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**Sovereign States and Surging  
Water: Brahmaputra River  
between China and India**

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Sushanta Kumar Mahapatra,  
University of Bologna, Italy and Amrita  
University, India

Keshab Chandra Ratha, Sambalpur  
University, India

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## Sovereign States and Surging Water: Brahmaputra River between China and India

By Sushanta Kumar Mahapatra, University of Bologna, Italy and Amrita University, India

Keshab Chandra Ratha, Sambalpur University, India

### Summary

Brahmaputra river basin is one of the most vulnerable areas in the world subject to combined effects of glacier melt, extreme monsoon rainfall and sea level rise. Water is emerging as a new possible irritant between China and India. For India, the Water of Brahmaputra constitutes a major lifeline for people of Tibet and North Eastern states. The building of dams and diversion projects in Tibet by China is a matter of grave concern for lower riparian states. For China, it is having a hidden inclination to create employment potentials for millions of people by making Brahmaputra diversion project forward. The requirement of fresh water as the pollution grows and population rises has forced China to have the Tsangpo-Brahmaputra River project. The objective of this paper is to focus the reaction of both people on the water diversion issue, disastrous ecological consequences and the urgent necessity for having a water treaty between Asian giants. It also examines the hegemonic tendencies of China on Brahmaputra River & exercise of power for economic gains and outcomes. The policies China takes on trans- Boundary Rivers are not symptom of peaceful nature of its rise. In addition, it establishes the fact that sharing of information, ecosystem-friendly policies, thought and mutual understanding will dispel the suspicion and develop trust between two countries, creating an enabling environment for better management of Brahmaputra River.

**Keywords:** Water Governance, Trans-Boundary, River Dispute, India, China

**JEL Classification:** H79, L95, Q28, K33, N50, Q25

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*Address for correspondence*

Sushanta Kumar Mahapatra

Amrita School of Business

Amrita University

Amrita Institute of Medical Science (AIMS) Campus

Ponekkara Post

Kochi-682 041

Kerala

India

E-mail: sushanta\_mahapatra@asb.kochi.amrita.edu

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Corso Magenta, 63, 20123 Milano (I), web site: [www.feem.it](http://www.feem.it), e-mail: [working.papers@feem.it](mailto:working.papers@feem.it)

# Sovereign States and Surging Water: Brahmaputra River between China and India<sup>∞</sup>

Sushanta Kumar Mahapatra\*  
Keshab Chandra Ratha\*\*

## Abstract

*Brahmaputra river basin is one of the most vulnerable areas in the world subject to combined effects of glacier melt, extreme monsoon rainfall and sea level rise. Water is emerging as a new possible irritant between China and India. For India, Water of Brahmaputra constitutes a major lifeline for people of Tibet and North Eastern states. The building of dams and diversion projects in Tibet by China is a matter of grave concern for lower riparian states. For China, it is having hidden inclination to create employment potentials for more than millions of people by making Brahmaputra diversion project forward. The requirement of fresh water as the pollution grows and population rise has forced China to have the Tsangpo-Brahmaputra River project. The objective of this paper is to focus the reaction of both people on the water diversion issue, disastrous ecological consequences and the urgent necessity for having a water treaty between Asian giants. It also examines the hegemonic tendencies of China on Brahmaputra River & exercise of power for economic gains and outcomes. The policies China takes on trans- Boundary Rivers are not symptom of peaceful nature of its rise. In addition, it establishes the fact that sharing of information, ecosystem-friendly policies, thought and mutual understanding will dispel the suspicion and develop trust between two countries, creating an enabling environment for better management of Brahmaputra River.*

