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ORIGINAL ARTICLE

# Emerging costs of China's belt and road strategy for transboundary water in south and southeast Asia

**Jessica M. Williams**[1]

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**Abstract**
China's belt and road strategy is stretching across most of the globe and promises increased connectivity and economic development. The availability of Chinese finance and expertise has resulted in many countries eagerly participating in the strategy. An often-overlooked aspect of the belt and road is its impact on water resources, particularly transboundary rivers. This is significant as a number of the infrastructure projects undertaken through the initiative in south and southeast Asia that involve the region's main transboundary rivers. Such projects have the ability to alter fluvial flows, which can result in negative social, environmental, and economic externalities downstream. Furthermore, China has introduced a new river basin management institution on the Mekong, which has the potential to shift governance away from the traditional institutions and actors. By looking at the geopolitics of the region, specifically, the role of ideational power, it is shown how these developments have the potential to bring both positive and negative impacts to the region. Therefore, there is a need for countries to carefully balance the potential for economic gains against the increasing costs to the environmental and regional politics.

**Keywords** Belt and road strategy · China · Transboundary water · Hydropower

## Introduction: the belt and road strategy and transboundary water

China's belt and road strategy (BR) has become a fixture within its foreign policy and stretches across most of the globe. The strategy has the potential to improve economic development and connectivity across vast geographies. Chinese finance and expertise allows much needed development and provides a new trade partner for struggling economies. However, it has been criticised for slack environmental and social practices as well as receiving mixed political support. The current knowledge regarding the belt and road strategy is limited, which is partly due to the expansive nature of the strategy, lack of English documents, and difficulties with transparency.

A considerable number of BR projects impact transboundary water, particularly in south and southeast Asia, but these have received little attention. Under the strategy, China's state-owned enterprises are active in building hydropower projects on the Mekong, Indus, and Ganges Rivers. China has also introduced a new institution into the Mekong region, the Lancang–Mekong Cooperation Mechanism (LMC), which specifies water management as one of its priority areas. These projects have implications beyond the host nation's borders, as infrastructure projects have the ability to alter fluvial regimes and disrupt sensitive ecosystems. The social cost of large-scale hydropower projects is also notable, with the costs and benefits often being unequally distributed away from those most affected (Bakker 1999). Therefore, China's activities in this area within south and southeast Asia are likely to be significant. Recognition of such negative externalities is often drowned out by rhetoric of cooperation and economic development. However, these costs are beginning to emerge, which questions the BR narrative espoused by Chinese officials.

Furthermore, infrastructure construction and water quality issues are found to be the most contentious aspect of transboundary relations (Grafton et al. 2012; De Stefano et al. 2010). Therefore, political tensions may emerge from such projects. Large-scale infrastructure projects are also symbolic of power and influence, which makes the BR a potential visible demonstration of increasing China's influence in the region. Alongside, this growing significance is

✉ Jessica M. Williams
jw89@gmail.com

[1] Faculty of Social Science, The University of Hong Kong, Pokfulam Road, Hong Kong, SAR, China

an undercurrent of increasing political and social tensions over Chinese that led developments on the region's transboundary waters. In this paper, a geopolitical framework is employed to consider the power interplays between China and the downstream countries to demonstrate the wider strategic implications of the BR for both the governance of transboundary rivers and the south and southeast Asian region. This highlights the social, environment, and political costs that are starting to emerge and the implications of these costs for the future of the region.

## The belt and road strategy

The BR was launched in 2013 with the policy document emerging in 2015. It envisages an expansive land and maritime route to increase trade, mainly through infrastructure development. There are at least 68 countries involved under the premise of gaining mutual benefits. The strategy consists of six main corridors with connecting cities and routes (Lee et al. 2018). China has pledged at least US$ 1 trillion to projects under the initiative (Hoare 2018). While rather an abstract concept, the BR meets a number of Beijing's strategic objectives and it outlines China's intent to redefine geographic imagination of trade and connectivity. This requires massive infrastructure development and has the potential to redirect trade flows across the globe (Lee et al. 2018). The traditional conceptualisation of world trade, which is American-led and American-centric, is challenged by placing China at the centre of trade (Economist 2016, 2017).

While mistrust towards China does hinder some of the BR's strategies aims, many countries seem amenable. The financial backing of the BR by the Silk Road Fund, China Development Bank, and, indirectly, the Asian Infrastructure Investment Bank may contribute to the willingness to participate. Cheap loans allow countries to engage in politically, ecologically, or socially contentious projects that development banks will not finance (Eisenman and Stewart 2017). These projects include the construction of large-scale hydropower in countries, such as Laos, Cambodia, Nepal, and Pakistan (Priyandita and Wijaya 2017; Swain 2017).

## The transboundary rivers of south and southeast Asia

In southeast Asia, the Mekong is the largest and one of the most socio-economically important transboundary rivers. It originates from the Tibetan Plateau, travels through the Chinese province of Yunnan and then through Myanmar, Laos, Thailand, and Cambodia, and drains into the South China Sea in Vietnam (Swain 2012). The basin is home to about 70 million people, and of those economically active, 60% have water-related occupations. Agriculture comprises the principle livelihood of the basin's population (FAO 2011a).

