

Water on the Tibetan Plateau

Ecological and Strategic Implications

Roundtable with His Holiness the Dalai Lama
The Hague Centre for Strategic Studies – 5 June 2009



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Foreword

As the source of Asia's major rivers, the Tibetan Plateau is of great strategic significance for China and the region. People from Vietnam to Pakistan depend for their livelihood and further development on the water of these rivers. Yet, climate change causes Tibet's glaciers to melt and its permafrost to thaw, with enormous implications for the security and well-being of millions of people downstream.

The aim of this conference was to bring together water and security experts from Asia and Europe to gain a better understanding of the complex challenges the melting of the glaciers on the Tibetan Plateau poses. Understanding the consequences of climate change on the Tibetan Plateau is a first step towards designing an appropriate regional response. Because, as history shows, water can be a source of cooperation between peoples and countries.

It was a special honor to welcome His Holiness the Dalai Lama in our midst. His deep knowledge of environmental issues in Tibet and his emphasis on cooperation between Chinese and Tibetan scholars inspired us to think about innovative strategies to adapt to the changing circumstances and to manage these shared water resources for the benefit of all people concerned.

The effect of climate change on the water reserves on the Tibetan Plateau is a topic that deserves further analysis by scholars and policymakers in Asia and beyond. It is my sincere hope that this roundtable has contributed to greater understanding of this important issue.

Rob de Wijk
 Director The Hague Centre for Strategic Studies (HCSS)



Program

- 12.00 – 12.45 Buffet lunch
- Session 1
Impact of Climate Change on the Water Reserves of the Tibetan Plateau
- 12.45 – 12.50 Practical announcements by Christa Meindersma, deputy director The Hague Centre for Strategic Studies
- 12.50 – 12.55 Welcome by Rob de Wijk, director The Hague Centre for Strategic Studies
- 12.55 – 13.05 Presentation by a Chinese researcher, *a visual tour of some of the dramatic changes of glaciers and lakes in the Tibetan plateau as a result of the warming temperature and a degrading grassland ecosystem*
- 13.05 – 13.20 Presentation by Hemanta Mishra, scientist, former advisor to the World Bank and Asian Development Bank, on *The Global Significance of the Tibetan Plateau: Strategic Options to Address Environmental Security in the Region.*
- 13.20 – 13.35 Discussion, moderated by Isabel Hilton, director China Dialogue and former BBC correspondent
- 13.35 Break
- 13.45 Entry of His Holiness the Dalai Lama
- 13.45 – 13.50 Welcome by Rob de Wijk
- 13.50 – 14.05 Address by His Holiness the Dalai Lama
- 14.05 – 14.40 Discussion with His Holiness the Dalai Lama
- 14.40 – 14.45 Concluding remarks and thank you by Christa Meindersma
- 14.50 Departure His Holiness the Dalai Lama



14.50 – 15.20 Tea Break

Session 2

Implications and Sustainable Solutions

15.20 – 15.35 Presentation by Brahma Chellaney, Professor of Strategic Studies at the Centre for Policy Research, New Delhi, on *Averting Water Wars*

15.35 – 15.50 Presentation by Willem Ferwerda, director IUCN National Committee of The Netherlands, on *The Importance of Ecosystem Management on the Tibetan Plateau for Regional Security*

15.50 – 16.50 Discussion

16.50 – 17.00 Closing by Christa Meindersma

17.00 – 18.00 Reception



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A Chinese filmmaker

A Chinese filmmaker who conducts research on the Tibetan Plateau shows a short visual tour of the disappearing glaciers on the Plateau, from those at the foot of Mt. Everest to those of Anyemaqen, Tianshan mountains and near the great bend of the Brahmaputra River. These match photography images vividly document a dramatic loss of thickness of the giant ice sheets on the world's highest mountains. This is more alarming than the common language we are describing about melting glaciers, which is 'retreating' that is mostly a one-dimensional or at most two-dimensional vocabulary. But what's actually happening is three-dimensional, and the picture is very bleak.

The documented loss of the thickness of the main Rongbuk glacier of Mt. Everest between 1921 and 2008 is appr. 100 metres.

From satellite data we see that in the north of the Tibetan Plateau, some of the lakes, which existed in 1994, have now completely dried up.

The melting glaciers are the barometer for the grassland ecosystem's health in the whole region. Rivers coming from the Tibetan Plateau, the Yellow river, Mekong, Yangtze, Salween, Indus, Brahmaputra serve 40% of the world's population. 'If there is a shortage of water, which is sure to happen in the foreseeable future, we are talking about a human disaster.'