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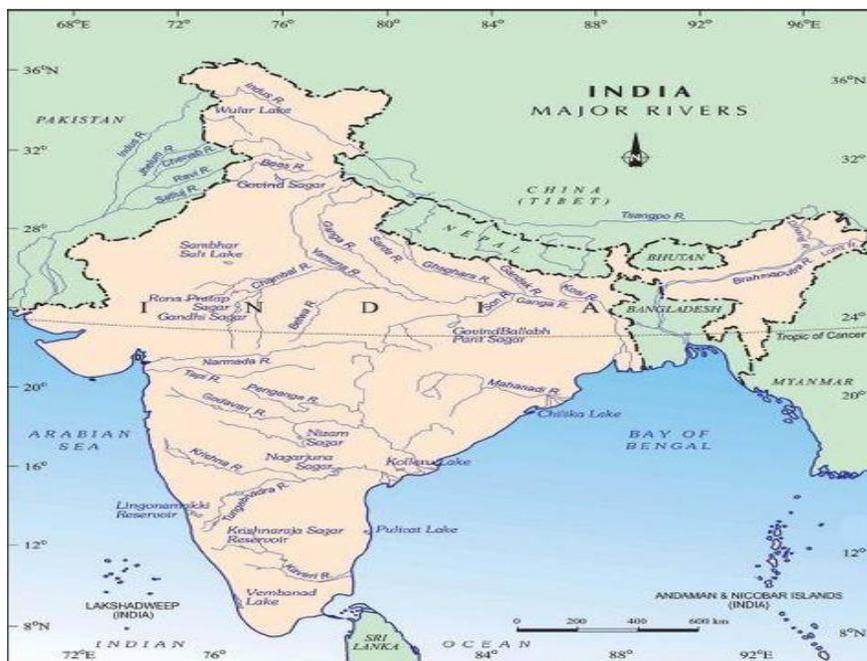
\*Post-Doctoral Fellow (European Union-Erasmus Mundus Programme) at Department of Economics Science (DSE), University of Bologna, Strada Maggiore 45-40125, Bologna, Italy, Office 19 and Associate Professor (Economics), Amrita School of Business, Amrita University, Amrita Institute of Medical Science (AIMS) Campus, Ponekkara Post, Kochi-682 041, Kerala, India, E-mail: sushanta.mahapatra@gmail.com ; sushanta\_mahapatra@asb.kochi.amrita.edu

\*\*Lecturer, Saraswat Degree Mahavidyalaya (Sambalpur University), Godbhaga, PIN-768111, Dist-Sambalpur, Odisha, India. Email: keshab\_ratha@rediffmail.com.

## Introduction

The Brahmaputra is a trans-boundary river and one of the major rivers of Asia, originated in the Angsi Glacier, located on the northern side of the Himalayas in Burang County of Tibet as the YarlungTsangpo River. It flows across southern Tibet to break through the Himalayas in great gorges (including the YarlungTsangpo Grand Canyon) and into Arunachal Pradesh (India) where it is known as Dihang or Siang. It flows southwest through the Assam Valley as Brahmaputra and south through Bangladesh as the Jamuna. In the vast Ganges Delta it merges with the Padma, the main distributary of the Ganges, then the Meghna, before emptying into the Bay of Bengal ([http://en.wikipedia.org/wiki/Brahmaputra\\_River](http://en.wikipedia.org/wiki/Brahmaputra_River), 2013). The river drains the Himalaya east of the Indo-Nepal border, southern-central portion of the Tibetan plateau above the Ganges basin, south-eastern portion of Tibet, the Patkai-Bum hills, the northern slopes of the Meghalaya hills, the Assam plains and the northern portion of Bangladesh. The basin, especially south of Tibet is characterized by high levels of rainfall. Kangchenjunga (8,586m) is the only peak above 8,000m and the highest point within the Brahmaputra basin (See Map-1).

### Map: 1-Major Rivers in India



Source: [http://en.wikipedia.org/wiki/File:Major\\_Rivers\\_in\\_India.jpg](http://en.wikipedia.org/wiki/File:Major_Rivers_in_India.jpg)

About 1,800 miles (2,900 km) long, the Brahmaputra is an important river for irrigation and transportation. The average depth of the river is 124 feet (38 m) and maximum depth is 380

feet (120 m). The river is prone to catastrophic flooding in spring when the Himalayan snows melt. The average discharge of the river is about 19,300 cubic metres per second (680,000 cu ft/s), and floods can reach over 100,000 cubic metres per second (3,500,000 cu ft/s). It is also one of the few rivers in the world that exhibit a tidal bore. It is navigable for most of its length. The Brahmaputra's upper course was long unknown, and its identity with the Yarlung Tsangpo was only established by exploration in 1884–86. This river is often called Tsangpo-Brahmaputra River. The lower reaches are sacred to Hindus. While most rivers on the Indian subcontinent have female names, this river has a rare male name, as it means "son of Brahma" ([http://en.wikipedia.org/wiki/Brahmaputra\\_River2013](http://en.wikipedia.org/wiki/Brahmaputra_River2013)).

