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Transboundary rivers in the Hindu Kush-Himalaya (HKH) region: Beyond the 'water as weapon' rhetoric

Security analysts have often characterised the phenomenon of hydroelectric dam construction in the Hindu Kush-Himalaya (HKH) region as a zero-sum game. Most notably, they perceive China's dam-building to be part of a calculated strategy aimed at exerting control over this resource at the expense of other riparian countries. This NTS Insight argues that this view is inaccurate. In the case of the transboundary rivers shared by China and South Asia, China's dam-building is, more than anything else, driven by the need to ensure economic growth, and thus its political and social stability. However, as its dams could affect water flows in neighbouring states, a multilateral forum where all stakeholders in China and South Asia can voice their concerns is needed.

By Pau Khan Khup Hangzo

The Three Gorges Dam is the most prominent manifestation of China's push to build dams. The country's dams on the transboundary rivers originating in the Hindu Kush-Himalaya (HKH) region have generated much concern among its lower riparian neighbours.
Credit: PVCG / flickr.

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Introduction

Increasingly commonplace is the notion that China, taking advantage of its commanding position as the source of great transboundary rivers, is using its rivers as a

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'weapon' (Chellaney, 2011; Gray, 2011). According to this argument, China sees its rivers as a means of asserting control over its lower riparian neighbours. The proponents of this view suggest that the weaponisation of shared rivers through the construction of dams has led China and its neighbours in South Asia to engage in a race to build ever more dams (Chellaney, 2012a).

This NTS Insight argues that China's efforts to harness its rivers are primarily the result of its desire to ensure sustained economic growth, which it sees as vital to its political and social stability. Therefore, the construction of hydroelectric dams has more to do with the need to power its energy-intensive economy, than with any policy of weaponisation in order to assert a hegemonic role in the region.

In the context of South Asia, the nature of China's interactions with India will determine the future of the region's water security. This is because China and India are the region's hydro-hegemons. China is an upper riparian country to India, Bangladesh and Pakistan. India, while being a lower riparian country with respect to China, is an upper riparian country to both Bangladesh and Pakistan. In light of this, the water sharing and management issues that exist between China and South Asia will be discussed through a closer examination of the case of India.

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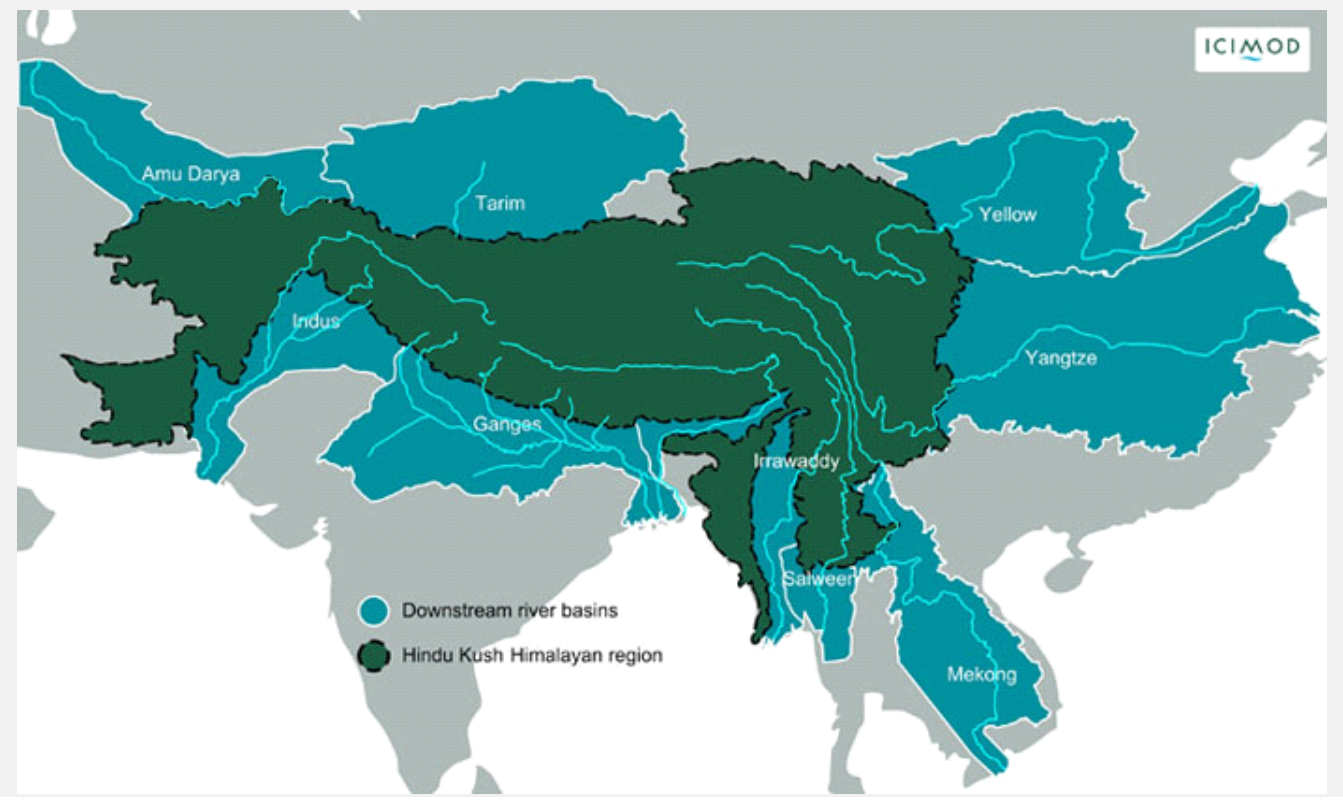
China as the hydro-hegemon in the HKH region

