



THE WORLD'S 'THIRD POLE': TIBET AND CLIMATE CHANGE



The sacred Yilhung Lhatso, nestled in the midst of the Derge Trolha mountain range (image courtesy of Peter Hendricks)

Tibet, the world's largest and highest plateau, is referred to as the 'world's third pole' because it contains the biggest ice fields outside of the Arctic and Antarctic and is as important to the world climate as the two poles. The Tibetan plateau is warming twice as fast as the rest of the world and the impact of the now melting glaciers will be catastrophic. A Chinese saying claims that "Tibet's water will save China", as is the rivers flowing out of Tibet form a lifeline for millions of people downstream in China, India and other Asian countries. China's policies in Tibet are contributing to the warming of the plateau and excluding Tibetans from the stewardship of their land. The sustainable management of ecosystems and water has become a serious security issue in the region. The Tibetan plateau is:

- The source of the earth's largest river systems: An estimated 46,000 glaciers and hundreds of the snow-capped highest mountains on earth feed most of the biggest Asian rivers, including the Mekong, Salween and Yangtze. From Pakistan in the West to Vietnam in the East, these glaciers and mountains provide water for human consumption, irrigate farmlands, generate hydropower and provide food and water

for the rapidly increasing population and expanding industries across Asia, including India and China, the fastest growing economies of the 21st century.

- A unique repository of globally significant biodiversity: Tibet's vast plateau is divided into three ecological zones: high altitude steppe grasslands; the forests of the eastern and south-eastern plateau, and the mixed shrub and agricultural lands of south-central Tibet – all interspersed with high mountain ranges with extensive alpine zones and ice- fields. Tibet is the prime habitat of some of the world's rarest wildlife species such as the Tibetan antelope and the snow leopard, and home to more than 5,760 species of plants of which more than 1,000 varieties have commercial utility as medicinal herbs.
- Epicenter of global warming and climate change: The effects of global warming are more pronounced at higher altitudes and nowhere more so than the Tibetan plateau, which is warming twice as fast as the world, according to Chinese scientists.¹ The glaciers are melting fast and the impact on both the ecology of the region and human livelihoods



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would be catastrophic, not only for the Tibetan and Chinese people in Tibet, but also for hundreds of millions of people downstream. The melting of the glaciers means more flooding in the short-term and more drought and desertification in the long-term. It is widely believed that the massive landmass of the Himalayas is influencing climate and atmospheric changes not only in Asia, but also as far away as East Africa.

Tibet's high altitude, rugged terrain and harsh climate have resulted in the creation of sustainable systems of traditional agricultural and livestock rearing. Until now, as a result, Tibet's landscape and ecosystem has remained relatively intact. But China's policies of fast-track development based on an urban industrial model are damaging the fragile high-altitude ecosystem, threatening to severely alter the natural hydrological regime of the plateau, and depriving Tibetans of the stewardship of their land at a time of environmental crisis.

Scientists have warned that increased urbanization and infrastructural development (such as the Qinghai-Tibet railway that runs across shifting permafrost of the plateau) may be contributing to the adverse effects of global warming.²

The Chinese government has also been implementing policies of settling Tibetan nomads, confiscating their land, and fencing pastoral areas. These policies result in nomads losing their livelihoods and living in isolated encampments, and are intensifying poverty and leading to social and cultural breakdown of communities. They are also detrimental to Tibet's fragile ecosystem as they are threatening the survival of the rangelands and Tibet's biodiversity. Recent research suggests that

grazing can mitigate the negative warming effects on rangeland abundance and resilience.³ And there is a consensus among Chinese, Tibetan and Western scholars that the traditional ecosystem knowledge of nomadic pastoralists protects the land and livelihoods and helps restore areas already degraded. The involvement of Tibetan nomads is essential to sustaining the long-term health of the ecosystems and water resources that China depends upon.

The Tibetan plateau is of critical importance to the highly water-dependent societies inside Tibet and the millions of people downstream. The two Asian titans, China and India, are gaining economic and international heft in an era of serious water shortages and face the prospect that their modernization may stall as a result. Intra-state water disputes are already rife in several Asian countries.

China is now pursuing massive inter-basin and inter-river water transfer projects in Tibet which threaten to cause further damage to the plateau's fragile eco-system. China plans to build nearly one hundred dams across the Tibetan plateau and several water diversion projects to move water into northern and eastern China; these projects will disrupt already-overstressed water supplies of hundreds of millions of people in south and southeast Asia. China's neighbors downstream view these plans with increasing disquiet.

The impact of climate change and ecological depletion on the Tibetan plateau is not a regional but a global issue. Cooperation is essential – among scientists as well as governments and local people. The Dalai Lama has stressed the importance of raising awareness about the crisis and the important role, played by both Chinese scientists and Tibetan people living on the land.

¹ An average temperature increase by 0.32 C every ten years and an average precipitation increase of 6.6 mm every ten years was recorded in TAR from 1961 to 2012, namely the temperature went up by 1.6 C and the precipitation increased by 33 mm in the past more than 50 years, according to a climate change monitoring report issued by the Meteorological Bureau of Tibet Autonomous Region. (Xinhua, October 18, 2013 http://www.cciced.net/enciced/newscenter/latestnews/201310/t20131028_262372.html), over twice the global average (Asian News International report archived by New Scientist, July 25, 2007), with four of the five warmest winters in the last 35 years in the TAR occurring since 2000 (Xinhua, July 22, 2007) while the past century has been the warmest in 1000 years.

² O. Frauenfeld, T. Zhang, "Is Climate Change on the Tibetan Plateau Driven by Land Use/Cover Change?" 2005.

³ Klein, J. A., J. Harte & X.Q. Zhao, "Experimental warming causes large and rapid species loss, dampened by simulated grazing, on the Tibetan Plateau" in Ecology Letters 7(12), 2004. <http://warnercnr.colostate.edu/~jklein/web/Publications/Klein-2004-EcoLtrs.pdf>