The key challenge for sustainable management of the basin is conflict over water between two Asian giants. Conflict is frightening over sustained growth in water and energy demand, interference with natural river flows from dams, inter-basin water transfers and water diversions. The basin is characterized by large seasonal fluctuation in water availability due to the very wet monsoon and the extremely dry winter (<http://www.saciwaters.org/brahmaputra-dialogue/index.html>). The curious amalgam of burgeoning populations, rapid economic growth, and intensified global competition for energy resources is driving China and India to put growing emphasis on hydropower. The planned hydropower and water diversion projects, combined with mounting water security concerns have a greater impact on relations between these two countries.

## **Potential Factors for China's Water Diversion**

The idea of diverting the water of Brahmaputra was first mentioned in the International Conference of Global Infrastructure Fund in Anchorage, Alaska, in 1986. In 2005, the publication of the book "Tibet's waters will save China" brought this issue to the limelight by (Li 2005). Prior to this, the people's daily in 2003 reported the launch of a feasibility study on diverting the Brahmaputra (Hughes 2013). China is insecure in water, meaning thereby uneven distribution of waters within its territory. To realize the goal of setting up a massive South North water diversion project, China had made a confrontational attempt by diverting the water of the river that has caused the deterioration in the harmonious relation since 1962. The incredible growth of Chinese population and rapid urbanization has aggravated the

greatest concerns of the country .Current data show that China has only 7 per cent of world's fresh water to meet the needs of 22 per cent world's people. Again, the country's water resources are not equally spread. Southern China, with roughly 700 million people, has 4/5 of its water and Northern China, with 550 million people, has 1/5<sup>th</sup> of the water. The decreased water flow and the environmental impact together have impacted the irrigation practices and local livelihoods further compounding the intensity of the problem. The gradual melting of Himalayan glacier as a result of accelerating climate change, drying up the Brahmaputra river have palpable impact upon human health, water availability and rise in water-borne diseases.

China has serious requirement to supply water to its North-West territory, the Gobi desert, which holds almost half the country's total land mass. China has only 7 per cent of its fresh water. The Gobi exists over an area of 1,300,000 Sq KM making it one of the largest deserts in the world. Desertification of Gobi since 1950 has expanded it by 52,000 sq km and it is now just 160k.m from Beijing. The Brahmaputra flows through some of the most heavily disputed and unstable areas in South Asia. China and India currently dispute 83,000 K.M within the basin. Alluvial or "Char" land that is exposed as a river shifts often leads to dispute, as the land is highly valued for agriculture (CIA 1998 and IBRU 1999). Both China and India are water-stressed economies. The spread of irrigated farming and water intensive industries have led to severe struggle for more water. Both are in the era of perennial water scarcity. A large population, water shortages, ineffective water sharing and rising demands of middle class call for a stable source of water supply between two nations. Melting glaciers badly affect rivers originating in the Tibetan Plateau which leads to tension. In order to overcome hydrological unevenness, projects like the "South to North water diversion" was first proposed by chairman Mao in 1952 to reduce water shortages in the cities like Beijing & Tianjin. Later on faced with acute water shortage, China proposed for water diversion projects namely- the South-North Water Diversion Project and the Great Western Route Diversion Project. There are two components behind the planning of Yarlung projects. (i) to generate hydro Power (ii) To reroute the Brahmaputra's water to the dry yellow river in the North Western provinces of Xinjiang and Gansu.

Tibet is the source of major Indian rivers. It is the world's largest fresh water repository after the polar ice caps. The Tibetan Plateau serves as common source of water resources for

upstream dams, barrages and canal (Chellaney 2009). The Tibetan Plateau is the principal Asian watershed and source of ten major rivers. Four of the world ten rivers the Brahmaputra, Indus, Yangtze and Mekong have their head water on Tibetan Plateau. China's intensive farming needs water. Now China is emphasizing upon massive inter-basin and inter-river water transfer projects. China wants to re-route Brahmaputra water northward before the river enters India. The Brahmaputra is also the source of freshwater for China. The increased demand of fresh water has prompted the construction of dams and barrages by way of artificial structures (Rashid 2013). . China foremost desire is to reduce its reliance on fossil fuels. To meet future demand for energy, China aims to double its electricity generating capacity from 960 gigawatts in 2010 to 1,900 GW in 2020. Huge hydroelectricity projects for energy & water diversion schemes for food sufficiency are strategic to China's growth path (Sinha 2012). The high dependence on coal has also given the dubious distinction of being world's top emitter of green house gases. This factor necessitated to rethink on the "Scientific Development Concept" for a balanced and sustainable development. China's new energy policy then emphasized upon hydro and nuclear power.

