



## Asia's Coming Water Wars

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By Chietigj Bajpae

While the world's attention is focused on record high oil prices, water, like oil, is increasingly emerging as a catalyst for international instability and conflict as the recent upsurge in violence in Sri Lanka illustrates. On July 20, the Liberation Tigers of Tamil Eelam (L.T.T.E.) shut down the Maavilaru dam's sluice gate near the town of Kantalai in the northeastern Trincomalee district, which cut off water supplies for 60,000 people in government-controlled areas. This led the Sri Lankan military to commence an aerial bombardment of Tiger positions and a ground offensive to gain control of the reservoir's control point. The Tigers claim that their actions were sparked by the government's failure to build a water tower to supply L.T.T.E.-controlled areas and responded by going on the offensive in Mutur. With more than 500 people killed since fighting erupted over the disputed waterway, the 2002 ceasefire has now collapsed in all but name.



Tamil Tigers Emblem

Water is increasingly emerging as a scarce commodity, fueled by population pressures, intensive irrigation, and erratic weather patterns brought on by global warming. According to the International Water Management Institute, by 2025 one-third of the world's population will lack access to water. Developing countries bear the brunt of water shortages given the lack of clean drinking water and adequate sanitation in these states, which has been exacerbated by rapid development, population pressures and significant urban-to-rural migration. Developing countries are also the most likely to face water-related conflict given the lack of cooperative management mechanisms between developing states on managing shared water resources.

Of the world's 263 international basins, three-fifths lack a feasible cooperative management framework. While water disputes alone are not likely to spark a conflict, they are likely to fuel already existent, long-standing tensions within and between states. Since 1948, close to 40 incidents of hostilities have taken place over water resources, most of which have taken place in the Middle East. In the Middle East, the Jordan River Basin and the Tigris-Euphrates Basin are the regions most prone to water-related conflict, while in Africa the Nile River, Volta River, Zambezi River, and the Niger Basin are conflict-prone zones.

In the 21st century, however, Asia may emerge as the new focal point of water-related conflict given the rapid growth of the region, which is likely to put pressure on water resources, coupled with the concentration of long-standing internal and inter-state tensions, which can act as a spark for turning water-related disputes into full-scale conflicts. Asia is home to 57 international basins, the third largest after Europe and Africa.

In Asia, three regions are the most likely candidates for water-related conflict: Central Asia, South Asia and the Mekong sub-region in Southeast Asia. Central Asia's water fault-lines include the division of the Caspian Sea between the five littoral states (Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan) and a dispute over access to water from the Syr Darya and Amu Darya rivers between upstream states (Kyrgyzstan and Tajikistan) and downstream states (Kazakhstan, Turkmenistan, and Uzbekistan).

South Asia's water tensions include the Indo-Pakistan dispute over the Wular Barrage, Indo-Bangladesh water dispute over the Farakka Barrage and the Indo-Nepal dispute over the Mahakali River Treaty.

In Southeast Asia, water-related tensions arise from attempts by the six riparian states (Cambodia, China, Laos, Myanmar, Thailand, and Vietnam) to construct dams in order to reroute the Mekong River system. While management systems have been established for these disputes – such as the Mekong River Committee (1957) and its successor the Mekong River Commission, the treaties of Sarada (1920), Kosi (1954) and Gandak (1959) between India and Nepal, the Indus Water Treaty between India and Pakistan (1960), the Ganges Waters Treaty

between India and Bangladesh (1977), and the 1998 "Agreement on the Use of Water and Energy Resources of the Syr Darya Basin" between Kazakhstan and Uzbekistan -- they have been poorly enforced.

Furthermore, all three regions are plagued by long-standing historical animosities and internal instabilities and water disputes serve to focus these tensions. The fact that these river systems run through multiple countries -- notably the Aral Sea, Ganges-Brahmaputra-Meghna and Mekong Rivers are each shared by at least five states -- creates the potential for regional conflict over water.

### **Mekong River Delta: Dams a Barrier for Cooperation**

The Asian Development Bank launched the Mekong Sub-region project in 1992 as an initiative aimed at promoting development, trade and integration through enhancing transportation, communication, and power networks between the six countries in the region. The Mekong region covers over 2.3 million square miles and is home to 240 million people. The 4,880 kilometer (3,032 miles) Mekong River begins in the Tibetan plateau, and makes its way through China's Yunnan province, Myanmar, Laos, Thailand, Cambodia, Vietnam and discharges out into the South China Sea. Close to 70 million people depend on the river for food, water and transport and the region accounts for 20 percent of all fish caught from the inland waters of the world.