The Hindu Kush-Himalaya (HKH) region, with the Himalayan mountain range and the Tibetan Plateau at its core, is the source of 10 river systems providing irrigation, power and drinking water for an estimated 1.3 billion people, or around 20 per cent of the world's population (Aon Benfield UCL Hazard Research Centre et al., 2009). The river systems are the Tarim (Dayan), Amu Darya, Indus (including Sutlej), Ganges, Brahmaputra (Yarlung Tsangpo-Brahmaputra), Irrawaddy, Salween (Nu), Mekong (Lancang), Yangtze (Jinsha) and Yellow (Huang He) (ICIMOD, n.d.).

A good gauge of the significance of the transboundary rivers originating in the HKH region to China and to the countries of South Asia is the water dependency ratio (Asia Society, 2009). The water dependency ratio is an index that measures the amount of water resources a country uses that originates from outside of its territory. The ratio highlights the potential vulnerability of shared waters to competing interests. An examination of the water dependency ratios of various states in the HKH region reveals a sharp imbalance. China has a dependency ratio of only 1 per cent, making it one of the most hydrologically self-reliant countries, not only in the HKH region but also the world. At the other end of the scale are Bangladesh and Pakistan, which, at 91 and 77 per cent respectively, are the two states most dependent on water from outside its borders. India has a dependency ratio of 34 per cent, which suggests a degree of vulnerability that gives the country cause for concern (Asia Society, 2009).



The Hindu Kush-Himalaya (HKH) region and the 10 major basins fed by rivers originating from the region.
Credit: ICIMOD.

As the source of a number of key transboundary rivers, China undoubtedly has the upper hand. It has been argued that China exercises its hydro-hegemony by refusing to sign water sharing or water management treaties with lower riparian countries, and through pursuing unilateral actions such as building hydroelectric dams without consulting countries downstream of it. These have led critics to label China as 'insensitive', and to accuse it of using water as a 'weapon' (Chellaney, 2012a). Moreover, its dam-building efforts in the Tibet Autonomous Region have been characterised as 'environmentally unfriendly activities' that could have negative impacts on lower riparian countries (Jayaram, 2012). It has been suggested, however, that such criticisms grossly exaggerate the (potential) effects of China's environmental and development policies (see, for example, Ben-Ami, 2008), and do more harm than good. The finger-pointing and cynicism stands in the way of constructive engagement as they fuel mistrust and sap confidence, both key to effective cooperation. In order to foster cooperation, it is necessary to first appreciate the drivers of China's policies on transboundary rivers. This would allow a better understanding of why China has not been enthusiastic about signing water treaties and could also help lower riparians in South Asia formulate a more effective strategy for engaging China.

