwest monsoon system, which is highly important to South Asia.

While predictions vary, it is currently thought that the climate will continue to warm throughout the 21st century [24]. Consequently, the region's glaciers are expected to continue to lose mass. Whilst this will increase the overall availability of water in the region's rivers due to the influx of glacier meltwater in the short term, overall future water availability is predicted to decrease. Projections of precipitation patterns are also highly variable, however, extreme precipitation events are likely to become more frequent, which increases the risk of flooding downstream [26,27]. Changes in the monsoon regime could exacerbate drought and flood events [27], with implications for the region's food security, as well as hydropower production.

Overall, climate change is predicted to have a significant impact on the region's main rivers as flow regimes are likely to become increasingly unpredictable and extreme. The impacts of climate change will be felt at all levels and ignore national borders. Consequently, effective adaptation and mitigation will require multilateral governance across the region. However, climate change considerations are relatively new at the transboundary level. Many water agreements and institutions had little need for such concerns when they were established and so they would need to be introduced retrospectively, which will be politically contentious as such changes often require shifts in decision making power and resources. Increasing Chinese presence downstream also means that how downstream states engage

and interact with China over transboundary water will impact how they address climate change in this area.

Institutional arrangements are considered to have greater influence in diffusing conflict than the physical state of the river [1,28]. However, in South and Southeast Asia, institutional arrangements operate on a bilateral or limited multilateral basis and often subscribe to the river being predictable and controllable. This perception conflicts with the multilateral approach required for climate change action and the increasingly unpredictable and variable nature of fluvial regimes. As a result of rivers being considered predictable, hydraulic infrastructure projects are often a core component of international water agreements and climate change adaptation strategies. In the 20th century, 39% of international agreements signed deal with hydropower projects, 37% with water allocation and 9% with flood control [29].

An often overlooked consequence of hydraulic infrastructure is that dams can contribute to climate change. They are the largest single human-source of methane, drain wetlands and flood forests that act as carbon sinks and their construction is highly energy intensive [29]. Conversely, climate change can negatively impact the functioning of infrastructure, which reduces their economic viability and life-span [29]. This could result in the cooperative agreements they underlie being strained. Despite these issues, hydropower is firmly framed as 'climate change friendly', with actors, such as politicians, media, and institutions commonly presenting hydropower as a clean alternative to fossil fuels [30].

The interactions between China and climate change in the region are likely to have significant impacts for transboundary water governance, as well as water security, for the region. Water can be a source of tension or cooperation between different users and uses [31]. Therefore, water resources can act as a destabilising or stabilising influence. This impacts how each state seeks to ensure a stable and reliable supply of water for economic development and so how they look to achieve water security [32,33]. Water, particularly transboundary water, can be seen as a security issue as change in the resource, due to re-allocation, disaster or degradation, can cause political tensions, social unrest, and can contribute to armed conflict [34].

2. Methodology

Studies on resource management tend to be dominated by governance and institutional approaches, however, this focus risks ignorance of the ideational dimension. Discourse can be brought in to complement and extend institutional and governance understanding. Therefore, integration between the three approaches can account for the nuances of transboundary water interactions. Here the role of discourse is emphasised as it provides an alternative lens to water management pathways and regional points of tension.

2.1. Applying a Discursive Lens to Transboundary Water Issues

Discourse is considered as the way a particular aspect of the world, or the world in general, is understood and discussed [35]. Physical and social relations are given meaning through discourse as discourse is the collection of ideas, concepts and categories, which are produced, reproduced and transformed in a specific ensemble of practices. Discourses are dependent on context and so interconnected with the social practices they are fashioned within [8,35]. In the case of water resources, discourse provides the medium that management and actions regarding water and resources are justified, legitimised, and advanced [36].

Different water management paradigms possess narratives that contain that approach's core assumptions and these narratives structure the discourse that characterise that paradigm. Therefore, discourse can facilitate the identification of the water management approach being practiced. Discourse can also indicate policy direction by revealing how wider interests that underline policies are shaped into material consequences. How a discourse is constructed shapes how issues or problems it is fashioned around are framed, interpreted, discussed, and analysed, therefore, how the problem is addressed [36]. Issues are only seen as political problems once they are constructed as such by

influential actors or society [37]. Therefore, how water issues are constructed by state discourses determines policy priorities and what actions are considered to be political acceptable or unacceptable.

The utility of discourse in the study of transboundary water issues has been demonstrated in several key studies. Discourses of water scarcity are examined by Alatout [38], Selby [39], Edwards [40], and Mehta [41,42] to understand how understandings of water scarcity shape people's perceptions of issues and their solutions. Specifically, Mehta [41,42] examines how narratives of scarcity can be used to legitimise otherwise controversial water projects. These obscure the true culprits of water scarcity and compounds inequalities in access and control over resources in India. Hussein [43] extends this analysis to examine discourses of scarcity in a transboundary context. The study shows that discourses of scarcity operate within the broader national context. National security concerns and the overall desired political outcome need to be taken into account when considering transboundary water governance interactions. This includes inter-sectoral linkages that can shift power asymmetries and so impact bilateral relations.