While the world's attention is focused on the Three Gorges Dam, which was completed in May 2006, less attention has been paid to a number of other massive dam projects under construction or consideration in China. China's dam-construction binge has been fueled by its growing energy needs, the appeal of hydropower as a clean fuel, the need for flood control, as well as the interest in massive infrastructure projects by provincial governments in order to boost their growth figures.



Three Gorges Dam

Sixteen percent of China's electricity generation comes from hydropower, with a government survey putting China's hydropower potential at 700,000 megawatts. China currently has more than 85,000 dams, close to half of the world's total. More than 16 million people have been displaced as a result of the construction of these dams and tensions have been further fueled by the lack of public participation in evaluating the environmental impact of these projects and determining compensation for relocation.

In the Upper Mekong Basin in Yunnan Province, China has planned to construct eight cascade hydropower dams, the first of which, the Manwan Dam, was completed in 1996. This has diverted water from downstream countries in the Mekong River Delta, resulting in irregular fluctuations in water levels, which has harmed local industries in the region, including farming and fishing in Cambodia and Thailand, and the tourism industry in Laos.

The environmental impact of China's Mekong River policy is being further felt by its US\$20 billion proposal to build a canal across Thailand's Kra Isthmus to transport petroleum from Thailand to southern China. This initiative is being encouraged by China's desire to bypass the narrow Strait of Malacca, through which 80 percent of China's oil imports currently transit, which Beijing views as a strategic vulnerability given that the waters are a hub for piracy and potential terrorist attacks and patrolled by the U.S. Navy. However, an oil spill along this waterway would devastate the ecosystem of the Mekong River as well as the economies of the region that depend on the river for their livelihood.

Beijing has been slow in sharing information on its river diverting projects along the Upper Mekong Basin. While China claims to support multilateralism, it has refused to join the four-country Mekong River Commission (M.R.C.) comprising Cambodia, Laos, Thailand and Vietnam, although both Myanmar and China are Dialogue Partners. The M.R.C. was established in 1995 as the successor to the 1957 Mekong Committee (Committee for Coordination of Investigations of the Lower Mekong Basin) to ensure the equitable use of the river system as well as addressing issues of fisheries management, safe navigation, irrigated agriculture, watershed management, environmental protection, flood management and hydropower development.

Following in the footsteps of China, other countries in the delta have also pursued a unilateral approach toward projects along the river system -- Vietnam has engaged in several dam construction projects without consulting with Cambodia, as has Laos. Coupled with long-standing

historical animosities between states in the region such as between China and Vietnam and Thailand and Myanmar, as well as internal frictions caused by poverty and a number of long-standing insurgencies, water disputes act as a potential catalyst for regional conflict.

### **South Asia: Holy Rivers and Holy War**

Three of the seven South Asian states -- Pakistan, Bangladesh and Nepal -- are involved in water sharing conflicts with India. These conflicts are exacerbated by the fact that these countries are mainly agrarian economies.

Tensions between India and Pakistan are focused on their territorial dispute over Kashmir, Pakistan's alleged support for terrorist attacks in India and historical animosities emanating from the partition of the Indian subcontinent. Water disputes between both states, however, offer a potential catalyst for conflict. The Indus River system is the largest, contiguous irrigation system in the world with a command area of 20 million hectares and an annual irrigation capacity of over 12 million hectares. The headwater of the basin is in India.

Although the Indus Water Treaty of 1960 has tempered disputes between India and Pakistan over the river system, it has failed to resolve their long-standing dispute over the Wular Barrage. Since 1985, Pakistan has objected to India's Tubul Navigation Project on the River Jhelum. Pakistan claims that India has violated Article I (11) of the Indus Waters Treaty, which prohibits both parties from undertaking any "man-made obstruction" that may cause "change in the volume of the daily flow of waters" and Article III (4) which bars India from "storing any water of, or constructing any storage works on, the Western Rivers."

Furthermore, Pakistan regards India's control of the River Jhelum as a threat to its security should India decide to withhold the water. The Indus Waters Commission has failed to resolve the issue and it has been on the agenda of the Indo-Pak talks at Lahore in February 1999, the Agra Summit of July 2001, and part of the Composite Dialogue initiated in January 2004.

Meanwhile, on its eastern borders India is also engaged in several water disputes with Nepal, Bangladesh and China. The Ganges-Brahmaputra-Meghna region comprises the catchment areas of three major river systems that flow through India, Nepal, Bhutan, China and Bangladesh. This system is second only to the Amazon with an annual discharge of 1,350 billion cubic meters and a total drainage area of 1.75 million square kilometers. With a population of over 600 million people living in the region, which is growing at an annual rate of two percent, there is considerable pressure on the region's resources.