'The internal political and social issues on the Tibetan Plateau are complex. However, it would be prudent to isolate politics from environmental concerns – as nature and environment recognize no political philosophy.'

HEMANTA MISHRA

Presentation by Hemanta Mishra

The Global Significance of the Tibetan Plateau: Strategic Options to Address Environmental Security in the Region

Introduction

In the far western corner of the Tibet, Mount Kailash or Kang Rimpoche (Tibetan), a rocky and rugged snowy mountain, towers 6,700 meters above the cool, serene Trans-Himalayan terrain. A few kilometers down to the east at 5,500 meters, Manasarovar – a turquoise lake dazzles the tranquil air of the Tibetan Plateau. Almost 2400 kilometers southeast at the other edge of the Plateau, Mt. Everest soars over 8,800 meters fusing the earth with the sky.

This landmass is literally the roof of the world with a mean altitude of 4,000 meters. It is dotted with the world's highest mountains, glaciers, rivers, grassland, forests, and lakes to form one of the outstanding zones for biological diversity on earth. Yet, to millions of people in Asia, these sites are not merely physical or geographical landmarks. They are the abode of Gods – a sacred source of clean air and pure water that blesses and revitalizes their mind and body.

The Tibetan Plateau has been recognized as the land of Gods since the Vedic era (600-300 BC). Throughout history, Eastern cosmologists have believed that Mt. Kailash is Mt. Meru – the *axis mundi* or the pillar of the Universe. To the Hindus, it is the house of God Shiva – the Auspicious One; to the Buddhists, Mt. Kailash represents the cosmic Mandala – the Wheel of Life. Mt. Kailash feeds Lake Manasarovar, whose name in Sanskrit means, 'Mind Lake.' This lake is believed to have been created by the Hindu God Brahma – the Creator.

Buddhists believe that Manasarovar is the legendary lake known as Anvatapta, where Queen Maya Devi conceived Lord Buddha. Further to the east, Tibetans knew the significance of Mt. Everest long before the British anglicized its name after a fellow Briton in 1856. They knew the world's tallest mountain as Chomolungma, Mother of the Universe. On the other side of the border, the Nepalese know Everest as Sagarmatha, which means Head of the Ocean. The people of Darjeeling in India revere Everest as Deodungha, or God Stone.

For eons, the mountain, rivers, glaciers, and lakes of the Tibet are recognized as holy sites to be revered and worshiped as sacred environmental zones of peace. Buddhists, Bonpos, and Hindus all fundamentally believe that the desecration, destruction, exploitation, or pollution of this region will have devastating consequences for humans and the planet. This belief is highly logical when one considers that the Tibetan Plateau is the earth's largest perennial source of water. As the earth's largest watershed, it is the lifeline of half of the world's population.

Nature has also endowed the Tibetan Plateau with rich forests, flora, and fauna; many of which are prized for their economic and medicinal values. The value of timber resources alone is in the billions. However, indiscriminate logging in the highland since the 1950s has led to massive erosion, flooding, and devastation in the lowland areas far beyond the Plateau. Reforestation was not conducted by the Chinese forestry bureau until the late 1990's.

The objective of this paper is to emphasize the ecological significance of the Tibetan Plateau. In this increasingly interdependent earth, its wellbeing is not only critical for the region but also for the whole world. The paper also summarizes Tibet's bio-geographical significance to the global community for sustaining the economic and social development to half of the world's humanity. It suggests some interim strategic actions to ensure protection of the world's largest watershed for the benefit of future generations.

The global significance of the Tibetan Plateau for humanity

The Tibetan Plateau is the world's highest and largest plateau. The land is over 3,300 meters high and extends over 2.5 million sq. km. Stretching 2,400 kilometers from east to west and over 1,400 kilometers from north to south, the Plateau displays an ecological spectrum unmatched anywhere on earth. In addition to religious, cultural, spiritual, and aesthetic significance, its importance to the global community to sustain social and economic development stems from three key areas:

- **Source of the earth's eight largest river systems**
- **Depository of one of the most globally significant biodiversity**
- **Epicenter of global warming and climate change**

Source of the earth's eight largest river systems

No region on earth can match the Tibetan Plateau as the world's eternal water tank that quenches the thirst of twelve of the most densely populated nations of Asia¹. An estimated 46,000 glaciers and hundreds of the snow-capped tallest mountains on earth feed nine of the biggest Asian rivers². 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. In addition, hundreds of their tributaries such as the Koshi, Karnali, Gandaki, Mechi and Mahakali, transect the Himalayas to create the world's deepest gorges and the most fertile land of the Indo-Gangetic Plains. These mighty rivers and their tributaries are forces of nature. They could bring peace and prosperity or misery and sorrow to at least twelve countries in South and East Asia. This includes two Asian goliaths – India and China, which must maintain the world's largest population and sustain the fastest growing economies of the 21st century.