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The drivers of China's dam-building activities

China's accelerated dam-building is driven by its desire to first and foremost reduce its reliance on fossil fuels and diversify its energy sources. Its economy, which has been experiencing growth of about 10 per cent annually, is powered primarily by coal, from which it generates more than 70 per cent of its energy (Schneider, 2011a). To meet future demand for energy, China aims to double its electricity generating capacity from 960 gigawatts (GW) in 2010 to 1,900GW in 2020. Of this, an estimated 500GW will be generated by coal. Consequently, coal production is projected to increase from 3.15 billion metric tons in 2010 to more than 4 billion metric tons by 2020 (Schneider, 2011a).

China's continued reliance on coal to power its industries and rapidly expanding cities has, due to the relative water intensity of coal-powered electricity production, increasingly strained its water resources. It has been estimated that the coal sector alone accounted for 23 per cent of the water consumed by China in 2010 and this could rise to 28 per cent by 2020 (Schneider, 2011b). The high dependence on coal has also given China the dubious distinction of being the world's top emitter of greenhouse gases.

The aforementioned factors have necessitated a rethink not only of China's energy policy but also its overall development philosophy. To this end, President Hu Jintao declared in 2006 that China will 'pursue a scientific outlook on development that makes economic and social development people-oriented, comprehensive, balanced and sustainable' (China embraces, 2006). This 'new path to industrialization', known as the 'scientific development concept', would feature 'high technology, good economic returns, low resource-consumption, low environment pollution and the full use of human resources' (China embraces, 2006). This concept was subsequently codified in an amendment to the Constitution of the Communist Party of China in 2007. China's 12th Five Year Plan, announced in 2011, promised in specific terms to enact a range of sustainability-oriented policies growing out of the scientific development concept (APCO Worldwide, 2010).

Key to achieving sustainable development is the development of alternative energy sources. The 12th Five Year Plan noted that while coal will continue to be the dominant source of energy, the proportion of clean energy will be increased. Most importantly, the Plan states that China's new energy policy will be structured around hydro and nuclear power. Thus, more dams will have to be constructed; and it is estimated that the installed capacity of hydroelectric dams would increase from 213,000 megawatts (MW) in 2010 to 430,000 MW by 2020 (Wirsing, 2012).

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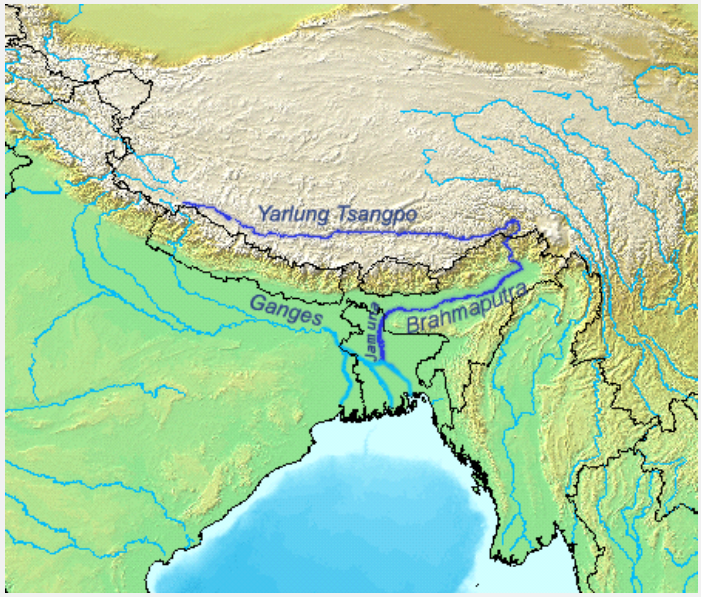
Concerns of lower riparian countries: The case of India

China's hydroelectric dam developments, although intended solely to sustain its economy and diversify its energy sources, have engendered concerns among its neighbours. The countries of South Asia fear that China's dams would affect the volume of water flowing into their territories. Of particular worry are China's plans to dam the Yarlung Tsangpo-Brahmaputra. The river originates in southern Tibet, flows across the region in a west to east direction all the way to the Great Bend where it turns north to take a sharp U-turn to flow south into India, where it is called the Brahmaputra. It then joins the Ganges River in Bangladesh to form the world's largest river delta in the Bay of Bengal.