The influence of power and politics within transboundary water interactions can also be revealed through discourse. Mirumachi [8,44,45] investigates official discourse in bilateral relations over the Mekong [8,44], Ganges [8,45] and Orange-Senqu Rivers [8] to analyse riparian interactions. How decision makers frame transboundary water management and the importance of the wider geopolitical context is demonstrated. The ideational power of discursive acts underlies the study and the dominance of elite decision makers and the hydraulic mission are identified. Due to this, Zeitoun and Mirumachi [46] and Mirumachi [8] advance treating cooperation and conflict as co-existing by framing analysis as an interactive process. This dismisses normative assumptions of cooperation and conflict by citing studies that determine cooperation to be dressed-up domination [39], investigate the ideational dimension of power [47,48], and the dangers of normative assumptions.

This involvement of politics and power interests are also shown to result in water issues being susceptible to being politicised and securitised [49,50]. This process is demonstrated by Zeitoun et al. [48] to be a form of discursive power and Mirumachi [8] shows that threats do not have to exist for a securitising move to occur. Instead, threats can be used to remove an issue from public debate. The securitisation of a discourse occurs when issues are moved up the political agenda and framed as immediate threats. This allows otherwise unacceptable actions to be taken by the state and limits the involvement of non-state actors [49,51]. Water issues are shown to be prone to being politicised, securitised or de-politicised [8]. This allows the state to manipulate water issues to achieve their interests as politicising/securitising moves allows issues to be prioritised and a greater range of actions to be taken. Conversely, de-politicisation of water issues often places them in the technical arena and so focus is shifted to engineers and statisticians. Both of these moves make it difficult for actors outside the iron-rectangle actor constellation to participate in transboundary water governance and so helps maintain state control over the resource.

Discourses may become sanctioned, which Jäegerskog [52] shows to occur when specific methods and viewpoints are institutionalised to basically define what is feasible, and so are difficult to challenge. Often, the interests and power of those involved in the debate determines which discourses become sanctioned. As ideologies, such as nationalism, are often involved with water issues, decision makers do not always implement the most, seemingly, rational policies [52]. As a result, infrastructure may be constructed for political advantage, such as to obtain votes or reward certain sectors, rather than as the optimal method of water management [7,10]. Dominant assumptions within the sanctioned discourse will also constrain certain actions while making others more attractive [53,54], therefore influencing decision making processes.

Challenges to the sanctioned discourse can indicate areas of discursive struggle and, so, where policy change may occur [52]. This is significant when considering sanctioned discourses, and so management approaches, which are perpetuating an unsustainable or sub-optimal situation, as in transboundary water management. As such, locating areas where the sanctioned transboundary water discourse is being challenged allows insights into where policy may be 'pushed' to effect a change in transboundary

water management. Therefore, this research follows-on from work in this area by investigating official discourse to determine the hydrocracy's management approach towards transboundary water and how this sanctioned approach interacts with changes in the geopolitical context.

2.2. Discourse, Governance, and Institutions: Towards an Integrated Perspective

Discourse is not the sole issue involved in policy reform and decision making processes. There is also the need to consider the institutional context and governance practices. While discourse's utility in understanding transboundary water management and governance issues is highlighted in this paper, it is important to note that discourse operates alongside and as part of institutional and governance processes and structures. Therefore, integration of discourse, governance and institutional approaches is needed to allow for institutional and governance considerations within a discourse-orientated approach.

Water issues are often complex and involve opaque decision making [8]. While institutional based analytical approaches are insightful, they do not provide for the role of power and politics. Discourse analysis is better equipped to deal with these issues through its ability to reconceptualise interests, chart new institutional paths and reframe cultural norms. However, discourse has been criticised as merely reflecting interests shaped by institutions and framed by culture [55]. This makes the integration of governance and institutional considerations with discursive ones essential in determining the potential impacts of transboundary water governance processes. Governance considerations are incorporated to account for the material and structural dimensions, as governance arrangements and processes influence who is involved, especially in negotiations. This is because discourse or ideas alone do not uphold a set of circumstances, and material interests and resource capabilities are also influential.

While there is the possibility that transboundary water discourse is evolving towards more sustainable policies, greater progress is required as climate change and China's water-related activity are occurring at an unparalleled pace. Existing discourse, institutions, and governance structures are likely ill-suited to address these changes, potentially resulting in increasing tensions. As a result, regional stability could be also threatened by conservative international water institutions and obstinacy within policymaking.

Therefore, a discourse-based approach that incorporates governance and institutional elements is required for understanding decision making interactions within transboundary water governance, particularly as the current management approach appears entrenched and so unable, or unwilling, to address new realities. Therefore, in this paper, transboundary water governance is reconceptualised by placing discourse at the core of the analytical approach. By doing this, focus is shifted to allow the inclusion of interactive and dynamic processes involved in decision making and institutional procedures. With this approach, analysis is concerned with how and why a discourse endures, despite substantial evidence that undermines its utility and appropriateness.

2.3. The Case Studies

Geographically, the Indus, Mekong and Ganges-Brahmaputra Rivers headwaters are located in the Himalayan Plateau in Tibet, China. As case studies they share a number of similarities, in that they experience similar pressures from changes in upstream hydrology. The rivers are all vitally important to local livelihoods, economies and are politically significant. They also traverse through politically, socially, and environmentally evolving regions. The states in the river basins are all dealing with issues of growing hydraulic development and changes in their political economies [56–58].