The ecological productivity of the Mekong basin is reliant on its flood pulse, caused by the seasonal monsoon climate. These floods transport sediments and nutrients essential to agriculture and provide diverse habitats (Räsänen et al. 2012). The Mekong's fisheries, including those of Tonle Sap, are also reliant on this flood pulse. Therefore, changes to this flood pulse threaten local livelihoods and food security.

The Mekong is one of the most active regions for hydropower development in the world. Its mainstream could potentially generate 13,000 MW. Despite this, the main body of the Mekong is relatively undammed. This is as developing the river is controversial due to its sensitive ecology and the potential impact to the flood pulse and sediment flows (FAO 2011a).

In South Asia, the Ganges–Brahmaputra and Indus Rivers are considered due to their regional importance. The Indus is sourced from Tibet and has a catchment covering 1.12 million km$^2$. The basin is spread among China, Afghanistan, India, and Pakistan. The majority of the system's water resides in India and Pakistan, which also account for the majority of demand (FAO 2011b; Adeel and Wirsing 2017). The Indus basin is one of the world's largest irrigation systems and vital to agricultural production in Pakistan (Briscoe 2010). Approximately 300 million people are supported by the Indus, many of whose livelihoods are reliant on the basin's resources (FAO 2011b; Uprety and Salman 2011; Karki et al. 2011). The river is poorly managed and low human development indicators make water issues especially acute (Mustafa 2010).

The Ganges and Brahmaputra Rivers both have their headwaters in the Himalayas in China. The river system is shared by China, Nepal, Bhutan, India, and Bangladesh. Combined, the rivers have the world's largest suspended sediment load and the third greatest discharge, which is important for agricultural production. The basin possesses the largest number of the world's poor and a high population density. Both rivers have significant hydropower potential, which is looking to be exploited (FAO 2011c; Ahmad and Lodrick 2016).

# Methodology

Despite the global prominence of the BR, academic exploration is relatively young. Much of the literature emerging tend to focus on banking, finance and trade issues, reflect on the benefits and opportunities, challenge and political and economic importance of the BR or seek to correct misunderstandings regarding China's policies (Blanchard and Flint 2017; Lee et al. 2018). Alternatively, research focuses on the politico-economic institutions and implications of the BR, but also considers the security dimension of the initiative,

largely in regards to Xinjiang, energy, and China–Pakistan or China–Indian relations (Wong and Lye 2014; Ye 2015; Mackerras 2015; Rahman 2013; Panda 2014).

Little has been done academically with a focus on geopolitics and transboundary resources in understanding the BR. There is also a tendency to view the BR as a singular whole, rather than exploring the complexities involved within a single-policy aspect or for a specific region (Blanchard and Flint 2017). Therefore, this research contributes to expanding current understanding by focusing on the south and southeast Asian region, which includes two corridors of the belt and road strategy, the China–Pakistan economic corridor (CPEC) and corridors in the Greater Mekong Subregion Economic Cooperation (GMSC), and the geopolitical impacts of the BR on region's major transboundary rivers.

Geopolitics investigates the connections between geography, state territoriality, and world-power politics (Sparke 2007). In this paper, a geopolitical framework is invoked that involves consideration of significant projects, produced by actions that require representation and narratives that validate and explain those actions to quash dissent and ensure a consensus from a varied audience (Blanchard and Flint 2017). In this context, geopolitical practices of the BR involve investments into, for example, hydropower projects and the Chinese government's representation of the strategy as a vehicle for economic development for the participating countries. However, it also involves how the BR can be seen as a national strategy, involving zero-sum trade-offs and Chinese dominance. How the BR is, therefore, perceived and received by the riparian countries of south and southeast Asia will contribute to how successfully the BR will convey Chinese ambitions and its impacts on transboundary water relations.

Within geopolitics, strategic influences and power relations play an important role. This includes consideration of interactions through both overt and covert forms of power. Such considerations are important, as power capabilities are influential within interactions and so can indicate how the costs and benefits that are the outcomes of such interactions are distributed. Power has been described as the "ability to influence the behaviour of others to get the outcomes one wants" (Nye 2004:2) and can be viewed through an understanding of compliance (Bachrat and Baratz 1962; Lukes 2005). Therefore, power constitutes the ability of states to get others to accept and follow their actions as well as the motivations behind other actors' compliance or nonresistance (Zeitounet al. 2011). An actor's ability to set the agenda and form of interactions is dictated by their power capabilities.

Frequently, attention focuses on overt and coercive power, while significant, ideational, and discursive powers tend to be more influential. These powers are the ability and extent that an actor can influence another's beliefs and perceptions on specific issues (Mirumachi 2015). The power over ideas is termed ideational power. This is exerted through informal negotiations, competition for position, and the compounding of a favourable status quo. Discursive power is applied through the framing of issues, and so the solutions, in a non-contestable manner. It is exercised through the language that actors use within formal negotiations, news and media, public relations, or rumours. This allows issues to be presented in a way that is readily accepted or difficult to contest and coercive measures are no longer required (Zeitoun et al. 2011).