The extraction of Tibet's untapped natural resources are supposed to fuel the economic engines of eastern China which will make backward Tibet forward, ensuring economic integration and stability. Developing hydro-power resources helps China to reduce the income gap between China's eastern provinces and its western regions. Selling electricity to its neighbours promotes cross border integration, which benefits the western China development programme. Apart from it, energy is key for tapping significant reserves of uranium, borax, chromite, Lithium, copper, zinc, iron etc in the TAR (Tibet Autonomous Region).

## **Indian Concerns**

Water is the lifeline for more than one billion people living down stream. The diversion of water heavily causes environmental devastation of India's north eastern plains. North India would be starved of its lifeline. China has used water as a political weapon against India. The Chinese projects constitute an imminent threat to India's water security. The management of water through river projects was not water storage, but deadly flash floods. Nutrient-rich

sediments that enrich the soil of these regions would be held back in the reservoir instead of reaching the river's delta. A water war could ensue (Arpi 2003) China is a country which is not interested in addressing the water issue faced by India. It thinks that it is not a problem at all. It hardly considers the ecology and economic future of North-Eastern states of India. China's discrete water utilization and water committal approaches are equally provocative. China's thirst for water is so intense that it will leave other lower riparian states thirsty, according to analysts (Sinha 2012).

People of North east were depending on its water for agriculture. Now by this project, Indian farming became vulnerable along with frequent environmental hazards. Reduction in water discharge of Brahmaputra has added to the problems of poverty, migration, violence and social instability. It could give more strategic leverage to China than India. An officially blessed book published in 2005, *Tibet's Water will save China (2005)* openly championed the north ward re-routing of the Brahmaputra (Chellaney 2009). India has been reeling under the perennial fear of China. If water is stored in the upper stream by China, there will be less water flowing, causing negative effects on water use for its industrial and agricultural sectors. In respect of control of allocations of water means, China will exert substantial economic influence upon the rising South Asian power. If it draws off water in the reservoirs on the YarlungZangbo River, it wills swampland. India contents that China will probably carryout interceptions during dry seasons and discharges during rainy season as means to impose pressure on Indian government. India will remain at the mercy of upper riparian China.

Beijing gave no notice to the Indian Government in building the \$ 1.2 billion Zangmu dam on Brahmaputra. China always chooses to remain secretive on diversion issue. If China continues in constructing dams in the upper reaches of the Brahmaputra, it would surely affect the downstream areas in North-East India. The depletion of water resources would cause an adverse impact in the agriculture, fishing and in total the economy of the region. If China goes building projects on Brahmaputra River, it will not only affect its neighbours, but also a regional instability in South Asia and water crisis. Lack of transparency and lack of water sharing treaties are major concerns for India. The silent water war can become a reality. China's expertise & knowledge of dam building facilitates to widen its power & influence & weakens lower riparian coalitions.

China disturbs the status quo in international water flows by way of construction of mega-dams, causing serious implications for South-Western neighbour. It has erected more dams than the rest of the world combined. The construction of dams is ecologically unsafe with serious and disastrous consequences (Li 2005 and Chellaney 2011). China is the world's most prolific builders of hydropower dams and is the source of 10 major rivers flowing to 11 countries. The conflict over water resources may escalate the situation into potential intensified controversy. China is a country which adopts unilateral approach in the construction of dams without consulting other countries about how a new dam may affect them. It does not address its neighbour's concerns. The China's neighbours have water agreements among themselves, but no one has made any water treaty with China (Chellaney 2011). China does not consult any co-riparian state before starting any geopolitical progression. It fails to understand the nuances of downstream affects on the lower riparian countries by hydro-projects on upper reaches of river. It denies adopting any bilateral mechanism showing its self interests in water course. It uses water as a political tool to attain the unrivalled water hegemony in the region. India's high-levelled edginess stems from China's opaque position. China treats water as an essential strategic commodity by building engineered hydro-projects (Hukil 2013).