Four of the largest rivers of the Indian sub-continent originate in Mount Kailash in Western Tibet. Their headwaters often have colorful names to depict their power and beauty. River Indus flows out of the Lion's Mouth (Sengye Khabab) through Kashmir to form Pakistan's biggest and most important source of water. The neighboring Sutlej gushes out of the Elephant's Mouth (Langchen Khabab). It flows through the historic borders of India and Pakistan before joining the Beas to irrigate the Punjab – also dubbed as the 'Granary of India.' Further east, the Ganges emerges out of Peacock's Mouth (Mapcha Khabab) to form the sacred site of Gangotri, the headwaters of the Ganges in the State of Uttarakhand in North India. It is estimated that almost 500 million people live within 500 kilometers of the Ganges basin as she flows 2,500 kilometers down from the Himalayas to the Bay of Bengal. To the east, the Brahmaputra (Son of Hindu God Brahma) surges out of the Horse's Mouth (Tachok Khabab). It joins the Kyichu

1 Bangladesh, Bhutan, Cambodia, China, India, Laos, Myanmar, Nepal, Pakistan, Thailand, and Vietnam.

2 Brahmaputra (Tsangpo), Ganges, Huang He (Yellow River), Indus, Irrawaddy, Mekong, Salween, and the Yangtze.

River south of Lhasa before snaking down through Assam and Bangladesh to drain into the Bay of Bengal³.

The Salween, Irrawaddy, and the mighty Mekong also have their source in the high rugged tundra of the Changtang (northern plains) – the second largest nature reserve in the world. From there, these mighty rivers ramble down across the heartland of Tibet to form the main water arteries of Myanmar, Thailand, Laos, Cambodia, and Vietnam.

China's two main rivers the Yangtze and the Huang He (Yellow River) originate in the North Eastern area of the Tibetan Plateau. The Yangtze, at a length of 6300 kilometers, is the World's third longest river only matched by the Amazon of South America and the Nile of Africa. Culturally, ecologically, and economically, it is one of China's prized natural assets. The Yellow River is China's second and the world's fifth longest river. Extending just over 5,460 kilometers, its river basin extends from the Tibetan Plateau to the Bohai Sea in the North East corner of China. Historically, the Yellow River is credited with the development of Chinese civilization and is responsible for the prosperity of millions of people. Thus, it is honored with the title of '*The Cradle of Civilization*.'

Land degradation from logging, soil erosion, and irresponsible resource extraction in the catchment areas combined with industrial and human waste in lowlands of China have polluted these rivers, threatening the future well being of at least 500 million Chinese. Additionally, siltation stemming from the eroding landscape on the Tibetan Plateau will have serious consequences for the burgeoning need for drinking water, hydropower and irrigation.⁴ Furthermore, freshwater fishing will collapse. Pollution has already contributed to the extinction of one of the world's rare aquatic wildlife, the finless Porpoise (River Pig) of the Yellow River. Likewise, in the last two decades the Yangtze sturgeon – source of the freshwater caviar and the Yangtze dolphin (Baoji) have become extinct. The Yangtze River dolphin, a rare pink colored dolphin, was designated as a 'National Treasure' by the Chinese Government in 1975. Unless the headwaters of are protected and preserved, more of China's national treasures will also be lost. These species are indicators of the health of water systems and their rapid extinction does not bode well for China's rivers or the health of her citizens. China's rivers may soon revert to such unpleasant names like the 'Sorrow of China' due to the rapid degradation of their watershed region. A similar fate may soon befall other

3 Source: Tenzin P. Atisha: Paper presented at the Ecological Conference on Tibet in San Francisco, 27 October 1990.

key rivers including the Brahmaputra, Ganges, Indus, Irrawaddy, Mekong, and Salween, which also all have their source in the highlands of the Tibetan Plateau. The deprivation in quality and quantity of water from these rivers will lead to increased resource conflicts between China and her neighbors.