China is expanding its geopolitical influence through utilising its economic power and growing national capacity (Yu 2017). The involvement of power asymmetries between China and its neighbours can often prevent successful challenges to state's actions and so allow the more powerful state a comparative advantage. Hegemony, however, is not immune from counter-hegemonic tactics and China's BR is argued to be no exception (Heywood 1994). Therefore, how China is able to exert and manipulate its resources to increase its strategic interests and fulfil its policy objectives is starting to be challenged by emerging environmental, economic, and political costs that the BR brings to participating countries. The interactions between China and its riparian neighbours are, therefore, subject to power plays that have the potential to shape the (un)sustainable development of the region.

The role of narratives within geopolitics in justifying and explaining actions is a significant factor in ensuring the success of that action (Blanchard and Flint 2017). As such, the role of discursive power within transboundary water interactions is particularly informative when examining regional geopolitics. This is as it can highlight how states seek to pursue their national interests and gain comparative advantages (Williams 2018). Therefore, this paper considers narratives within state documents alongside recent developments and academic literature regarding the BR to analyse the impact of the strategy for the Mekong, Ganges–Brahmaputra, and Indus Rivers. This contributes to understanding of how the BR is extending China's influence over foreign resources, and highlights the implications hidden beneath the economic cooperation and development-orientated narratives portrayed by the BR for transboundary resources in the region.

## The belt and road strategy and transboundary rivers

China is able to impact the transboundary rivers of south and southeast Asia both as the upstream riparian state and through the actions of its state-owned enterprises. Geographically, the Ganges, Brahmaputra, Indus, and Mekong rivers have their headwaters, or the headwaters of their main

tributaries, originating from China. This places China in a position of geographic power, as it can influence downstream flow. More significantly, in terms of the BR, however, it is the impact of Chinese state-owned enterprises and the LMC downstream. Since 1999, the Chinese government has prioritised the hydropower sector. As a result, Chinese enterprises and banks are now the biggest builders and financers in dam building globally. It is estimated that one Chinese enterprise, the Power Construction Corporation of China (PowerChina), has a 50% share in the entire international hydropower construction market (Jensen-Cormier 2017).

On the Mekong, China has traditionally avoided formal multilateral initiatives that involve the river. It is a dialogue member of the Mekong River Commission (MRC) and so not constrained by the institution and has avoided signing water-related agreements with its southern neighbours. Significantly, rather than to become a full member of the MRC, China introduced its own institution under the BR, the LMC. China's relations with the lower Mekong countries have historically been difficult. China's previous approaches to improve political relations were mostly through economic cooperation. The result of which was an asymmetrical power relationship with China dominating, causing suspicion and mistrust downstream (Fernandez 2017). The BR strategy envisions four economic sub-corridors in the greater Mekong region (Lee et al. 2018), with the LMC essentially acting as a vehicle to smooth relations and implement hydraulic infrastructure projects under the BR.

The LMC includes all the Mekong countries and was affirmed at the highest political level at the Sanya Summit in 2016. The LMC is financially backed by the Asian Infrastructure Investment Bank and the initiative aims to promote transboundary water cooperation through the maintenance of water facilities, Chinese overseas investment, and capacity of building (Huiping 2017). The LMC represents a new channel for cooperation and includes all the Mekong countries. This allows China a chance to readdress the sub-regional political and economic context, with the aim to ease downstream concerns and mistrust regarding China's upstream actions.

The LMC seeks to establish multilateral cooperation founded on river engineering and economic development, with China in the driver's seats. The economic and development focus of the LMC creates concerns regarding the integrity of its environmental and social policies. It is also not yet clear what the introduction of the LMC means for the Greater Mekong Subregion and the MRC.

China's 'going out' strategy catalysed the spread of Chinese hydropower companies, such as PowerChina and China Three Gorges Corporation, which is continued under the BR. These companies are state-owned enterprises and motivated mainly by economic interests. Importantly, the Chinese government can exert influence through its role as beneficiary if a strategic interest is at stake (Urban et al. 2018). These companies' interests tend to align with national governments for the development of hydropower and generating revenue, without the government feeling that they are being burdened with awkward environmental and social policies and so tend to be viewed favourably (Cooper 2011). Many hydropower projects in the region have also been repackaged to now fall under the BR. This has added political impetus and opened up revenue streams to the projects (Jensen-Cormier 2017).

Chinese hydropower companies are highly active in Asia, with an estimated 38% of hydropower projects completed, under construction or at the MOU stage being located in Southeast Asia (Urban et al. 2018). An example of some of the hydropower projects under the BR strategy is given in Table 1. An exact list of all the hydropower projects is difficult to compile due to the opaque and shifting nature of the BR (Hurley et al. 2018; Jensen-Cormier 2017).

Accompanying the LMC is significant Chinese investment in the Mekong region. China has committed to provide preferential loads of USD 1.54 billion and a credit line of USD 10 billion for infrastructure investment (Fernandez 2017). For example, China's Huaneng Hydrolancang International Energy holds the majority stake in the recently completed controversial Lower Sesan 2 dam on the Mekong mainstream in Cambodia and PowerChina is involved in the equally controversial Pak Lay mainstream dam in Laos. Out of the 11 dams planned on the mainstream, six are backed by China (Ono 2018).