China is driven by energy thirst. China is the largest industrial water consumer with 120 billion cubic meters a year. Water is becoming an aspiration for prosperity. Beijing's continuous interest for establishing its leadership in water domain has exacerbated the fractious and uneasy relationship to a more potential form. China is seen as a water hegemonic power. Sharing of the trans-boundary water resources is a huge challenge to the harmonious Sino- Indian relations. The construction of dams is a calculated strategy by China to exert control over its resources at the expenses of other riparian countries. China tries to treat water for ensuring sustained economic growth, political and social stability. Unilateral Chinese harnessing of resources causes a political discord between two Asian giants and water has become a potential source of enduring discord. China does not have a single water treaty with any co-riparian country. It rejects the very concept of water sharing. It sets up water diversion structures in its borderlands, spurring unease and concern in downriver countries. China is now confronting diplomatic challenges in a region where it had worked to project an image of benevolence and brotherhood. China is always opaque in its hydro-engineering plans, refusing to share information. Water has become an apple of discord and a

security issue in Sino- Indian relations. The Indians government has frequently been insisting China to share hydrological information, transparency and not to redirect the natural flow of water, but it has proved of little value (Chellaney 2009). China plan is to acquire great power leverage over India, worsening the tension between two Asian giants (Gordon 2009).

## **Chinese Concerns**

According to the Chinese, the Indians protest China in the case of building dam projects on the Brahmaputra to gain sympathy and support from the international community. The Chinese development projects do not impede the flow of river. India prevents China from developing Tibetan water resources (Zhifei 2013). The security fears of India are exaggerated propaganda. China also wants to share its water, hydroelectricity with its neighbours. The construction of dams are meant for downstream countries also as they will be benefitted out of it. In order to bolster its control over the disputed Arunachal Pradesh, India is building reservoirs on the Brahmaputra River. It has already set up dozens of hydro power stations to reinforce its actual control and occupation in the disputed area (Patranobis 2013). The Chinese scholars believe that India is greedy and water from the tributary rivers on its side of Himalaya frontier should be adequate. India wants deliberately to make China a water security threat .It has been asserted that Delhi has no legitimacy to demand China's restraint as it used large volumes of water (Holslag 2011). China sees hydro power as a key resource for responding to energy shortages which is an impediment to economic growth (Rosenfield 2010).

There are signs of increasing desertification of Northern China .Around 500 million people living in northern region get access to only one fifth of total fresh water in China whereas Southern part gets four fifth of fresh water with a population of 700 million. To set this imbalance right, China needs to bring in sufficient water to its northern region from all possible sources (Mishra 2010). China has assured India that it would ensure protection and rational use of water resources in the trans-Himalayan Rivers that flow to India from the upper reaches of Himalayas on the Chinese side. With an average elevation of about 4000 meters, the system will provide electricity and prove to be a useful mechanism in flood control methods. China upholds the principle of "Prior Appropriation". For China, the

building of the dam is merely a run-of-the river water project aimed at generating power that will not hold the water of the lower riparian states. This hydro project "is not of a big capacity and has no need for storage of water and it will not affect the ecology and environment". The Chinese government always adheres to the principle of fairness, reasonableness and equal attention to development and protection of the interests of the lower stream regions (The Economics Times 2012).

### **Confidence Building Measures**

In 1954, both countries signed a MoU to share hydrological data but the border war 1962 halted the progress. In 2002, A MoU was signed for five years to help in forecasting floods caused by Brahmaputra in this North Eastern India. In accordance with the provisions of MoU, the Chinese side provided hydrological information (Water level, discharge and rainfall) in respect of three stations namely Nugesha, Yangcun and Nuxia located on river Brahmaputra from the 1st June to 15<sup>th</sup> October every year through e-mail twice a day. Both nations have not shown any interest in 1992 United Nations Economic Commission for Europe (UNECFE). Another MoU was signed in April 2005 for supply of water flow information in respect of Satlej in the flood season. In 2006, during Chinese president's visit to India, an agreement was made for setting up an Expert-level-Mechanism (ELM) to discuss interaction and co-operation on the provision of flood season hydrological data, emergency management and other related issues (Raul 2013). According to recent MoU (2013) both will exchange views on issues of mutual interest. The main concern for India is not only the Yarlung project in Brahmaputra water, rather the China's effort of diverting the water to its arid Northern areas. In October, 2013, Prime Ministers of both countries agreed to strengthen their co-operation on the trans-border Rivers through the existing Expert level Mechanism to provide flood season data and emergency management. Under the new agreement, the Chinese side agreed to provide more flood data of Brahmaputra River from May to October instead of June to October that was in practice beforehand.