A depository of global biodiversity ⁴

The Tibetan Plateau displays an extraordinary panorama of ecological diversity due to the wide variation in topography and climatic zones. Consequently, it is extremely rich in biological diversity. This includes 12,000 species of vascular plants of which more than 60 are endemic, and 800 species of vertebrates including rare and globally significant species. Many of these species are ancestors of current agricultural plants and domestic livestock. The ecological significance of the Tibetan Plateau has been most recently articulated by Robert Fleming Junior and his two co-writers⁵. They have described how the vegetation and landscape change dramatically as the zoogeography varies from the Oriental provinces of Southern Asia to the Palearctic realms of Northern Eurasia. The Southeastern area of the Tibetan Plateau, which borders India and Bhutan, is lowest in altitude and is endowed with some sub-tropical species of flora and fauna. In contrast, the Northwestern plains and grasslands are rugged, dry mountainous region. They are the prime habitat of some of the world's rarest wildlife species such as the Wild Yak, The Tibetan Antelope, the Tibetan Brown Bear, the Snow Leopard, and Kiang or the Tibetan Wild Ass. In between these extremes is a vast land that encompasses the highest mountains and the deepest gorges on earth. The central part of the Plateau is home to over 5,760 species of plants of which more than 1,000 varieties have commercial utility as medicinal herbs or aromatic plants. One of them is the fungal Yartsagunbu, or the caterpillar fungus (*Cordyceps sinensis*) prized by the practitioners of the Chinese traditional medicine.

The northern plains of the Plateau are characterized by the tress tundra and the turquoise lakes of the Changtang. The climatic condition in the Changtang is severe and inhospitable. Consequently, the area is mostly devoid of people except for Tibetan nomads who have lived a pastoral lifestyle on this terrain for over nine centuries. However, it is home to one of the world's rarest species – the

4 Information on Biodiversity is adopted from: 'Tibet's Biodiversity' (1998). China Forestry Publishing House.

5 Adopted from Fleming Jr. R.L, Tsering, D., & Wulin, L (2007). Across the Tibetan Plateau. Ecosystems, Wildlife and Conservation. New York and London. W.W.Norton and Company. A Future Generations Book.

Chiru or the Tibetan Antelope. The Chiru is prized and mercilessly poached for its soft cashmere fiber. This fiber known as shattosh is woven into the finest and most expensive shawls. The shawls are illegal as shattoosh can only be obtained by killing the Chiru. Unfortunately many wealthy but ignorant Western and Eastern clientele still purchase shattosh shawls contributing to the decline of the Chiru. Most of the poachers and traders are not native to the area. Their presence is increasing conflicts as aptly illustrated in the film *Kokexili* by a Chinese filmmaker. This film shows a group of wildlife wardens trying to protect the Chiru and their habitat against all odds.

Epicenter of global warming and climate change

The Himalayas, the world's tallest and mountains rise from the Tibetan Plateau. Consequently, the impacts of climate change are more severe here than in any other mountainous regions. Global warming is melting the majestic icecaps more rapidly than elsewhere. The 46,000 thousands glaciers found throughout the Plateau are receding faster than in other parts of the world.

There is a paucity of empirical data on the causes and consequences of global warming and climate change. Nevertheless, the Tibetan Plateau is recognized as one of the prime epicenters that are adversely impacted from global warming and climate change, albeit fastest in the shortest time. The altitude and fragile ecosystem, particularly the permafrost-laden terrain of the Plateau ranks it among the top sites that are most vulnerable to global warming and climate change. Though much more research is needed to assess this matter, it is widely believed that the soaring massive landmass of the Himalayas is influencing climate and atmospheric changes not only in Asia, but also as far as East Africa⁶.

The International Panel of Climate Change (IPCC) has warned that the glaciers of the Himalayas could vanish in three decades. 'At least 500 million people in Asia and 250 million people in China are at risk from declining glacial flows on the Tibetan Plateau,' says Rajendra K. Pachauri, Chairman of the Intergovernmental Panel on Climate Change and winner of the 2007 Nobel Peace Prize⁷.

Other experts have predicted that global warming and climate change will cause havoc not only on the Tibetan Plateau and China, but also in surrounding

countries. In the short-term, it will cause floods and landslides by increasing the volume of river runoff. In the long term, the consequence will be acute shortages in water supplies for more than half of the world's population residing downstream in mainland China, India, Bangladesh, Bhutan, Cambodia, Laos, Myanmar, Nepal, Pakistan, Thailand, and Vietnam. Consequently, the economy and control of water resources will not only become an internal issue inside China, but also could trigger an external riparian conflict.