In South Asia, 40% of planned projects under the BR are power ones, with hydropower and coal forming the main investment focus (Asian Power 2017). Like in Southeast Asia, Chinese companies are active under the BR in countries in South Asia. China and Pakistan are involved in the CPEC arm of the BR. The CPEC comprises infrastructure projects that are connectivity or power generating orientated. These projects include hydropower and so have implications for the Indus River. The CPEC runs through Kashmir and so invokes Indian sentiments of nationalism and sovereignty. Upstream, China and Nepal have also signed MOU for hydropower projects, although the status of several of these MOUs is uncertain.

## Emerging costs and regional power plays

The introduction of a new institutional framework and the influx of Chinese investment and infrastructure projects have implications beyond achieving trade and connectivity. The BR has implications at the international, transboundary, national, and local levels due to its ability to influence fluvial flows of transboundary rivers. The centrality of the transboundary rivers in south and southeast Asia to local and economic well-being means that their government and

**Table 1** Examples of hydropower projects under the belt and road strategy in south and southeast Asia (Source: China belt and road portal, Xinhau, CPEC portal and international rivers)

| Project name/location | Country | Tributary (main river) | Construction firm | Contract value (million USD) | Generation power (MW) | Construction date |
|---|---|---|---|---|---|---|
| Lower Manag Marshyangdi | Nepal | Gandaki (Ganges) | Qing Yuan Engineering Consultant, Sichuan Provincial Investment Group, Chengdu Xingcheng Investment Group | | 100 | 2017 |
| Budhi Gandaki | Nepal | Gandaki (Ganges) | China Gezhouba Firm | 2500 | 1200 | 2017 |
| Lower Sesan 2 | Cambodia | Se San (Mekong) | Huaneng Hydrolancang International Energy | 781 | 400 | 2018 |
| Pak Beng hydropower scheme | Laos PRD | Mekong | Power Construction Corporation of China | 1700 | 1320 | |
| Pak Lay | Laos PRD | Mekong | China International Electric and Water Corporation, Power Construction Corporation of China | 1700 | 770 | |
| Nam Ou cascade | Laos PRD | Nam Ou (Mekong) | Power Construction Corporation of China | 1698 | 1272 | |
| Xiangkhouang province | Laos PRD | | Dongfang Electric Corporation | | 120 | |
| Nam Tha | Laos PRD | Nam Tha (Mekong) | Power Construction Corporation of China | | 263 | 2017 |
| Karot | Pakistan | Jhelum (Indus) | China Three Gorges Corporation | | 720 | 2016 |
| Suki Kinari Hydropower Station | Pakistan | Kunhar (Jhelum) | Suki Kinari Hydro, China Gezhouba Group Company | 1707 | 870 | 2016 |
| Kohala Hydel Project | Pakistan | Jhelum (Indus) | China Three Gorges Corporation | 2364 | 110 | |

management are politically sensitive. Therefore, hydraulic changes are likely to have repercussions beyond the rivers.

The Chinese government promotes the BR as an economic entity, framing the strategy using economic and cooperative narratives. The BR policy document states that the initiative is to promote "national economic prosperity, regional economic cooperation, and development" and represents an "ambitious economic vision of opening-up and cooperation" (NDRC 2015). This economic narrative was reiterated by the Chinese Minister of Foreign Affairs, who describes the BR as a strategy that "seeks to strengthen economic collaboration, improve connectivity, promote trade and investment, promote currency conversion, and bolster people to people exchange" (Eyler 2015). Cooperative rhetoric is also frequently employed in relation to the BR. For example, the BR policy document utilises rhetoric, such as 'inclusiveness', 'mutual cooperation', 'coordination', as well as emphasises integration (NDRC 2015). The promotion of an economic agenda by the Chinese government serves to deflect from the wider geopolitical implications of the regime.

This economic narrative is part of the BR's aim to promote continued Chinese economic growth (Blanchard 2017; Yu 2017). Aside from boosting growth through increasing trade and aiding the spending of China's foreign currency reserves, the BR also aims to promote economic growth through getting rid of excess capacity and infrastructure construction. Excess capacity, particularly, in the steel, cement, and aluminium sectors, is a serious national problem (Blanchard 2017). As a result, Li Keqiang, China's Premier, stated that the way for China to become competitive and maintain growth was by "exporting manufacturing capacity" (He 2015, 1). Alongside this, infrastructure investment is seen to ensure growth, as it provides additional business to Chinese companies. Chinese infrastructure and foreign direct investment also serve China's economic objective of ensuring China's resource security (Blanchard 2017). However, there are likely political motivations accompanying the BR that are disguised by the economic cooperation narrative, which impact transboundary rivers.

## The Lancang–Mekong cooperative mechanism

The LMC plays an important geostrategic role in promoting the BR in the Mekong region. Aside from operating as a cooperative and development framework, the LMC works to progress several Chinese objectives. It exerts China's influence downstream, tying the lower Mekong countries

to it, and counters foreign influences. It serves to legitimise China's upstream projects while reassuring downstream concerns. China is also able to benefit from downstream resources and revenue through the actions of its companies (Matthews 2012).