China had been building dams in the HKH region for some time. However, these had not attracted India's concern as the dams were small and built on the tributaries of the Yarlung Tsangpo (Tsering, 2010). India's perspective changed when it learned of China's plan to build five dams on the middle reaches of the Yarlung Tsangpo mainstream. The first of these dams, the 510MW Zangmu hydroelectric power station, is expected to be operational by 2014 (Krishnan, 2011a). More worrying to India are the dams that China plans to construct at the Great Bend of the Yarlung Tsangpo – including the 38,000MW dam at Metog and the 42,000MW dam at Daduqia. Also of concern to India is the potential diversion of water from the Yarlung Tsangpo by China as part of its South-North Water Transfer Project.



A river of contention: The first stretch (1,625 km) of the Yarlung Tsangpo-Brahmaputra lies in Tibet, the second (918 km) in India, and the remaining length (363 km) in Bangladesh.

Credit: Kmusser / Wikimedia Commons.

India's worries have been heightened by the fact that China has not been forthcoming with regard to such projects. After years of denying the existence of hydroelectric power projects on the Yarlung Tsangpo, China finally admitted to India that they are indeed pursuing them. In an attempt to allay India's fears, China's Foreign Ministry spokesman Ma Zhaoxu noted that 'China is a responsible country and will not do anything to damage the interests of others' (Building dam, 2009). The government of China also claimed that there are no official plans to divert water from the Yarlung Tsangpo. It also stressed that China would take into full consideration the interests of downstream countries in taking forward any development projects on the river (Krishnan, 2011b).

China's continued pursuit of a unilateralist approach – it does not consult lower riparian countries on its dam projects – and its reluctance to be more open about its plans on the Yarlung Tsangpo could have a snowball effect in South Asia. India, for example, could be tempted to review its longstanding practice of joint water management with lower riparian countries and to pursue a more unilateralist policy in order to match China's aggressive plans. This could have negative consequences for Pakistan and Bangladesh, countries downstream of India.

Currently, India has water sharing treaties with Pakistan and Bangladesh. Under the 1960 Indus Waters Treaty between India and Pakistan, 80.52 per cent of the waters of the Indus River system is allocated to Pakistan and just 19.48 per cent to India (India and Pakistan, 1960). India also signed the Ganges Treaty with Bangladesh in 1996. The treaty gives each of the two countries roughly equivalent shares of the downstream Ganges flows. In addition, India is obligated to guarantee a minimum level of cross-border flows to Bangladesh in the dry season. These treaties limit India's ability to pursue unilateral policies on shared rivers. The Indus Waters Treaty, for example, requires India and Pakistan to notify each other of plans to undertake engineering works on any of the Indus River tributaries and to provide any data requested. This has prevented India from harnessing the full potential of its portion of the river as Pakistan regularly objects to its planned projects, forcing India to modify, delay or even suspend them. Scholars in India have expressed their discomfort over India's 'water generosity', arguing that it makes little sense for a parched India to be so unstinting in sharing its river waters (Chellaney, 2012b). They observe that water sharing treaties elsewhere in the world do not allocate half of all basin waters to the downstream states.

Signs are already emerging that India could be contemplating unilateral actions, to meet its own growing water needs and likely also motivated in part by China's activities on the Yarlung Tsangpo. For example, in response to China's dam-building activities on the Yarlung Tsangpo, India has in 2009 provided in-principle approval for two new dams on the Siang – as the Yarlung Tsangpo is known as it meanders through the Indian state of Arunachal Pradesh – to act as a buffer in case China siphons the river's waters to its parched northwest (Dholabhai, 2009). The dams are expected to store 10 billion cubic metres of water collected from the Siang and smaller rivers in the area, which can then be released into the Siang during periods of reduced river flow caused by dams in the Tibet Autonomous Region. Also, the Siang/Brahmaputra will at least not run dry if China decides to divert waters from the Yarlung Tsangpo. Further, India's Planning Commission noted that the country should set up more hydropower projects in the northeastern states of Arunachal Pradesh and Assam to pre-empt China and 'establish a certain degree of prior use claim' (Bhaskar, 2009). This could have the unintended consequence of affecting water flow in Bangladesh.