Discussion

Conservation and sustainable land use practices on the Plateau are not new, but date back as early as 1642 when the 5th Dalai Lama issued a decree for the *Protection of Animals and the Environment*. This decree was based on the traditional economic, social, and religious values, which centered upon the Buddhist's teachings for *Right Livelihood*. Even today, the Buddhist perception of nature is still prevalent on the Plateau. Consequently, conservation and sustainable development practices are readily accepted by the local communities.

Currently, key threats to the Plateau emerge from several directions: climate change, global warming, and over-exploitation of forests, wildlife, land, and water. These exploitations are mostly driven by paradigms such as 'infrastructure development and economic growth at any cost' or 'pollute now and clean later' principles. However, the downstream ravages of landslides, floods, pollution, and unstable water flows have sparked a realization on the significance of the Plateau to sustain human development in China. Several sectors of the Government of the People's Republic of China, particularly the State Environmental Protection Agency, the State Forestry Administration and the State Science and Technology Agency are gravely concerned and are probing ways to halt the slide. The significance of the Tibetan Plateau to the economic and social development of China has also been voiced by the country's top leaders. Recognizing the critical geographic location and the ecological parameters that link the Tibetan Plateau with the rest of China and its neighbors, Jiang Zemin, the Former Secretary of the Communist Party of China aptly stated, 'Stability in Tibet is related with stability of China, and development of Tibet is related with the development of China⁸.'

⁶ For more information, see Messerli, B., & Ives, J.D. (1997) 'Mountains of the World.' London and New York. The Parthenon Publishing Group.

⁷ Source: Schneider, K., & Pope, C. T. Pope (1980) 'China, Tibet, and the strategic power of water.' <http://www.circleofblue.org/waternews/world/china-tibet-and-the-strategic-power-of-water>. May 8, 2008.

⁸ Tao Siming. State Environment Protection Administration, Beijing in *Tibet's Biodiversity*. China Forestry Publishing House.

More recently, the 14th Dalai Lama reiterated the Plateau's significance as the 'Water Tower' of Asia. Addressing a gathering of distinguished scholars and environmentalists at the National Geographic Society in Washington D.C in November 2006, His Holiness called upon the global community to work closely with Chinese scientists and develop a comprehensive plan for the conservation and sustainable human development of the Plateau.

The dilemma faced by the Government of China, and her international development partners (e.g. World Bank & Asian Development Bank) is that all sectors of the society demand preferential treatments. Engineers and economists believe that roads, dams, power projects, and other infrastructures are the panacea for poverty alleviation and economic development in the Plateau. In contrast, ecologists view that 'No Use is the Best Use' in the fragile environment of the Plateau. Given the rich natural and cultural patrimony of the Plateau, some planners point out that tourism is the answer to all environmental and social woes. In contrast, anthropologists and religious leaders claim that saving the spiritual value of the Plateau is paramount. Yet, the comprehensive plans and tools needed to balance these conflicting agendas and make wise and timely decisions, are lacking.

Al Gore, the former Vice-President of the United States and a Noble laureate has warned, '*Himalayan Glaciers on the Tibetan Plateau have been among the most affected by the global warming. The Himalayas contain 100 times as much ice as the Alps and provide more than half of the drinking water for 40% of the world's population - through seven Asian river systems that all originate on the same plateau. Within the next half-century, that 40% of the world's people may well face a very serious drinking water shortage, unless the world acts boldly and quickly to mitigate global warming.*'⁹

The internal political and social issues on the Tibetan Plateau are complex. However, it would be prudent to isolate politics from environmental concerns - as nature and environment recognize no political philosophy. Furthermore, sustainable use of land and water in the Plateau will be a key to reducing tension both within and outside China. Clearly, the goal is to preserve in perpetuity the intrinsic social, economical, cultural, environmental, and spiritual values of the Tibetan Plateau. The key challenge is how to integrate the three fundamental bottom lines for sustainable development: good ecology; good economics; and the preservation of culture and religious values. Economics, culture, and nature are three legs of the same stool. Though the issues are complex and the solutions

⁹ Source: Tibetan Ecology Foundation. <http://www.tibetanecology.org/>

seldom obvious, it is suggested that, economic, and social development in the Tibetan Plateau should be driven by a five-pronged strategy¹⁰:

- **Guarantee Environmental Security** through conservation and wise use of land and water resources taking an ecosystem based approach.
- **Strengthen Social Security** by providing access for all to clean drinking water on an equitable basis, and sharing benefits from sustainable use of biological diversity.
- **Sustain Economic Security** by providing sustainable supply of fresh water for drinking, irrigation, hydropower, and industrial usage downstream with minimum social and environmental impacts, particularly on hydrological regime, wild species, and their habitat.
- **Integrate Ecosystem Values** in the design and economic analysis of any infrastructure project on the rivers and their catchments areas. This includes monetarization of 'payment for ecological services' and 'polluter pays' principles for financial recoveries in the cost and benefit analysis.
- **Prevent Regional Conflicts particularly between China and her neighbors** through regional cooperation on sharing and conservation of water resources and prevention of transboundary pollution.

The people of the Tibetan Plateau have lived with nature for centuries. They have learned to respect both the living and non-living elements of the earth. They have also learned to maintain an intricate balance between needs of humans and the laws of nature. Yet, the health of the Tibetan Plateau matters, not only to China but also to her neighbors. Deforestation, land degradation, pollution, global warming and climate change recognize no national or international frontiers.

The majestic but fragile mountains of the Tibetan Plateau, coupled with roaring powers of the mighty rivers, and the silent but dynamic lakes and glaciers are nature's endowments to the whole of humankind. They are not static but dynamic assets of nature. How economic and infrastructure development is perceived in the Tibetan Plateau will be either a bane or a boon to half of the world's humanity. Wise use will bring peace, prosperity, and plenty to at least a dozen

¹⁰ Adopted from Mishra, H.R. (2006). 'Nature, Culture, People, and Economic Development. A project proposal for conservation and sustainable human development of the Tibetan Plateau.' An internal discussion paper of the Bridge Fund. Washington D.C.

countries in Asia. In contrast, unwise use will trigger decades of destruction with miseries, sorrows, and harrowing happenings not only in China but also in her neighboring countries, triggering regional conflicts.

The Tibetan Plateau is not only environmentally but is also spiritually and culturally significant for the global community. It is the earth's most fragile yet preserved plateau. Yet, it is the water towers of the world in the abode of the Gods. Therefore, it would be prudent to prescribe wise and sustainable use for most parts of the Tibetan Plateau. Such land and water use should be based not on rhetoric but on hard science.

Acknowledgement

I am grateful to The Hague Centre for Strategic Studies in the Netherlands for inviting me to this stimulating event, in particular to Christa Meindersma, Deputy Director, External Affairs.





'The glaciers, which are retreating, that is the result of climate change, not because of any government policy. But the water availability from the glaciers to the centres, that's where the policy comes in where the rivers are being diverted.'

PARTICIPANT

Discussion Session 1

Impact of Climate Change on the Water Reserves of the Tibetan Plateau

The presentation of Hemanta Mishra, and the showing of the images of retreating glaciers and lakes on the Tibetan Plateau are followed by a brief exploratory discussion about the impact of climate change on the Tibetan Plateau.

Climate change and environmental policies

One participant kicks off the discussion by asking whether the melting of the glaciers on the Tibetan Plateau is due to global climate change or to the lack of adequate environmental policies in China and neighbouring countries? According to a participant who works regularly in China, perhaps both factors are at work. Because of its high elevation, the impact of climate change is more severe in Tibet. But also, Tibet is very far away from Beijing. The Chinese mindset is one of 'development at any cost.' 'These rivers, this nature have to be tamed. Bigger dams, bigger projects.' Many in the current Chinese leadership are engineers who believe in engineering their way out of a problem rather than taking a more ecological approach. A participant who has just returned from Beijing and spoke to the Minister of Environmental Protection agrees that at present, the first priority in China is economic development, second a more efficient organization while protection of the environment comes third.

Another participant urges to differentiate between climate change and environmental policies. ‘The glaciers, which are retreating, that is the result of climate change, not because of any government policy. But the water availability from the glaciers to the centres, that’s where the policy comes in where the rivers are being diverted.’ When it comes to greenhouse gasses, everyone is culpable. According to another participant, the distinction between climate change and man-made environmental change is often lost in the debate. ‘Everything is blamed on climate change. But often we don’t reckon as to how our own actions are changing the environment in a significant manner.’