While the LMC's rhetoric ostensibly holds that all its members are 'equal' (CMoFA 2015a), in reality, China holds the most influence. The LMC has been described as a geostrategic move by China in response to encroaching foreign influences in Southeast Asia. Such influences include the role of the USA and Japan in US-ASEAN and Japan ASEAN summits. China did not have a regional initiative of its own to counter these geopolitical influences until its formation of the LMC. Cooperation with the Mekong countries is, therefore, likely to occur on China's terms (Middleton and Alloche 2016).

China's influence over the LMC is evident in acts such as its commitment to establish a centre for technical cooperation and information sharing in Yunnan. Through this, China is placed in position to influence the institution and it is placed outside the influence of western donors (Middleton and Alloche 2016). The frequent affirmation of the LMC's link with the BR by China further strengthens China's hold over the institution (CMoFA 2017). The BR is a Chinese strategy and the LMC-forming part of the BR by default makes it a primarily a Chinese initiative. Furthermore, Chinese officials have criticised the MRC for its inability to implement particular projects (Räsänen 2017), indicating that the LMC will become more prominent in the future.

The portion of the Mekong in China is known as the Lancang Jiang (Lancang). Nationally, China has its own plans for dam cascades for storage and hydropower on the lower and upper portions of the Lancang. By March 2011, the lower cascade was considered a fait accompli and comprises of six dams. On the upper stretch of the river, one large dam has been completed and 20 more large projects are planned or under construction (Räsänen et al. 2017; Magee 2012). The LMC is framed to overlook China's previous unilateral construction of these projects. It moved dialogue from concerns about design and downstream impacts to the operation and coordination of Chinese dams with downstream hydropower projects. This also allows the China to avoid previous and potential adverse ecological, hydrological, or social impacts generated by upstream construction (Middleton and Allouche 2016). The use of economic and cooperative narratives deployed by China also legitimises their control of the river's headwaters (Williams 2019).

While the LMC does include the rhetoric of sustainable development, it is rarely elaborated how sustainable development or green initiatives will be achieved (CMoFA 2015a, b, 2016). Similarly, despite increasing language of joint development and transboundary cooperation (CMoFA 2015a; MWR 2015), the actual operation and management of hydropower projects has been found to progress on a largely unilateral basis. This is partly as a many projects which are funded, undertaken, and operated by Chinese companies and financial institutions through build–operate–transfer agreements (Urban et al. 2018). By pushing economic narratives, China has gained the support of the downstream countries through an institution that it controls. This marginalises foreign influences and institutions to strengthen China's strategic influence in the region and allow it access to downstream resources under the guise of economic cooperation and integration.

## Foreign policy objectives: the role of hydropower

China seeks to ensure peaceful development with the region through its 'good neighbour' policy. However, its hydropower designs under the BR may clash with this policy. China's upstream developments on the Lancang are impacting the Mekong's flow regime. The first of China's six dam cascades on the Lancang has a total storage capacity of 40% of the annual flow at the lowest dam. As a result, it is believed that these dams will increase dry season flow by 34–155% and decrease wet season flow by 29–36% by the time the river reaches Thailand. The river's sediment load will also be impacted (Räsänen et al. 2012, 2017). China has gained control of the Mekong's headwaters through these upstream projects, which essentially gives it control of the region's economy (Magee 2012). Accordingly, China's release of water from its upstream dams during the 2016 drought, while framed as a benevolent and cooperative gesture, does not detract from the demonstration of the level of control China already exerts over the Mekong's waters (Brennan 2018).

China's Ministry of Water Resources stresses that its developments on the Lancang follow an 'appropriate, orderly and sustainable approach that stresses harmony between men and water' and takes into account both China's and downstream countries' interests. The Lancang dam cascade is portrayed as beneficial to the lower countries due to its role in regulating flows between seasons and the associated benefits to irrigation and navigation. China maintains that its policy downstream is to work with the Mekong countries on the 'natural belt of the Mekong River' to advance 'economic integration' and build a 'community of development' (MoWR 2015). This framing acts as a form of soft power to legitimise Chinese actions and presents it as a responsible upstream neighbour, an image that China seems eager to cultivate within the Mekong region.

Foreign investment in hydropower is generally welcomed by the Mekong countries as vehicles of sustainable economic development (Williams 2019). However, countries participating in the BR are becoming increasingly bound to China through Chinese regional investment. As a

result, it is difficult for countries that receive investment to confront China about the ecological or social costs of the projects. Furthermore, China rarely consults local communities about its projects; instead, its focus is on government relations (Zhou 2018). Local communities also often benefit the least from hydropower projects, bearing the brunt of the costs, while the benefits are enjoyed by urban or industrial centres, or exported across borders (Bakker 1999). As a result, many local communities are disillusioned and perceive China negatively. This has implications for national stability and the potential for more situations similar to the stalled Myitsone dam in Myanmar (Zhou 2018; Fawthrop 2019).

There is also a more sinister edge, as large hydropower projects are politically significant, being a visible demonstration of power and dominance. Therefore, Chinese projects' downstream is an assertion of China's growing geopolitical influence in the region (Williams 2019; Yu 2017). Furthermore, there are sovereignty concerns with Chinese investments in large infrastructure. A significant number of these projects are build–operate–transfer agreements. This places control of the projects operation with the company, often for several decades, before transferring it to national authorities. Therefore, national ability to operate and control the impacts of the project is considerably reduced and control of water issues in the Mekong region is essentially handed to Chinese companies for several decades (Urban et al. 2018).