India has also revived the controversial National River Linking Project. Conceived in 1982, the mega-project would transfer 178 billion cubic metres of water from the northern (Himalayan) rivers including the Ganges and the Brahmaputra to the drier southern rivers via 30 diversion projects, including 3,000 storage reservoirs and 14,900km of canals. The plan had lain dormant for two decades but was revived in 2002 after the Supreme Court ordered the national government to form a task force to assess the 16 links in the northern, or Himalayan, section, and the 14 links in the southern, or peninsular, section. In the same decision, the court ordered the entire project to be completed by 2016, a timetable that has no chance of being met. In February 2012, a three-judge panel from the Supreme Court ordered the central government and state governments to make plans for the 'effective' implementation of the river linking project 'in a time-bound manner' (India's

Supreme Court, 2012). The court observed that the project had been long delayed, resulting in an increase in its cost, and it appointed a committee to plan and implement the project. It is however unclear what timeframe the court envisions. One reason that India gives for the urgency of the project is the need to increase the country's irrigation capacity in order to meet the growing demand for grain, which, by 2050, would have to be sufficient to feed an estimated 1.5 billion people.

Although the National River Linking Project is not in and of itself a direct consequence of China's activities on the Yarlung Tsangpo, the approach taken by China towards dam-building could have influenced the course of India's actions. The fact that the Brahmaputra River is also considered for the project lends credence to this argument. If this project comes to pass, the trajectory of hydropolitics in South Asia could potentially worsen. Pakistan has already registered its opposition, saying that India's river linking project could turn Pakistan into 'a barren field' (Javed, 2012). Likewise, Bangladesh has claimed that it would face 'saline death' from an encroaching sea if India's actions were to lower water levels in the Ganges and the Brahmaputra (Saline death, 2012).

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A way forward for water security in the HKH

China believes that harnessing its rivers is essential to addressing its water and energy needs. Its hydro developments could also help it reduce its dependence on carbon-emitting fossil fuels. China has been able to build dams on shared rivers despite objections from its lower riparian neighbours because it is not constrained by any legally binding water sharing or water management treaties with its neighbours. Nevertheless, it would be wrong to assume that China completely ignores the concerns of the lower riparians in the region.

In 2006, China agreed to set up a Joint Expert Level Mechanism with India to discuss cooperation on the sharing of hydrological data, emergency management and other transboundary river issues. Access to hydrological data is particularly important as the data could help lower riparian countries prepare for seasonal floods. The first meeting of the Joint Expert Level Mechanism was held in September 2007 in Beijing. It was decided that the meetings should be held once every year, with the venue alternating between China and India. The two countries signed an implementation plan for the sharing of hydrological data at the fourth meeting of the Mechanism in April 2010 (China agrees, 2010). Under the terms of this agreement, China will give flood-related data on the Yarlung Tsangpo river for the period 1 June to 15 October every year until 2012. This agreement is likely to be renewed when it expires. The signing of this agreement comes close on the heels of China providing India with the assurance that its dams on the Yarlung Tsangpo would not affect the water flow of the Brahmaputra. Further, in March 2010, China signed a memorandum of understanding with Bangladesh on the management of the Brahmaputra (Dhaka-Beijing MoU, 2012).

These agreements suffer, however, from their impermanence. What is required is a framework of cooperation that could help institutionalise the aforementioned agreements and also assist in the cooperative management of the Yarlung Tsangpo-Brahmaputra River. To this end, the Mumbai-based Strategic Foresight Group (SFG) organised a series of workshops on Himalayan Sub-regional Cooperation for Water Security in 2009 and 2010. The first workshop was held in partnership with the International Union for Conservation of Nature (IUCN) in Kathmandu, Nepal (SFG, 2009), the second with the Bangladesh Institute of Peace and Security Studies (BIPSS) in Dhaka, Bangladesh (BIPSS and SFG, 2010), and the third with the Centre for Non-Traditional Security (NTS) Studies at the S. Rajaratnam School of International Studies (RSIS) in Singapore (SFG, 2010).

These workshops saw consensus that water is key to maintaining peace and security in the Himalayan region, and proposed the establishment of a Himalayan River Commission (HRC) to manage shared rivers (SFG, 2011). The fact that the proposal arose out of a series of workshops attended by representatives from Bangladesh, China, India and Nepal shows that there is interest in a cooperative arrangement, at least at the Track II level. It is also noteworthy that government officials, including parliamentarians and ministers from relevant ministries, attended these workshops along with academics and other stakeholders.