Climate change is likely to significantly influence the hydrology of all three rivers [24]. As a result, institutions and practices will become stressed, providing opportunities for policy change. Regionally, China is active on the headwaters of the Brahmaputra and Mekong Rivers, which will likely have political and environmental repercussions downstream. Chinese state-owned enterprises are also involved in downstream construction in Pakistan, Nepal and the Lower Mekong.

The cases contrast in respect to their institutional and political characteristics. The lower Mekong River is governed by a multilateral agreement, while in South Asia, bilateral agreements are the norm. The different institutional settings can impact how rivers are perceived and managed, particularly in the influences that institutions have in determining transboundary water management approaches. China has no binding agreements regarding water management with the case study rivers.

2.4. Document Selection and Analysis

Discourse analysis has no standardised approach [59] and analysis varies depending on the theoretical branch being considered. In this case, analysis was informed by the discussed conceptual elements and undertaken through detailed reading and the coding of texts. The coding categories evolved as analysis progressed but initially discourses were divided based on if they belonged to the hydraulic mission or not. Such a broad approach allows a general picture of the situation to be formed, which can then be refined [59]. Broad categories also aid distinguishing which discourse is dominant at which time, which can indicate whether discourse changes overtime.

Discursive mechanisms such as framing, co-option, issue linking and narratives were also considered to determine how actors pursue their interests and the implications of this for transboundary water management. Analysis was focused on identifying each state/institution's sanctioned discourse regarding the relevant transboundary river and how this was argued. This can then be informed by the historical context, sourced from previous studies, to determine if discursive change has occurred/is occurring.

Documents from state sources over the last five years form the majority of the data analysed (see Table 1). These are likely to reflect the sanctioned discourse of the hydrocracy in the form of the state and, therefore, the dominant perception of the river and its management. Transboundary institutional arrangements were also considered, specifically those involved in water management and governance, as discourse can be institutionalised in these arrangements and so reproduced, perpetuating the interests of those involved in the institution.

Table 1. Types of government documents analysed.

Country	Source	Type of Document
India	Ministry of Water Resource, River Development and Ganga Rejuvenation	Annual report eBooks National policy Organisation reports
	Ministry of External Affairs	Parliamentary questions Media briefings Speech transcripts Opinion pieces Official responses/statements Interviews Question and answer sessions Speech transcripts
	Press Information Bureau	Press releases
	Parliament	Questions and answers
	Water and Power Development Authority	Research papers Annual report National policy
Pakistan	National Assembly	Question and answer sessions
	Press Information Department	Press releases

Table 1. Cont.

Country	Source	Type of Document
Afghanistan	Government of Media and Information Centre	Press releases Speech transcripts
	Ministry of Energy and Water	National policy
	Ministry of Finance	National priority program report
China	Ministry of Water Resources	Policy documents Speeches and articles Statistics bulletins
	Ministry of Foreign Affairs	Speeches Press conferences Official spokesman statements Press release
	Belt and Road Portal	News articles
Myanmar	Ministry of Foreign Affairs	Press release
	Ministry of Information	Press release News articles
Laos	Ministry of Foreign Affairs	Speeches
	Ministry of Natural Resources and Environment	Press release
	Ministry of Energy and Mines	Stakeholder engagement material
Cambodia	Ministry of Foreign Affairs and International Communication	Press release
Thailand	Ministry of Foreign Affairs	Press release
	Thailand International Cooperation Agency	Event statements
	EGAT	News statements
	Public Relations Department	News articles
Vietnam	Ministry of Foreign Affairs	News articles Statements
	Ministry of Natural Resources and the Environment	Articles
MRC	MRC	Speeches Meeting minutes
ADB	GMS	Project details News releases
Bhutan	National Environment Commission	Plans and policies
	Ministry of Foreign Affairs	Official statement
	Ministry of Economic Affairs	Policies
Bangladesh	Joint Rivers Commission	Press release
	Ministry of Foreign Affairs	Press release Statements
Nepal	Ministry of Foreign Affairs	Press release Speech transcripts Media briefings
	Ministry of Energy	Bilateral minutes
	Water and Energy Commission Secretariat	Plans and policies

Prominent active legal agreements and river basin organisation (RBO) documents for each case study were selected. Previous studies that trace historical developments and discourses were also

brought in to supplement the historical contexts. Where institutional or government documents were not available, the media was used to identify official statements. The focus of analysis was transboundary water management discourse from the 1940s through to 2017 in the three separate case studies.

3. Analysis

Discourse analysis was undertaken on three case studies, the Indus, Ganges-Brahmaputra and Mekong Rivers. Analysis was focused on state discourse regarding how each river is managed and if this has evolved to account for geopolitical changes.

3.1. The Indus River

Within the Indus discourse, the dominance of dams is immediately evident. Water issues are often securitised and discussions tend to be bilateral, with India and Pakistan dominating. As a result, Afghanistan and China are often overlooked in the discourse, except where dam projects are discussed. Discourse tends to follow the hydraulic mission rhetoric as dams are linked to state development, control, and modernity in India, Pakistan, and Afghanistan.