Furthermore, Chinese banks supply huge loans to finance large infrastructure projects and repaying these loans can cause significant debt (Sovacool and Walter 2019). Questions regarding the sustainability of loans are particularly pertinent, as infrastructure loans often involve lending to sovereigns or a sovereign guarantee, particularly, when the creditor is also a sovereign or has official ties to the government, such as China's policy banks (Hurley et al. 2018). Significantly, it is estimated that China acts as a sole financier for 66% of hydropower investments in Southeast Asia (Urban et al. 2018). This can strain bilateral relations, as the debt can place the borrowing country in the unfavourable position of being dependent on China (Hurley et al. 2018).

Of the countries that are participating in the BR in south and southeast Asia, Laos and Pakistan have been identified as being at high risk of suffering debt distress due to BR-related financing (Hurley et al. 2018). In Laos, hydropower projects are placing the country in increasing debt to China. For example, the Pak Lay hydropower project has received USD 1.7 billion in loans from China and Sinohydro, a Chinese state-owned hydropower enterprise, and is undertaking hydropower projects that are backed by another USD 2 billion of Chinese loans (Macan-Markar 2018). In Pakistan, energy projects, including hydropower projects, are estimated to be worth at least USD 33 billion of the total USD 62 billion value of projects under the CPEC. China is said to be financing 80% of this amount, and in some cases, interest rates may be as high as 5% (Hurley et al. 2018).

The risk of recipient countries defaulting on Chinese loans has led to concerns that increased Chinese investment in projects, such as hydropower, is a way of increasing China's strategic geopolitical influence, particularly in the Mekong basin (Middleton and Allouche 2016; Williams 2018). China has an unpredictable track record when dealing with countries that default on loans. While China has been known to write off debt, it has also taken action with sovereign and strategic implications. In 2017, Sri Lanka had to lease Hambantota port, a BR project, to China for 99 years after being unable to service an USD 8 billion loan for the port's construction. China has also been known to accept territory as debt repayment; in 2011, China wrote off an undisclosed amount of debt owed by Tajikistan for 1158 $km^2$ of disputed territory (Hurley et al. 2018). If countries such as Laos were to default on repayments, it is unclear what action China may choose to take, but it could have implications for sovereignty as well as for downstream countries.

China has also used political and economic means to exert pressure on countries to fulfil its BR objectives. In Myanmar, the Myitsone dam, a BR project, has stalled due to nationwide protests. China is exerting pressure on Myanmar's government to restate the project through tactics such as publishing misleading statements and statements such as that by cancelling the project, Chinese investment in Myanmar will be seriously impacted (Fawthrop 2019; Zhou 2019). There is also the issue of the USD 800 million that the China's State Power Investment Corporation has already spent on developing the project. Such an amount will be difficult to Myanmar to reimburse, leaving it in an awkward financial and political situation (Ives 2017). China is also an important political and economic ally for Myanmar. China is the largest foreign investor in Myanmar, spending over USD 15 billion in direct investment in 2018. The Rohingya issue has also seen China becoming Myanmar's closest ally within the UN Security Council and Western sanctions are driving the two closer together (Fawthrop 2019; Zhou 2019). Myanmar's government faces a difficult situation, as displeasing Beijing could have serious repercussions. Such situations are likely to dissuade the lower Mekong countries from countering Chinese hydropower projects and act as a reminder of China's potential clout.

Issues with financing have already started to emerge in Pakistan. The CPEC involves several hydropower projects. In 2017, Pakistan announced that it would be funding the Diamer-Bhasha dam, originally part of the CPEC, itself due to overly strict Chinese terms (Zhen 2017). Regardless, it is stated that under the CPEC, "priority would be on development of hydropower resources on the Indus River" and the Diamer-Bhasha dam would remain part of discussions (Kiani 2018).

While not always directed specifically at China or the belt and road, Vietnam has begun to challenge the large-scale hydropower projects. Specifically, through statements such as that the Mekong is being 'cut into pieces' for hydropower development. Vietnam, as the most downstream state, is especially sensitive to changes in the river's hydrology due to its reliance on the Mekong delta for food security. An MRC study completed in 2015 has found that hydropower will significantly impact the delta as well as impact fisheries, sediments, ecology, and livelihoods (MRC 2016). Government officials also believe that the 2015–2016 drought, which severely impacts Vietnam's food and social security, was exacerbated by China's upstream dam (Urban et al. 2018). As such, upstream dams have also been termed by Vietnam as 'threats' to 'all productive activities in the region' and that alternative energy options are available (MNRE 2017). The continued development of hydropower projects by Chinese companies under the BR on the Mekong is beginning to sour already tense relations between China and Vietnam. As a result, there are concerns that the situation on the Mekong between China and Vietnam could become a diplomatic challenge similar to the South China Seas (Urban et al. 2018).