Although the idea of establishing the HRC has been well-received by many, it will be an arduous process; and the SFG (2011) outlines a number of steps that have to be taken in order to make the HRC a reality:

- Define the exact nature of the HRC and set its objectives.
- Define the scope of the HRC's reach, including the legality of its mandates.
- Define the different aspects of water security which the HRC will govern in the Himalayan river basin.
- Specify the role to be played by the HRC in protecting the rights of both the upstream and downstream nations.
- Define a Constitution for the HRC in order to increase the body's efficiency.
- Create a sound conflict resolution mechanism to arbitrate any disputes between any of the parties; and explore cooperation with other countries in the Himalayan river basin, such as Bhutan and Pakistan.
- Officially form the HRC.

As the HRC is still at the conceptual stage, its forms and potential functions are yet to be fully ascertained. Here, it is important to note that although existing multilateral institutions for managing transboundary rivers such as the Mekong River Commission are underpinned by legally binding treaties, this would not be appropriate for the proposed HRC. China, with its low water dependency ratio, is unambiguous in

insisting that it keep a certain level of authority over its water resources and it would not want to be dictated to by a treaty. Conversely, India and Bangladesh, as lower riparian countries with respect to China, would prefer an institution based on a legally binding treaty. Given these conflicting positions, and given the need to engage China, a non-legally binding institution would be a more practical goal.

Even in the absence of legally binding mandates, an institution such as the HRC could represent a significant step forward. It could perform the vital role of serving as a forum for building confidence. The lack of trust between China and India on the one hand, and India and its fellow South Asian countries on the other, has long been the main impediment to effective cooperation not just on transboundary rivers but also in socioeconomic spheres. Confidence-building measures could initially focus on areas that are of immediate concern to all riparian countries. To this end, the Dhaka Declaration on Water Security, an outcome of the Second International Workshop on Himalayan Sub-Regional Cooperation on Water Security held in Dhaka in 2010, identifies significant areas of cooperation. The Declaration calls for 'the formation of an experts committee to prepare a road map for data sharing and scientific exchange and to prepare guidelines for introducing transparency regarding relevant data'; the 'establishment of joint research projects involving all the countries represented to acquire, collect, generate and process appropriate up-to-date data for taking the process forward' and 'joint efforts for the exchange of data and information on flow of Himalayan Rivers in low season' (BIPSS and SFG, 2010).

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Conclusion

This NTS Insight has shown that, contrary to the prevailing rhetoric criticising China for its predatory ambitions, China's projects on the rivers of the HKH region stem less from an exercise of hegemonic power than from the country's growing need for resources such as energy and water. Understanding this allows countries in the region to move beyond adversarial positions. Further, it is important to appreciate that China, as an upper riparian, does not have, and is not likely to have, at least in the near future, an interest in pursuing legally binding water sharing treaties. As such, progress is likely to be based, at least initially, on issues such as hydrological data sharing, scientific exchange and joint expeditions to monitor glacier melt. China's 2010 agreements with India and Bangladesh show that it is amenable to working together with its neighbours on those issues.

To address such dynamics, this NTS Insight suggests that the HRC represents one of the more promising ideas to come out of the region. A region-wide forum such as the HRC could address a key factor impeding progress on transboundary water cooperation, namely, the lack of trust. However, it will not be easy to bring such a mechanism to fruition, given that transboundary rivers have proven to be notoriously difficult to manage. This is particularly so in the case of South Asia, where transboundary rivers straddle contested territories such as Kashmir and Arunachal Pradesh. Given this, the formation of a region-wide body takes new significance as it could potentially play an instrumental role in improving cooperation not only with respect to transboundary rivers but also the disputed territories.

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About the Centre:

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In 2009, the Centre was chosen by the MacArthur Foundation as a lead institution for its three-year Asia Security Initiative (2009–2012), to develop policy research capacity and recommend policies on the critical security challenges facing the Asia-Pacific. It is also a founding member and the Secretariat for the Consortium of Non-Traditional Security (NTS) Studies in Asia (NTS-Asia).

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