Politically attractive concepts from sustainability-based discourses are used to justify infrastructure projects. For example, in Afghanistan, the construction of the Salma Dam is presented as a clear commitment of the government to sustainable development [60]. In India, the national water policy incorporates integrated water resources management (IWRM) and good water governance language. This includes emphasising the need to promote the “integrated and sustainable development and management” of water [61]. This place focus on the Central Water Commission’s Dam Rehabilitation and Improvement Programme, ignoring that a substantial number of new hydropower and irrigation projects are under construction or development [62]. Pakistan’s Water and Power Development Authority (WAPDA) has published a report on “Integrated Water Resources Management in Pakistan” [63] with the emphasis of this report on the necessity of constructing reservoirs to increase supply, and the concept of IWRM is utilised to justify this construction of storage. Normative concepts such as sustainable development [64] and IWRM are easily co-opted by actors to legitimise their own objective [65].

Discourse at the transboundary level differs as it is dominated by development and sovereignty narratives. Pakistan’s international discourse holds dams as being of ‘national importance’ as they generate energy and store water [66]; whereas Indian statements promote the “accelerate(d) development” of water projects for “optimal usage of water allocated to India” under the Indus Water Treaty (IWT) [67]. Drawing on development and sovereignty makes the issues political and the responsibility of the state, which prevents further debate and discussion [8,48].

Sovereignty narratives are carried through in Pakistan to result in individual policy making experts being criticised. Pakistan’s Indus Water Commission’s ability to ensure Pakistan’s rights under the IWT has been questioned on several occasions. The former Indus Commissioner, Jamaat Ali Shah was accused and said to be in league with India as he upheld a narrative that India was not stealing water from Pakistan and was within its rights to build dams on the western rivers [68,69]. While Shah was cleared, the dominance of the politicised/securitised, nationalistic and anti-Indian narratives within Pakistan’s water discourse was clearly demonstrated, as well as the potential disjuncture between those responsible for water at the transboundary and national levels.

The Salma Dam in Afghanistan is held to “improve the lives of thousands of people” and the Afghan President is reported as being “committed to control and manage Afghan waters and use them for the development of Afghanistan which will bring economic stability and sustainable development” [60]. Dams in Afghanistan are linked to normative goals of sustainable development and the improvement of livelihoods with the ‘control’ and ‘management’ of water as means to achieve these goals. Language promoting the use and control of water resources is shown to be characteristic of the hydraulic mission [70]. The discourse upholds the hydraulic mission and the use of normative concepts makes it difficult to argue against the approach [7,65].

Pakistan's water discourse frames hydropower and storage dams as the solution to all its water issues as well as for socio-economic development. The country's growing water scarcity and energy shortages are described as a 'crisis' and being 'critical' as well as being responsible for poverty [71] (ES-28). The solution is "to construct storage facilities and improve flood regulation" [72] (p. 74) and "immediate construction of storage dams, not for power alone but for water storage is essential" [73] (p. 13). Projects are justified through neo-Malthusian narratives of limits and scarcity resulting in crisis, which also adds urgency to their completion [7,74]. The inclusion of such narratives serves to present infrastructure as the logical, inevitable and urgently needed solution [7]. Narratives emphasising water scarcity are often used to justify potentially unpopular projects [40] and naturalises the phenomenon, which absolves the state of responsibility [36].

Much of the Indian and Pakistani water discourse involves the IWT and infrastructure projects. Pakistan has on several occasions accused India of violating the agreement. The Pakistani Minister of Water and Power stated that "it is a fact that India is not fully abiding by the provisions of the Indus Water Treaty 1960 in its true letter and spirit. The design of these (Indian run-of-the-river) plants (under construction) are mostly in violation of the design criteria specified by the Indus Water Treaty 1960" [75] (p. 2). Technical narratives are often drawn on when discussing perceived Indian violations. India is, however, often dismissive of Pakistan's concerns under the IWT and has questioned if a dispute actually exists [76–78]. Indian narratives look to prevent issues escalating up to the international scale and enforce bilateralism. Technical narratives and resource to legal mechanisms serve to present the issue as neutral and objective, which disguises the underlying politics and brings in technocrats and engineers as legitimate actors [9,79]. This concealment of contentious politics also allows 'business-as-usual' to continue under the auspices of cooperation [4], and so allowed India to continue with construction.

3.2. *The Mekong River*

On the Mekong, discourse at the transboundary level is often concerned with the major institutions, the Mekong River Commission (MRC), Greater Mekong Subregion (GMS) and the LMC. These institutions provide fora for expressing interests and arguments, as well as to institutionalise discourses and influence agendas. The major narratives appear to be those of infrastructure, poverty and development as well as ones relating to climate change, IWRM and sustainable development. Alongside these narratives, actors are attempting to reshape the geographic imagination of the Mekong by redrawing discursive boundaries to determine what can be discussed (see also: [74,80]).

Prominent in national discourse regarding transboundary water is the LMC, while the MRC is almost completely absent. Subsequently, it is evident that the LMC is considered more favourably and to be more important than the MRC by the Mekong countries. Including the Chinese name, Lancang-Jiang, in the LMC reimagines the river into two parts; the Lancang in China and the Mekong shared by the other five countries. In this way, China is asserting a claim over the river's headwaters and having a greater stake in the river, therefore, it should have greater influence. Previous regional initiatives tend to have 'Mekong' titles and were often subject to donor and foreign government influences, whereas the inclusion of Lancang now helps to provide distance. The Mekong region has undergone various re-scaling efforts, from being framed as IndoChina, defined by the 'Mekong Spirit' and later extended to the Greater Mekong Subregion [8,74,81]. The LMC may, therefore, be the latest attempt to redraw the boundaries of the region.