In response to downstream concerns that upstream projects are causing hydrological disruptions, China has issued statements, agreements to share information, and invitations to visit sites. Powerful interests within China strongly uphold that China's dams are beneficial to the region, as this aligns with the good neighbour policy. Power asymmetries and their own national hydropower objectives make it difficult for downstream states to refute China's stance. However, as Vietnam is becoming increasingly vocal about the negative externalities of Mekong dams, China's good neighbour policy may conflict the hydropower drive backed by the BR (Biba 2016).

This is particularly as the influx of Chinese investment allows projects, such as those in Laos, which were not previously financially viable to proceed (Eisenman and Stewart 2017). Chinese companies operating abroad are accountable to the host nation's laws. As a result, in countries such as Laos, these may be poorly upheld, not abide to international standards or regulations and susceptible to corrupt practices (Matthews 2012). Officials in the host nations such as Cambodia and Laos as well as the Chinese developers often seem unconcerned about the potential for transboundary impacts of hydropower projects. This is the case even for countries that have received a substantial amount of Chinese involvement in their hydropower sector, such as Cambodia. It has been found that an increase in hydropower projects in a country does not appear to give it any leverage against Chinese projects' upstream (Urban et al. 2018). This can further the negative social and environmental impacts of BR projects both in the participating country and downstream. This can exacerbate upstream/downstream political tensions as well as cause social unrest and mistrust towards China.

## The Indus and the CPEC

India has taken a cold stance towards the belt and road, primarily due to the CPEC. India's government has expressed at the highest level that it is concerned with China's actions in Pakistan and for it to terminate them. This is as sovereignty issues are brought in where Pakistan occupied Kashmir is involved, as India claims this territory as its own. As the Indus flows through Kashmir, any project regarding the river elicits a strong response from India. China's response is that the CPEC is not relevant to territorial disputes nor does it impact China's stance on Kashmir. The belt and road are stressed as being open and inclusive for common regional development (CMoFA 2017).

Significantly, India refused to take part in the May 2017 belt and road Forum. This was on the grounds that connectivity initiatives should be based on "universally recognized international norms, good governance, rule of law, openness, transparency and equality". They should "follow principles of financial responsibility to avoid projects that would create unsustainable debt…; [provide] balanced ecological and environmental protection and preservation standards; transparent assessment of project costs". Finally, "[c]onnectivity projects must be pursued in a manner that respects sovereignty and territorial integrity" (MEA 2017:2). Therefore, India is implying that the belt and road do not hold to these normative and commonly accepted standards. Indian-led initiatives for regional connectivity were also listed and so are positioned as alternatives to the BR, therefore, conforming to the specified standards. India concludes by highlighting its sovereignty and territorial concerns, which are central to the existence of nation states and so places it in an intractable position. Given that Kashmir, and so the Indus, comprises a core national interest for India, China's economic narrative of the BR is clearly unacceptable for India. Instead, India presents a political narrative based on security and sovereignty to challenge the BR.

India is also wary of China's influence in Nepal. India considers Nepal as a buffer between itself and China and long benefited from close trade and economic activities. In 2017, Nepal signed an MOU for cooperation under the BR. Nepal saw the strategy as a way to 'relax the obstacles created by geography' and create 'alternative policy choices' for development through greater connectivity with China (MoFA 2016, 2017). This was followed in June by an MOU for the development of the Budhi-Gandaki hydropower project, with China's Gezhouba Group responsible for the project (Lo and Zhou 2017).

In November, Nepal's deputy Prime Minister said that the agreement had been scrapped, as it was 'irregular and

thoughtless' (Lo and Zhou 2017). However, the recent shift in politics within Nepal has seen the dam reinstated on the political agenda and Gezouba Group appears set to continue developments (BR Portal 2018). Furthermore, the Gezhouba Group still has at least another two contracts in Nepal (Lo and Zhou 2017). It was also announced that three Chinese companies will develop at least 1000 MW of hydropower jointly with Nepalese companies by 2022 (Xinhua 2017).

Regardless of the outcome of the hydropower MOUs, Nepal signing up to the BR is seen to threaten India's relationship with Nepal and to bring China up to India's border. India and Nepal have a history of disputes over transboundary water, with many shared hydraulic infrastructure agreements being considered unfair by Nepal (Salman and Uprety 2002; Mirumachi 2015). China, therefore, presents an alternative partner for transboundary water management in Nepal (Murton et al. 2016). This has implications for water flows downstream to India.

As such, India is seeking to reaffirm its relationship with the new Nepalese government and woo it away from China. The Himalayan geography has historically made connectivity between Nepal and China difficult, leaving Nepal dependent on India. However, if Nepal's agreements with China are implemented, this could change. India is likely to ramp up its own projects with Nepal, including the Indian funded Arun III hydropower project to compete with China's influence in the country (AFP 2018).

## Conclusions and discussion

The BR appears to be utilising narratives of economic cooperation, which combined with China's significant financial resources, and expands China's geopolitical influence across south and southeast Asia through actions on the region's transboundary rivers. The BR has been awarded political priority by Beijing, which makes it a national interest and a sign of the Communist Party's legitimacy (Aoyama 2016). As such, the Chinese government is likely to maintain the economic cooperative narrative of the strategy to enforce a consensus regarding their actions. However, the sustainability of the BR has come under question.