Development

A Dutch environmentalist argues that developmental policies and climate change are linked. For instance, black carbon, produced as a result of the use of coal, burning of agricultural waste or forest fires, reinforces the detrimental effects of climate change, as it deposits on the glaciers and reinforces the glaciers’ reception to warmth. It also stays in the atmosphere. According to another expert, in the case of the Tibetan Plateau, China’s developmental policies have, not intentionally but unconsciously, contributed to changing climatic patterns on the Tibetan Plateau. These policies are most apparent in terms of large engineering projects, such as the Golmud Lhasa railway, which is built through 600 km of permafrost, as well as the paved road to Everest base camp. China is now acknowledging that environmental change impacts home and affects the lives of ordinary Chinese citizens and that therefore, environment has to be a priority. As a result, China places a growing emphasis on two things. First, on reforestation across China. Secondly, there is a desire to embrace new technologies, including carbon capture and storage. ‘I think this is a good shift in policy that we are seeing in China. But China has to go a long way before we see real change.’

According to some participants, this policy shift has no impact yet on the ‘go-west’ policy of developing Xingjian and Tibet, the policy of moving populations. ‘If you have a mass relocation campaign of Han on the Tibetan Plateau, that is going to cause enduring environmental damage to the fragile ecosystem of Tibet. The Tibetan Plateau cannot accommodate so many people.’ Right now, there is an influx of people into the Tibetan Plateau thanks to the Golmud-Lhasa railway. This is the same pattern that was followed towards Inner Mongolia in the ‘30s and Manchuria. ‘Ever since the 2006-railway was opened to Lhasa, there has been an influx of Han settlers and Han tourists to Tibet. This leads to changes in the ethnic composition and has important long-term environmental connota-

tions.’ Another expert says he shares the speaker’s concern about the influx of settlers into the fragile environment of Tibet. He also has serious concern about the permafrost. ‘The railway and roads are going to collapse at some stage.’

No use is the best use

One participant asks Dr. Mishra to clarify his earlier statement that ‘no use is the best use’ of the Tibetan Plateau. ‘How can we link this to the pattern of enforced settlement of nomadic populations that inhabited the Tibetan Plateau for hundreds of years? It seems that the policy is overdevelopment and a different pattern of economic use, like mining, industry, extraction, rather than the human use to which the Plateau has been put. What are the implications of this?’ According to Mishra, examples of ‘the best use is no use’ can be found in certain areas in the world that are totally protected to preserve water resources, such as, for example, the Catskills in up-state New York, some national parks in Sri Lanka and New Zealand. According to Mishra, some areas have to be protected from a water preservation point of view. In China, economic security, e.g. maintaining an 8% growth rate, is often put against environmental security. Economic growth has to be maintained at all costs. Environmental protection agencies are relatively weak and Tibet is somewhere far away. His ideas are supported by other participants who, rather than no use, underscore the need for a ‘wise use’ of the Tibetan Plateau, based on principles of ecosystem protection. ‘This is something people can do.’ ‘Changing the policy so that the economics of ecosystems is key to the development of China and the whole region will help to preserve the water towers of Tibet.’

Conclusion

The moderator closes off the first round of discussion by saying that the best we would be looking at is to limit the global temperature rise to 2 degrees. The Tibetan Plateau, however, ‘is not going to get any cooler in the foreseeable future. These glaciers are going to melt. Therefore, we should be looking at how we should deal with this problem in this region.’



Welcome by Rob de Wijk

Your Holiness, a very warm welcome to our institute. Needless to say that we are very proud and honored with your participation in today's seminar.

HCSS is an impartial thinktank for international security and a platform for discussions.

Recently, we discussed the Kosovo issue with your fellow Nobel laureate, the former Finnish President Mr. Ahtisaari and we talked about Afghanistan during the Afghanistan conference held in this city with Afghanistan's ambassador in Washington, Mr. Jawad. Among the participants was a deputy director general of the Chinese Ministry of Foreign Affairs.

Today we have a half day conference on Water on the Tibetan Plateau with a number of leading experts from all over the world. Your participation now, underscores the importance of the subject.

Your Holiness, last Monday you were interviewed on Dutch television by former politician Paul Rosemuller. And yesterday you appeared in another television show. On both occasions you emphasized that your visit is of a non-political nature.

Today's topic, water on the Tibetan Plateau, is of a non-political nature. Whatever the future of Tibet will be, this topic is important for the whole region. The problem is well known. Due to climate change, the glaciers of the Tibetan Plateau are melting fast. The area and mass of Tibet's glaciers have decreased by 7 percent since 1960, of which 4.5 % in the last twenty years. Large parts of the population of China and India will be affected by this.