China frequently emphasises its role as 'key' within the LMC as it is responsible for setting the institutions agenda, proposing the three 'key' cooperation areas and has a 'key' role in building and developing the mechanism [82,83]. In this way it is positioned at the centre of the institution. China also stresses sovereignty, territoriality and rejects the donor led approaches of the MRC and GMS through statements that its members should 'oppose interference of external forces in internal affairs of regional countries' [82].

China has also explicitly linked the LMC with the Belt and Road initiative [84]. The Belt and Road is infrastructure and economic orientated and one of China's top policies. This close association gives

China further claim over the LMC as well as places it in an internationally prominent position. China is framing the LMC to naturalise it as the developmental arena for the Mekong countries. This includes statements that emphasise cooperation as a 'natural must' due to the geographic and cultural links between the countries [82]. Naturalisation in this manner presents the conceptualisation as rational and uncontroversial while avoiding that it is informed by certain values and beliefs [74,85].

In the GMS, discourse links development narratives with economic ones. Phrases such as 'natural capital' and 'assets' that comprise a proportion of a country's wealth' are often used [86]. While the threat of overexploitation is stressed, economic rhetoric serves to commodify natural resources. This implies that they have a quantifiable economic value and so can be bought and sold. Commodification also suggests that natural resources need to be used for their economic potential to be unlocked [64]. Economic language is also used to justify hydropower projects, such as the Nam Theun 2 project [87]. This follows the formula where hydropower development is the key to economic development and poverty reduction [80].

Infrastructure development within the MRC is a contested narrative. On the one hand, the MRC's development partners have 'urged' and 'encouraged' the MRC to include certain tributary projects under the prior consultation procedure [88,89]. The member countries, however, make no mention of this in their statements or in the MRC meeting minutes. There, therefore, appears to be tension between donor interests for increased accountability and state interests in freely developing tributaries.

Hydropower, again, is a dominant theme. Laos at the 22nd MRC Council meeting argued the need for hydropower for resilience against climate change and that hydropower exports will enable sustainable development through renewable energy. Laos also stated that the Mekong should be managed and maintained in the 'spirit of mutual respect and sovereignty' [90]. The normative climate change and clean energy arguments enmeshed with economic growth are difficult to challenge, while the reference to respecting sovereignty implies that foreign governments or institutions should not interfere with national interests [65]. Vietnam appears alone in its direct challenge to the current mainstream hydropower policy as it holds it should be amended due to negative environmental and social impacts [91].

Nationally, Thailand upholds the need to 'narrow development gaps' and to address 'water shortages' [92,93]. Cooperation for development is also frequently mentioned and is framed as an unquestioned positive policy objective. The sub-region is also stated as having a 'huge potential' for development [94] and by inference needs to be exploited.

Cambodia and Myanmar also subscribe to the Mekong as an under-utilised development resource. Infrastructure construction is directly linked to economic development in the region by Myanmar's president [95]. The 'vast economic potential' and importance of the Mekong region is stressed by Cambodia, who also encourages the private sector to play a more active role in infrastructure projects [96]. The geographic imagination is thus extended beyond the Mekong as a river to an economic zone, which allows the greater exploitation and utilisation of resources. This is also shown to re-allocate and re-prioritise uses and users, often away from the local level [74]. Laos continues these narratives but contrasts itself to Thailand and Vietnam, who are presented as more developed thanks to their utilisation of hydropower [97].

Discourse within institutions tends to be aimed at the regional or national scale. The need for cooperation with regional institutions, such as ASEAN, is mentioned by the MRC, LMC, and GMS [98–100]. National issues are referenced by the respective countries within the MRC and LMC to further their own interests. The MRC development partners refer to the local level, often only by requesting for the inclusion of civil society [88]. However, in the country speeches and MRC meeting minutes, stakeholder outreach initiatives tend to be pitched at the 'regional' level [98], ignoring local concerns. The LMC, however, concentrates on the regional or international level by associating itself with the Belt and Road or emphasising its importance in the 'world community' [84,101,102]. This is also evident in the LMC being framed as strongly upholding national sovereignty, which effectively removes the local level from the agenda [103].

Within the MRC, sustainable development is frequently cited. This concept is used to promote various interests. Vietnam utilises sustainable development to hold the other MRC states accountable for the impacts of upstream projects. For example, sustainable development is used to legitimise the argument for amending the 1994 Run-of-River Hydropower Plan [91]. Sustainable development in Laos involves constructing hydropower for national development [90]. However, for the development partners, sustainable development requires poverty reduction and gender mainstreaming [64] and consequently, the term is easily co-opted to legitimise interests.

Vietnam's discourse within the MRC prominently features mainstream hydropower. Reference is made to an MRC study on the 'impacts of mainstream hydropower on the Mekong River', which finds that hydropower plants will have serious downstream impacts in the Mekong delta [91]. Internationally, Vietnam's stance towards mainstream dams is stronger. Hydropower development is described as cutting the Mekong 'into pieces' [104]. Securitisation of upstream dams occurs as they are a 'threat' to 'all productive activities in the region'. This framing escalates the issue politically, strengthening Vietnam's argument [8,105]. It is also stated that hydropower is not the only energy option available, challenging narratives that position hydropower at the centre of development [104].