The Mahakali River flows along the Nepal-India western border. The river was fixed as the western boundary between Nepal and British India in 1816. Nepal's rivers have the potential to generate 83,000 MW of electricity through hydropower generation, most of which could be exported to India to meet its growing energy needs -- northern India currently faces a power deficit of 9,500 MW, which is expected to rise to 20,000 MW by 2010. Although both states have reached numerous water-resource development agreements, Indo-Nepali cooperation on the river systems has been slow.

Tensions grew following India's construction of the Tanakpur Barrage on the Mahakali River in 1998. This was based on a memorandum of understanding that was signed between both states in 1991 and renegotiated as the "Integrated Development of the Mahakali River including Sarada Barrage, Tanakpur Barrage and Pancheswar Project" in 1996. The treaty has not only soured relations between India and Nepal but also enflamed internal Nepalese politics as the Nepali Congress and United Marxist Leninist party have accused each other of selling out Nepal's interests under foreign pressure. Discussions have raged over the interpretation of the treaty, the presence of Indian troops in disputed upstream territory, the issue of water rights, the selling price of electricity, the environmental impact of the infrastructure project and the displacement of as many as 65,000 people as a result of the project.



Tanakpur Barrage

Water-related tensions in South Asia, however, are greatest between India and Bangladesh. Tensions between Bangladesh and India emanate from the disputed status of their border, illegal migration and Bangladesh's alleged support for militant groups operating in India's northeast, coupled with rising Islamic fundamentalist sentiment in Bangladesh under the Bangladesh National Party (B.N.P.)-led government. These tensions have even led to skirmishes between India's Border Security Force and the Bangladesh Rifles, as occurred most recently on Bangladesh's border with Assam in August.

Water disputes are likely to enflame these tensions given that 54 rivers flow from India into Bangladesh. Although the Joint Rivers Commission was established in 1972 as the facilitating body to resolve trans-boundary water disputes between both states, which was complemented by the Ganges Water Agreement in 1977, several water-related disagreements continue to exist between both states.

First, each has accused the other of causing the erosion of riverbanks that mark the 180 kilometers (112 miles) of international boundary between the states as a result of constructing concrete embankments. Second, Bangladesh has accused India of reducing water flow along the River Ganges, known as Padma in Bangladesh, as a result of the 1970 construction of the Farakka Barrage across the Ganges. Dhaka has also accused Delhi of being slow in sharing data regarding river flows for flood control purposes. Bangladesh has also opposed India's plans for a \$15 billion project to link rivers across the country in order to provide excess water in the north to water-deficient states in the south, which Bangladesh claims will affect river flow through the Brahmaputra and Ganges rivers systems into Bangladesh.

Tensions have been further fueled by Bangladeshi political parties using water-related tensions with India to gain electoral support, with the B.N.P. using the issue of water to discredit the opposition Awami League, which signed several treaties with India when it was the ruling party. Finally, the states have differed in their approach toward addressing water disputes, with India favoring a bilateral approach while Bangladesh has favored a multilateral approach. This was illustrated at the recent conference on "Trans-boundary Water Issues: South Asian Cooperation" organized by the International Farakka Committee (I.F.C.), where Bangladesh proposed a basin-wide approach to addressing water disputes through the creation of a Ganges River Commission or Brahmaputra River Authority involving Bangladesh, India, China, Nepal and Bhutan.

There are concerns over China's diversion of rivers from Tibet to South Asia, such as the Indus, Sutlej, and the Brahmaputra, which are critical to Bangladesh, India, Myanmar and Pakistan. India has accused China of being slow in sharing information on the status of the rivers in the run up to landslides, which have caused flooding in northeastern India and Bangladesh. Beijing's construction of a barrage along the Sutlej/Langqen Tsangpo and dams along the Brahmaputra/Sang Po has also concerned Delhi, as it will allow Beijing to control and regulate the flow of water into India. The lack of any formal water-sharing agreement between Delhi and Beijing due to their disputed borders has contributed to Sino-Indian tensions over water.

Sino-Indian relations have shown significant improvement in recent years fueled by their burgeoning trade and investment relationship, direct transport links, and China's recognition of Sikkim as Indian territory as a quid pro quo for India's recognition of Tibet as Chinese territory.

Nonetheless, both states' rapid growth and rising middle classes have translated into a growing global competition for resources, most notably oil and gas but also water. Water disputes coupled with suspicions emanating from India's improving relationship with the United States, China's long-standing relationship with Pakistan, and both states' quest for regional and global prominence threaten to sour any rapprochement between Asia's two rising powers.

### Central Asia: The "Great Game" Over Water

While international attention on Central Asia has tended to focus on its oil and gas reserves and its role in the war on terrorism, the region is also home to several long-standing water disputes, which have the potential to escalate the region's instabilities.