## **Need of the Hour**

Both China and India have been plagued by drought and shortage of drinkable water. The water shortages in two countries present a large threat to food security. Both leaders of two nations seem to recognize these new challenges. Both need to develop water sharing agreement. China, India and Bangladesh should design a comprehensive river basin plan to control geological disasters and impact of the hydroelectric projects. The impact of ecosystem tipping points is also highly devastating beyond our current knowledge. Keeping this thing in view, adaption strategies and adaption action plans need to undertaken collectively. An integrated dialogue is called for managing & reducing disaster along with the use of technology & resources. The security forces of both countries should be deployed in the border areas for the early reporting of any serious ecological changes found in the region. There is a greater necessity for undertaking collaborative scientific studies on glacier melting & its effects on the flow of river (Gautam 2012).

There is a necessity to redefine Tibetan water sources as a 'commons' that would draw international attention & encourage China to get into a water dialogue with downstream countries. India needs to put forward a strong case to China, based on the ecological, cultural and livelihood sustenance, the river provides the lacs of people down-stream (IDSA 2010). It is equally important for India to frame policies that are not reactive but perceptive. It is need of hour for India to present the issue multilaterally by involving Bangladesh, not bilaterally. India should leave no stone unturned to draw China into a water dialogue diplomatically (Sinha 2012). There is a need to set up mutual scientific and technological partnerships to optimize water efficiency, environmental protection and conservation strategies. As the international laws are weak in the governance of water, the best way for India to manage hydro-politics with China is through co-operative approach and institutional mechanism. Utilizing water resources in collaboration with neighbours may indeed promote win-win solutions. A joint hydroelectric dam can be shared benefits to all lower riparian states and upper riparian states. Cooperation can be driven by benefits from the river and to the river through joint multipurpose projects, improving the management of water resources, monitoring changes in glaciers, coping with floods and strengthening natural disaster management. Emphasizing options for co-operation at various levels may broaden the basket of potential benefits to both upstream and downstream countries (Svensson2012).

To moderate competition and build value-based co-operation, institutional mechanisms are most essential at bilateral or basin-wide level as there is no international treaty presently in effect. There are no practical enforcement mechanisms internationally available to prevent any country from materially altering cross border flows of a transnational water course through dam building. That is why it is important to build co-operation on the basis of jointly agreed rules. Inter country water institutions based on the international norms of fair utilization would help in facilitating constructing dialogue and structured co-operation. Although such co-operation is a daunting task, still such collaboration is necessary for maintaining the sustainability of basin resources, strategic stability and environmental protection (Chellaney 2012). Such co-operation needs to be based on transparency, information sharing, dispute settlement mechanisms and a mutual commitment to refrain from projects diminishing water flows.

## **Conclusion**

Water conflict is a Sword of Damocles hanging over the heads of Asian giants. Something has to be done before the catastrophe of conflict clasps the beautiful creation. Efforts should be continued to douse the conflict before it takes intense form. The governments of both countries should try their best to check protests over the construction by the people, creating sufficient awareness camps (Hussain Undated). A large population needs for national water resources and ineffective water sharing policies have triggered up the potential conflict between two Asian neighbours. The leaders of both countries have identified the importance of water security. Water should become a source of co-operation, not of conflict. It is time to have a water treaty between Asian giants based on sharing of information, thought, mutual understanding that will dispel the suspicion and develop trust and entente between the two countries. Diplomatic channels and bilateral arrangements will serve the purpose in the due course. In case, the negotiations for amicable settlement falls flat, the issue should be raised at UN Security Council as the lives of millions of people are in danger. The 2010 SFG report had suggested for the formation of a Himalayan Rivers Commission to create a peaceful and multilateral approach to tackling overall water shortage. But India, China and their neighbours are yet to agree on a coordinated approach so far. There is neither bilateral agreement on water sharing nor any supervening international law to regulate such activity. In this situation, both nations are required to discuss the issue in order to reach a satisfactory

agreement. The need for consultation and accord on specific projects has become more important on water sharing.

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