China holds that its development of the Lancang follows an 'appropriate, orderly, and sustainable approach that stresses harmony between men and water' and accounts for the interests of China and those downstream [106]. The Lancang cascade is said to benefit downstream countries due to its role in regulating water flows and the associated benefits to irrigation and navigation [106]. Language such as the 'natural belt of the Mekong' and 'economic integration' [106] parallels that of the Belt and Road and naturalises the river as the arena for development under the Belt and Road.

3.3. *The Ganges-Brahmaputra River*

On the Ganges-Brahmaputra, each riparian state is seeking to obtain the best deal from the rivers' resources and discourse tends to be dominated by the hydraulic mission paradigm. High on the political agenda are infrastructure construction and the full utilisation of the river. Perceptions of mistrust and vulnerability are also pervasive.

India adopts cooperative discourse regarding joint hydropower and flood management projects with Nepal [77,107] and frames cooperation in this area being for Nepal's benefit [107,108]. Nepalese discourse is similar as it also pushes for cooperation over hydropower. Nepal links hydropower with socio-economic development and frames it as the foundation for cooperation with its neighbours [109,110]. The Indian-Bhutan relationship is also based on joint-hydropower projects. The relationship is often held by India to be mutually beneficial [107] with Indian support in Bhutan's hydropower sector as the 'centrepiece' of Bhutan-Indian economic cooperation [111].

Bangladesh utilises the discourse of ecological modernisation, which promotes the use of technology and economic mechanisms to resolve the disjuncture between economic development and environmental conservation [112]. Economic analysis is presented as the solution to environmental water issues and better water management [113]. The adoption of a sanctioned discourse strengthens Bangladesh's proposals and makes it more resilient to challenges [52,114]. In other instances, infrastructure is presented as the solution to water issues and includes the need to 'harness' and construct barrages, employing the discourse of the hydraulic mission [113,115,116]. As a result, there appears to be tension between the discourse of IWRM, ecological modernisation, and the hydraulic mission.

Donor aid may also play a role in the formulation of national water policies. Japan and the ADB were involved in Bhutan's 2016 National Water Policy and Canada and the World Bank in Nepal's 2002 Water Strategy. Policy in Bhutan incorporates the international IWRM discourse as well as narratives that link hydropower to the economy [117]. Hydropower and India are both positioned as essential to Bhutan's economy. Nepal's water strategy also emphasises the importance of water to the economy. The expansion of hydropower is promoted as is the 'harnessing' of water resources and IWRM rhetoric is also found [118]. Therefore, even though internationally-sanctioned IWRM discourses are incorporated, the infrastructure and control narratives of the hydraulic mission remain.

Bangladesh's vulnerability to climate change is reflected in its water discourse. To address the perceived climate change problem, an integrated approach and holistic water sharing are called for [113,115,119]. Nepal also recognises the dangers of climate change. As such it positions itself as an unjust victim of climate change due to being 'disproportionately' impacted despite having 'no contribution to global warming' [110]. Climate change is presented by Nepal's government as an outside threat that others need to take action against. Accompanying this narrative is one that links hydropower to energy security and cooperation [110,120], and so the solution to the climate change victim problem is, thus, to invest in Nepal's hydropower sector.

Hydropower is framed by Nepal and Bhutan, in particular, using concepts of sustainable development and green energy. This is often accompanied by rhetoric with positive connotations, such as 'clean', 'renewable', 'greener' and 'sustainable' [121,122]. Elements from sustainable development are co-opted in this way to add legitimacy and morality to the framing of hydropower as the solution to climate change [65,114]. The negative impacts of large infrastructure development or the possibility of alternative solutions are absent from discourse at the state level.

4. Findings: Stagnant Rivers

Analysis of state documents concerning the Mekong, Ganges-Brahmaputra, and Mekong Rivers show that the sanctioned discourse is the hydraulic mission paradigm. This approach encourages development through control of the river based on infrastructure construction, and is generally associated with technical, scientific, or economic narratives and can be securitised. This is problematic as the discourse allows little space for environmental, social, or climate change-orientated narratives.

4.1. Maintaining Dominance

The dominance of the hydraulic mission is maintained by the hydrocracy in the form of the state, aided by discursive tactics. These tactics include framing, agenda setting, securitisation, co-optation and drawing on technical or scientific narratives. These tactics are shown to be utilised by states to assert dominance and achieve an interest [105]. Rather than being overt, coercive demonstrates of power, these tactics are used by states to exercise ideational and discursive power [47,48]. This dimension of power is the abilities to influence the perceptions and beliefs of others on certain issues [8]. Ideational practices are highly influential and are shown be able to maintain ostensibly cooperative interactions while masking conflict [48,123]. The vast majority of the discourse is centred at the national, transboundary or international level, reaffirming the role of the state as the appropriate governance level. Of note, China's increased involvement in the region appears to be challenging the status quo rather than the way transboundary water is managed.

