

The State of Environment on the Tibetan Plateau and its Consequences for India

With an average elevation of 4500 meters, the Tibetan Plateau is one of the most distinctive land-feature on this earth. For many generations, this Plateau has met the basic necessities to sustain life and flourish human civilisations beyond its vast border. The modern era now begins to realise the significance of its strategic location for developing peace and harmony within the region or the opposite. As referred by many scientist and intellectuals as the barometer of Asia, this vast plateau warms faster than the oceans, drawing moist air from the Indian Ocean and helps to generate and regulate the monsoon in India during the summer season. However, worrying factor for all of Asia is a documented shift in the annual summer monsoon season. Experts say that the monsoon is declining in intensity and has become more variable.

Tibet also referred, as "The Third Pole" and "The Water Tower of Asia" is the headwater of major rivers that flow into India, Bangladesh, China, Nepal, Pakistan, Thailand, Myanmar and Vietnam (figure 1). The snow peaks and glaciers enable Tibet to be the source of major rivers that flow into Asia. As a result, approximately about 47 percent of the world's population live in the watersheds of the six major rivers that originate in Tibet.



Figure 1: Water tower of Asiaⁱ

With the major Asian rivers originating from its plateau, the total river basin area (as of 2003 data) is estimated above 5,477,700 sq km. That is 3% of the land surface of our planet. Beyond the populations residing in the watersheds of these rivers are the additional hundreds of millions or billions who depend on monsoon rains drawn inland by the Tibetan Plateau. The Plateau provides Asia's fresh water resource from the deserts of Pakistan and India to the rice paddies of southern Vietnam, from the great Tonlesap lake of Cambodia to the North China plain.ⁱⁱ

The Water Tower of Asia is currently facing a huge challenge to cope with the climate change and damming activities. In recent years, Tibet has seen a continuous rise in temperatures at the rate of 0.3 degree Celsius per decade, which is twice the global average temperature rise. Increased temperature has accelerated glacial shrinkage and has accelerated the degradation of permafrost regions. According to the Chinese Academy of Science, glaciers on the Tibetan Plateau are melting at a rate of 7 per cent annually and if the current rate continues, two-thirds of the glaciers on the plateau will be gone by 2050.

The International Centre for Integrated Mountain Development (ICIMOD) has revealed alarming details on the sustainability of the Himalayan ecology. According to their findings, the current trend of melting suggests that the Ganges, Indus, Brahmaputra and other rivers across the northern India plains could most likely become seasonal rivers in the near future.

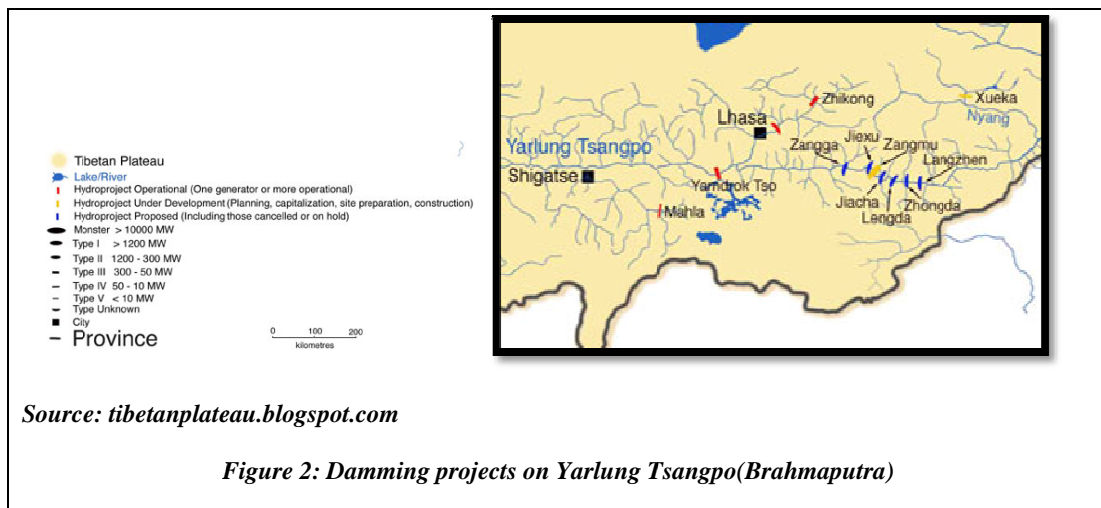
The formation of glacial lakes as a result of the rapid melting of glaciers on the higher reaches of the mountain ranges continues to pose a serious threat to livelihood downstream. ICIMOD has identified some 8,790 glacial lakes in parts of the Hindu-Kush Himalayas out of which, the organisation has

confirmed 204 glacial lakes as 'likely to burst'. The sudden discharge of a large volume of water with debris would lead to massive floods known as the glacial lake outburst floods (GLOF).

Around 15 GLOFs have been recorded in the Tibet Autonomous Region alone between 1930 and 2002. Debris from nine of those GLOFs entered Nepal and India and caused serious loss of life and assets. For example, on April 9, 2000, a large landslide in the Bomi area in Kham formed a landslide dam on the Yidwong Tsangpo (Chinese: Yigong Zangpo)-a tributary of Yarlung Tsangpo (Brahmaputra). On June 10, 2000, the dam breached resulting in flash floods which caused the death of 30 peoples and the disappearance of more than 100 peoples. This flash flood in five downstream districts of Arunachal Pradesh (Eastern India) left behind 50,000 peoples homeless and damaged more than 20 bridges. The total economic loss was estimated at more than 1 Billion Rupees (22.9 million USD). Similarly, Pareechu, a tributary of the Sutlej was blocked by a massive landslide in the Tibet, forming an unstable rockfall dam. In the years 2000 and 2005, the Pareechu lake burst in Tibet, causing heavy destruction of livelihoods, infrastructure, and socio-economic assets downstream, particularly in Kinnaur and Shimla districts of Himachal Pradesh (Northern India).