The BR presents a challenge to traditional basin power configurations. Geopolitically, India is traditionally the South Asian hegemon, but China is challenging its position. The BR is extending Chinese influence into what India sees as its backyard. Hydropower developments serve as a visible demonstration of this perceived Chinese encroachment. India is stepping up its own initiatives as a response. India's Arun III hydropower project was the first of five planned projects, two of which are backed by China, to be inaugurated in Nepal (SCMP 2018). The CPEC and the Indus are also areas of concern for India regarding the BR. Indian discourse is often securitised and involves issues of sovereignty; therefore, it challenges China's narratives. India's rejection of the belt and road Forum sent a strong political message to China and India's refusal to join the BR has resulted in a competition for influence in places like Nepal. Given India's geographical position, it will be difficult for China to ensure the success of the BR without a thawing of relations. However, vying for strategic influence, increased hydropower construction in upstream Nepal and involvement in Pakistan is unlikely to cause a détente and may hinder China's geostrategic objectives.

Relations between China and Vietnam are also showing strain. This is particularly as China's actions in the South China Seas have contributed to its south and southeast Asian neighbours growing increasingly mistrustful of its motivations. China's behaviour is often viewed as aggressive, particularly as it has demonstrated that it is not afraid to safeguard its territorial sovereignty or protect its interests and may do so through unilateral action (Yu 2017). Increasing control of the Mekong River through infrastructure projects has led to concerns that Beijing is 'sandwiching' the region, increasing China's geopolitical leverage (Brennan 2018). The control China already exerts over the Mekong through its upstream dams and actions of its state-owned enterprises are already an increasing concern in Vietnam and leads to unease regarding increasingly forceful Chinese action on the Mekong (Brennan 2018).

Transboundary cooperation between China and its Mekong neighbours over the river has traditionally been limited. However, the BR and LMC are changing relations on the Mekong through increasing Chinese engagement with its downstream neighbours. The LMC contains narratives of economic cooperation and regional integration that are hard to challenge, as they resonate with national interests of its members and act as a bridge between the GMS and MRC. As a result, narratives framing the Mekong as underutilised and the need to develop the river through hydropower can be separated from the more recently introduced IWRM and environmental narrates, now embedded within the MRC and combined with the energy and economic narratives institutionalised by the GMS.

The BR's narrative of economic cooperation appears to have become more accepted in the Mekong region. This deflects from the geostrategic motivations behind hydropower construction downstream. The construction of such projects provides revenue and business for Chinese companies, economically ties the host nation to the Chinese government through financial loans, while nationally, China benefits from the energy generated through trade or the revenue from the project. As a result, China now seems to be redefining the region's water relations around economic integration and infrastructure development, with itself at the centre. China's provision of the majority of the LMC's

financial backing and the rejection of support and investment from foreign governments further ties the institution to Beijing.

The lack of environmental safeguards or social accountability of the actions of Chinese enterprises under the BR has been criticised, as have the negative impacts of large hydropower in regions such as the Mekong (Fawthrop 2019; Gokkon 2018). The negative externalities of such projects are becoming more pronounced with serious implications for regional food security and social well-being (Intralawan et al. Intralawan and Frankel 2017). However, these appear low on nations' agenda when considering BR projects, particularly as many of these projects possess rhetoric of sustainable development. The top–down approach of the BR means that the more prominent geopolitical challenges to China's strategy are those concerning the financing of projects. Such challenges are likely more of a threat to the BR, as they confront the economic narrative that China is promoting. Therefore, despite the fact that environmental and social repercussions are likely to become increasingly evident, the greatest challenge to the sustainability of China's BR is the very economics that it is actively promoting.

China's policies towards transboundary water under the BR are not unique, and similar issues regarding financing, strategic influence, and criticism of environmental standards and social unrest are present with other BR projects (for example, debt issues with the Hambantota port in Sri Lankan and protests in Vietnam over deep water oil drilling). However, the implications of the BR for transboundary water in south and southeast Asia are significant due to the extent that the populations' livelihoods are tied to the transboundary rivers, the sensitive ecology that is being significantly altered and the potential for China to control vital resources of the region. In addition, the BR has implications not just for the host nation, but their neighbours due to the transboundary nature of the targeted rivers. This brings issues of nationalism and competition for resources to the forefront, exacerbating upstream/downstream tensions. Of issue, Chinese developers, financiers, and construction firms seem largely oblivious to the transboundary impacts of BR projects. China's interactions through the BR are increasingly driving transboundary water governance in south and southeast Asia. This has resulted in a spate of infrastructure development and institutional developments that have seen China stretch its geopolitical influence across the south and southeast Asian region. As a result, relations amongst the riparian countries are starting to re-orientate to reflect this China-centric economic order. What is of interest, however, are the tensions that are starting to emerge between China and the downstream states due to the financial burden being placed on recipient countries and concerns about China's growing geopolitical influence. Tensions between Chinese enterprises and downstream states over the environmental and social impacts of hydraulic infrastructure are also emerging and likely to become more apparent as the downplayed environmental and social costs come to the surface. How China addresses and moves forward in this respect will be determinative of the BR's progress as well as for the future of the region's transboundary rivers.

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