The Indus case is the most obviously securitised. Interactions are found to be restrictive and regulated with transboundary discourse moving from securitised to technical narratives within the framework of the IWT. The riparian countries present the solution to development issues as being hydraulic infrastructure construction. However, mistrust, historical animosity and competition for regional influence often results in these projects becoming securitised at the transboundary level. A process of de-politicisation has to then occur through technical, often engineering-based, narratives, which ease tensions in a rather repetitive cycle. This process of securitisation and de-politicisation places control with the state and engineers, creating a technical/political language that is difficult for those outside this group to access.

In the Mekong and Ganges-Brahmaputra cases, securitisation is employed more to inspire a sense of urgency and frame projects as the only feasible option. Such narratives can be used to induce ostensibly cooperative interactions, such as undertaking a joint project or signing an agreement. Situations of cooperation and conflict operating alongside each other are present in both these basins at the bilateral and multilateral levels. The discourse of the rivers appears to place responsibility for governance at the state level. The local level is often denied access to the debate and local level projects or actions are dismissed in favour of larger, national ones. Of note is the fact that no mention

of Tibet was found within the analysed discourse, despite the Tibetan Plateau being a significant, and environmentally vulnerable, contributor to the rivers.

Securitising an issue places it beyond national critique as it becomes an issue of national interest. This has been described as exercising a type of “hegemonic thought control” [105] (p. 448). This aids the hydrocracy’s ability to construct water issues in a way that suits other political interests [105]. Conversely, depoliticisation through discourse can serve to naturalise an issue by presenting it as neutral and uncontroversial, acting similarly to Crow-Miller’s ‘discourse of deflection’ and so distract from more controversial and political issues [36] (p. 178).

4.2. Encroaching Chinese Influence

Comparing the South Asian cases suggests that India exploits its position as the regional hegemon. This is as its discourse and relations strongly encourage bilateralism while its greater economic and military strength enable it to pursue national interests across its borders. Discursive tactics, such as active stalling and securitisation/de-politicisation, are found to be used by India to aid institutionalising relations to its benefit.

China’s increasing engagement in South Asia, which India considers its traditional sphere of influence, is challenging India’s position. As China and India possess similar transboundary water discourses, it is difficult for India to dispute China’s actions on this basis. As a result, India is challenging Chinese actions on nationalistic grounds through looking to increase its strategic influence or in other policy areas. In this way, India may be looking to increase its bargaining power *vis-a-vis* China and, essentially, level the playing field [124]. China’s discourse has implications beyond transboundary water as it does not challenge the sanctioned discourse per se, but it does challenge the power configuration in the region.

Similarly, the geographic imagination of the Mekong is being contested. Initially the basin was imagined as the lower four countries with relations institutionalised through the Mekong Commission and then the MRC [8,74]. The introduction of the LMC is again reshaping the perception of the basin through more active Chinese engagement and increased impetus on the economic development of the river. Reshaping basin perceptions shifts the geographic imagination of the region to encompass a greater scope than previous river based institutions. This provides the opportunity for increased engagement between China and the downstream states, with China taking a more central role in the economic development of the Mekong [81,85].

Mekong narratives of development are strongly linked to those of hydropower and the river is commonly framed as underdeveloped and wasted [80]. As the discourse is focused at the regional level, impacts and actions at the local level are generally overlooked. It is at the local level where livelihoods are bound-up with the environment and interests and where perceptions often conflict with decisions taken at ‘upper’ levels [125]. China is also becoming increasingly influential in the region as Chinese construction companies are increasingly present downstream and China leads, as well as largely finances, the LMC which will shift transboundary relations to align with China’s terms.

Bangladesh is arguing for transboundary rivers to be managed in an integrated fashion by all the riparian states. This would involve, for example, including Nepal in discussions regarding the Ganges River. Traditionally, India has favoured bilateralism and, so, strongly rejected this conceptualisation [8]. However, India may be becoming more open to accommodating multilateral institutions in the discursive agenda to combat encroaching Chinese influences in the sub-region. The influences of multilateral initiatives are still limited as a bilateral geographic imagination of transboundary rivers is still preferred by India.

4.3. The Climate Change Challenge

Despite the dominance of the hydraulic mission, environmental and climate change discourse are making some progress in effecting a change in discourse. The hydrology of the region is already being affected by climate change and it is likely that natural disasters will increase and fluvial flows

will become more variable and unpredictable [23]. Climate change discourse has begun to enter the discursive agendas in all three case studies. However, these narratives are often co-opted and only seem to be genuinely entertained when a visible threat is present. Therefore, discursive change and state actions appear to be reactive, not proactive.

The Mekong region's discourse, especially Vietnam's, is more sensitive in recognising climate change impacts. Narratives tend to frame the phenomenon as a threat, which mirrors global climate change discourse. The MRC's agenda has incorporated proactive climate change policies and discourse. However, this does not align with the sanctioned discourse of the MRC's members and so it is frequently bypassed in favour of the GMS and LMC, due to their economic orientation. Therefore, while climate change narratives are found on the discursive agenda, they have yet to form part of the sanctioned discourse.

In the Ganges-Brahmaputra and Mekong basin, climate change is often utilised to justify infrastructure projects or politicise issues. Notably, Nepal, Laos, China, and to a lesser extent, India and Bhutan, all frame hydropower and barrage projects as solutions to climate change. Climate change narratives often frame the phenomenon as an outside threat, which enables the state to avoid responsibility while justifying the need for certain projects. Conversely, interactions in the Indus basin are highly regulated and so there is little room at the transboundary level for climate change narratives, here climate change narratives generally reside at the national level.