A grandiose diversion project revealed in a book by a retired officer of People's Liberation Army, Li Ling, aims to divert water from the Brahmaputra to the parched areas of northern China. Scientists have confirmed that this project, if implemented, could pose immeasurable challenges to both the environment and human population.

After much denial, Beijing finally disclosed the construction of Zangmu dam on Brahmaputra. A China Daily story in March 2009ⁱⁱⁱ acknowledged that the "Zangmu Water Power Station" is on the main stream of the middle reaches of Brahmaputra. There are more dams (figure 2) planned in this section of the river, and construction has been going on since 2006. The installed capacity of 'Zangmu Water Power Station' will be 510 MW (85 MW x 6 turbines). The project is located in Lhokha (Shannan) Prefecture of Tibet Autonomous Region, about 140 km southeast from Lhasa, between Zangs-Ri (Sangri) and Gya-Tsha (Jiacha) counties. Huaneng, China's top power company is backing the financing of the project and, Gezhouba, one of China's biggest dam construction companies, will build the project. Such news should be particularly alarming for people living in downstream countries of India and Bangladesh. China is likely to approve more dam projects on the Brahmaputra and its tributaries this year. There is repeated speculation about China planning to build dam at the Great bend from where the Brahmaputra takes a sharp U-turn, forming the world's deepest gorge, an area reported to have hydropower potential of 38,000 Megawatt.



Source: tibetanplateau.blogspot.com

Figure 2: Damming projects on Yarlung Tsangpo(Brahmaputra)

Chinas' frenzy of dam building can be observed from their record of dam building in the past fifty years. According to the World Commission on Dams, China had only 22 large dams in 1949 and by 2000 the number had increased to 22,000 dams. In 18,000 days China constructed about 20,000 dams and just recently the Chinese government announced that they were going ahead with their plans of building one dam equal to the Three Gorges dam each year for the next 10 years.

On March 5, premier Wen Jiabao presented his “government work report” during China’s annual parliamentary session in Beijing, revealing the key goals of the country’s 12th Five-Year Plan (FYP 2011 - 2015). Apart from other grand visions to cut energy and carbon intensity, China also aims to boost the proportion of non-fossil fuels in primary energy consumption to 11.4 per cent. After the Japanese nuclear tragedy and the subsequent freezing of further approvals of nuclear projects in China (*at least for few years*), this statement is in fact a green signal for the dam construction companies to invest more on the Tibetan rivers and to meet the energy target (*see box information*).

Box 1. Hydropower development on the Yarlung Tsangpo

Behind the scenes, preparations for hydropower development on the Yarlung Zangbo have been constant. In a recent media interview, Zhi Xiaoqian, head of the Chengdu Surveying Institute, said that plans had been drawn up for all of Tibet’s major rivers, including the middle reaches of the Yarlung Zangbo. But a lack of clear policy direction has meant approval for those plans has been slow and the projects have not commenced. “Now the time and conditions are ripe. China’s energy supply is becoming ever more pressured, and there’s an urgent need to develop the rich hydropower resources of Tibet,” Zhi said. Currently less than 0.6% of Tibet’s hydropower resources have been developed. In comparison with the rest of China, this is virgin territory.

-Source: Chinadialogue.net

Worldwide Fund for nature (WWF) named the Indus River as one of the ten rivers at risk. The Indus which was already facing an acute shortage of water in its flow due to climate change suffered more obstruction after Beijing built a dam on the dying river without informing the downstream countries - India and Pakistan. Pakistan, where the river mainly flows, has people using its water in far less quantity than the minimum requirement as recommended by the UN for human health and survival.

Infrastructure development in Tibet is of immense significance to India as it would impact on Indian security concerns on its Northern and Eastern borders. The 1,142-km Gormo- Lhasa Railway line from Gormo to Lhasa became fully operational in July 2006. The railway line connects and integrates the Tibetan Plateau with the rest of China. The ultimate goal is to extend its railway to neighboring countries, so that they can extend a sphere of influence to south Asia. The line will not only ease the difficulty of supplying garrisons stationed along the frontier but also reduce military expenditure. This certainly poses a threat to the regional security balance. China has unveiled plans for extending Chinese national rail network to the Indian border. The planned railway included a line extending west from Lhasa to Shigatse which is scheduled to complete in 2013. According to Aditya Baral, the Nepalese premier’s foreign affairs advisor, China has started to build a rail link between Tibet and Nepal; railway line from to Khasa, a town along the Nepal-China border.

A healthy ^{iv} Tibetan Plateau would not only benefit the entire Asian continent but also it helps in promoting peace and harmony within the region, especially between two major emerging powers (India and China).

Endnotes

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ⁱ Michael Buckley, www.meltdowntibet.com

ⁱⁱ *Environment and Development Desk, 'TIBET, A Human Development and Environment Report' (2008), EDD, DIIR, Central Tibetan Administration, Dharamsala, HP, India, ISBN 81-86627-68-5*

ⁱⁱⁱ http://www.chinadaily.com.cn/bizchina/2009-03/04/content_7536617.htm

^{iv} *Healthy: In this context refers to an environment where nature and the spiritual sanctity of the landscape along with the local knowledge is respected for its purity and life sustaining potentials as has been for many centuries.*