While Central Asia is rich in water resources, more than 90 percent is concentrated in Kyrgyzstan and Tajikistan where the region's two main rivers, the Syr Darya and Amu Darya, originate. Meanwhile, Uzbekistan and Kazakhstan are the region's main water consumers with Uzbekistan alone consuming more than half of the region's water resources. As such, Kyrgyzstan and Tajikistan control the water needed by the other Central Asian states. The upstream states, however, view water as a strategic commodity as they are poorly endowed with other resources and use water to generate much of their own power needs.



Syr Darya and Amu Darya

The region's growing water consumption emanates from the 1960s during which time the Soviets constructed an extensive network of canals and reservoirs in order to increase cotton production in the region. Under Soviet rule, power grids in the region were integrated under a single network so that upstream states could export electrical power to downstream states during the winter, and import from them during the summer when water was drawn for cotton production.

With the independence of the Central Asian republics, frictions have arisen over the breakdown of the Soviet system. Water flow to downstream states has fallen, significantly affecting cotton production and cooling needs during the summer, while downstream states have not met the gas and coal needs of upstream states, especially during the harsh winters. The region's growing water consumption has also reduced water levels in the Aral Sea, which is fed by the Syr Darya and Amu Darya river systems. Although the states established the Interstate Commission for Water Coordination in 1992, they have failed to implement an effective water management mechanism. Combined with inter-state tensions over disputed borders, great power competition over the region's energy resources and internal instabilities emanating from rising poverty, authoritarian rule and religious extremism, water disputes have the potential to tip the region into conflict.

A further source of instability emanates from the lack of agreement on the legal status of the Caspian Sea between the five littoral states (Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan). The Caspian Sea is the world's largest inland body of water. It is rich in sturgeon, which is harvested for the production of caviar, as well as hydrocarbon reserves, with total oil reserves (proven and possible) at 235.7 billion barrels and gas reserves (proven and possible) at 560 trillion cubic feet, according to the U.S. Energy Information Administration.

Prior to the collapse of the Soviet Union, the Caspian Sea was divided between Iran and the Soviet Union on the basis of the Friendship Treaty of 1921 and the Treaty of Commerce and Navigation of 1940, although some issues remained unresolved such as the protection of the local environment and development of resources on the seabed. It also failed to distinguish whether the Caspian was a "sea" or "lake," the former of which would lead to an equidistant division of the body of water under the United Nations Convention on the Law of the Sea while the latter would lead to joint development, characterized as the condominium approach.

Following the Soviet collapse, the six littoral states have adopted differing positions on the status of the Caspian, which have shifted with the growing importance of energy resources in the region. Notably, Russia, Kazakhstan and Azerbaijan have favored sharing the surface waters and dividing the seabed based on the principle of the median line, which has been opposed by Iran and Turkmenistan. Furthermore, Russia has favored a bilateral "phased" approach in resolving the dispute while Iran has preferred a multilateral condominium approach whereby all five littoral states collectively agree on developing the resources on the seabed, with either joint development or equal division of the sea. By dividing the sea using the median line approach, the seabed would be divided between Kazakhstan, Azerbaijan, Russia, Turkmenistan and Iran as 28.4 percent, 21 percent, 19 percent, 18 percent and 13.6 percent respectively; under the condominium approach favored by Iran, each state would receive 20 percent of the seabed.

Tensions have been further fanned by the emergence of the region as a global energy flashpoint. With the inauguration of the Baku-Tbilisi-Ceyhan crude oil pipeline in July 2006 and discussions to extend the pipeline to Kazakhstan, the United States has a vested interest in supporting Azerbaijan's and Kazakhstan's positions in the Caspian Sea dispute. Meanwhile, Russia has opposed this pipeline project, which undermines its monopoly on transporting energy resources from the region while both Iran and Russia have voiced concerns over the growing U.S. presence in their backyard.

## **Conclusion**

Approximately 20 percent of Asians do not have easy access to water while almost 60 river basins in Asia have been identified as potential flashpoints for inter-state conflict according to a joint study by the United Nations and the University of Oregon. The rapid development, growing populations and long-standing inter-state and internal instabilities in South Asia, Central Asia, and the Mekong Sub-region in Southeast Asia increases the likelihood of water-related conflict in these regions and makes any water-related tensions in these areas of wider regional and potentially global significance.

The development of international water dispute mechanisms has been slow, as evinced by the fact that the "1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses" has failed to muster the 35 votes needed for it to take effect. This gives added importance to those pushing for the development of a pan-Asian multilateral system for arbitration on inter-state water disputes. As the recent conflagration of hostilities in Sri Lanka demonstrates, water disputes can add fuel to the fire of long-standing historical animosities.

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