5. Implications and Conclusions

Decision makers within transboundary water governance are upholding the hydraulic mission. This is problematic as it privileges a rigid approach to water governance that promotes the development of large infrastructure projects and the control of rivers. Infrastructure projects have the actual and/or perceived ability to alter the hydrology of a river, which can cause tension between upstream and downstream users and is incompatible with a sustainability perspective.

The current approach to transboundary water governance is reinforcing an approach that conflicts with changes in the geopolitical reality. Management centred on technical and engineering approaches, which promote command and control style mechanisms, are upheld by the sanctioned discourse. This results in supply-side policies and practices that encourage inefficient use or pose a threat to the rivers ecology, which leave little space for flexibility to adapt to changes in river flows and demands.

The dominant discourse and institutions are mutually reinforcing. Large scale infrastructure, such as hydropower, is rarely abandoned once constructed. It is also politically difficult to reappportion water resources once they have been allocated. Decisions concerning institutions, policy planning, and resource allocation are made on the back of these projects and so reinforce this approach.

Institutional and physical structures are likely to be undermined and impaired by increasing variations and unpredictability in water supplies, which presents a challenge to the discourse they represent. Issues, including climate change, require alternative solutions and regional cooperation, which the stubborn adherence to the hydraulic mission impedes. Adaptions are, therefore, sub-optimal or sluggish and, as a result, the potential for tensions is increased.

Tensions are also exacerbated by narratives that conflate nationalism with hydraulic projects and leads to seemingly no-win situations. This is compounded by China's increasing assertiveness in regional hydro politics, which is evident largely through the increase in hydropower projects in the region. This has allowed projects previously hindered by political or economic constraints to become feasible thanks to Chinese companies. This can fuel tensions, mistrust, and thwart genuine cooperative efforts. Damage from situations, such as floods, droughts, and their repercussions could be greatly reduced by increased information exchange and joint action.

A status quo bias is known to exist within human behaviour as people are hesitant to abandon a known state of affairs [126]. Policy is arguably no different, as straying from the status quo requires dealing with unpredictability and unknown factors, therefore, carries greater political risk. Shifting from the status quo also involves an element of accountability, increasing the political risk. Changes in

the status quo can also redistribute resources and decision making powers, something which is likely to be viewed unfavourably by those in charge. As a result, decision makers look to maintain the status quo, which, in the transboundary water sector, the current water management approaches reinforce.

While care was taken to make this research as accurate and reliable as possible, several limitations remain. These include limitations with the study itself as well as the limitations of a discourse based approach. Analysis was limited to those resources available online and in the English language. Only discourse from government sources were considered, as these are representative of that state's sanctioned discourse. There are a multitude of other interests involved in transboundary water governance that are not accounted for, however, these are outside the purview of this paper. This is as investigation is concerned with the states' sanctioned approach, as this is the approach most likely to materialise in policy or interactions. Any changes that are occurring within transboundary water governance will also likely be reflected in the sanctioned discourse.

There are also limitations with a discourse based approach. Discourse is reliant on context, which makes it impossible to generalise results. Thus, results are limited to the phenomena being examined and cannot be extended to other situations, which can limit their practical utility [59]. However, the inclusion of three case studies demonstrates that the phenomenon under investigation is not an isolated occurrence.

Ripples in the Water: Challenges to the Hydraulic Mission

The command and control approach is directly challenged by climate change, which undermines institutional frameworks that assume stable flows. Climate change issues have been co-opted into the sanctioned discourse by powerful interests that enforce the status quo. This has led to narratives promoting sustainable development and the necessity of renewable energy coming to justify hydropower as the optimal path for development. As a result, true adaptation and mitigation measures are largely neglected.

China challenges discursive structures by disrupting power configurations and so shifting basin relations and traditional hierarchies. This introduces new actors and sources of finance into the region at the transboundary and international scale, which challenges traditional decision making pathways. The inability of the hydraulic mission to effectively tackle climate change is likely to become increasingly evident, mounting a growing challenge to the traditional discursive regime.

The powerful interests of the hydrocracy in maintaining the hydraulic mission need to be broken or redirected to open up the political agenda. This would allow new actors and transboundary water management approaches that are not part of the hydraulic mission into the discourse. While increasing natural disasters may eventually provide a window of opportunity for policy change, it would be beneficial if change occurred before tensions and casualties escalated. To achieve this would require challenging a powerful, entrenched and dispersed group of actors, involved in transboundary water decision making. There are some positive developments, with climate change and environmental concerns becoming legitimate topics on the political agenda. These narratives challenge the hydraulic mission by exposing many of its shortcomings. However, more work is required to strengthen these narratives and shift the hydraulic mission discourse, along with the associated approach to transboundary water management.

Funding: This research received no external funding.

Acknowledgments: The author would like to thank P. Hills, K. Joe-Laidler, and W. Law for input and guidance on the project and G. A. Williams for comments on the manuscript. J.M.W. was supported by a University of Hong Kong studentship.

Conflicts of Interest: The authors declare no conflict of interest.

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