For the region it is crucial that the topic should be dealt with in a non-political way. In both television shows you talked about the need to cooperate. I fully support your view. Water management requires cooperation. All countries in the region must recognize the interests of others and find a way to work together.

Europeans after the Second World War agreed that only cooperation can prevent future wars. The result was European integration and today's European Union.

I hope that the issue water management will bring together, rather than divide the countries and peoples in the region you live in.

Your Holiness, I would like to invite you to deliver your speech. After your remarks we have a roundtable chaired by Isabel Hilton, director of Chinadialogue.

Address by His Holiness the Dalai Lama

Thank you for giving me this opportunity to discuss environmental issues in Tibet.

I'm not an expert on this issue. Initially when we were in Tibet, I had no idea about ecological problems. We took it for granted that we could drink any water. We never heard of polluted water. Only after we came to India we found out that we can drink certain water, and not other water because of pollution. Then we were a little bit surprised. After I met an expert on ecology, I realized it was very important. So, on practically any occasion when I talk about the global future, I always touch the issue of ecology. This also goes for scarcity of water, for example in India, Africa and many other countries. This is of broad and serious concern.

Tibet, as you rightly mentioned, is the roof of the world. Last year I met an Irish ecologist. He brought an article written by a Chinese scientist. It mentioned three poles; the North Pole, the South Pole, and the Third Pole, Tibet. He referred to Tibet as the Third Pole because of the effects of global warming. Global warming on the Tibetan Plateau has almost the same effect as that on the North and South Pole. He mentioned the rate of global warming. According to him this was 0.1, whereas it was 0.3 on the Tibet Plateau. So the warming is more rapidly on the Plateau.

When we were in Tibet some elder people in Tibet used to tell me that some mountains had more snow when they were young. Gradually, this reduced. Elder people consider this a bad omen, they were superstitious and had no idea of global warming. That is the nature of change. Over hundreds of thousands, millions of years, there is some change. According to experts there's quite rapid warming. There human beings also have a responsibility. It is a very serious matter. Now in Tibet one thing has become quite clear. Most of the major rivers, from Pakistan

to China, have their source in Tibet. This includes India, Pakistan, China and Nepal. According to samples found on top of Mount Everest by some Mount Everest expeditions, the snow on Mount Everest is melting.

Over 1 billion human beings' lives are dependent on these rivers. In northern India, which is densely populated, and also in China. There are many problems alongside the Yellow River and other rivers. These are very densely populated areas, and many lives depend on these rivers. Special care of the ultimate sources of these rivers is very very important.

Since the 1950's there is a large scale deforestation. As a result, Bangladesh and China face unprecedented floods. Some measures were taken at government level but deforestation is still going on. So we need more effort, firstly by informing or educating people. Preservation of the ecology is in their own interest, and for their own future. That, I think, is really important.

In the early days of the People's Republic of China, people had no idea about taking care of the ecology. They were exploiting their resources in a maximum way. Nowadays there is an awareness of the ecology. One Indian scientist gave me a great responsibility. Wherever I go, I must make clear to the local people that they have to protect the forests. And I fulfill his instruction, as much as I can. Wherever I go, I am always telling people.

So, I very much appreciate to be in this kind of meeting. Hopefully, thorough research and scientific analysis of the Tibetan Plateau will happen objectively, with no other interest. No political interest. Also without superstition, by saying that a mountain is very sacred and that one should not touch it. What we need is objective and scientific research.

Then, we should approach and communicate in a wider way. We should approach the UN and individually concerned governments. And finally, it should be of concern to the governments. I think that's important, this is something very urgent. So action is necessary.

It is not sufficient just to make papers. Some researchers make nice papers and have new ideas, and then consider themselves to be finished. But this is something on which we have to take action. That is important.

Thank You.



'The awareness about the Tibetan problem including ecology is growing. More and more Chinese are really showing an interest and concern. That is very positive.'

HIS HOLINESS THE DALAI LAMA

Discussion with His Holiness the Dalai Lama

During the ensuing discussion with participants from India, Pakistan, Nepal, China and Europe, the Dalai Lama emphasizes the importance of research, education and cooperation in preserving the environment and the water resources on the Tibetan Plateau.

Cooperation

The moderator refers to the need for cooperation that was discussed prior to the arrival of the Dalai Lama. Having spent decades trying to build trust and cooperation with Beijing, what would he advice? Could water be a basis for cooperation rather than conflict? The Dalai Lama responds that cooperation is very important. He points out that the tragedy in Tibet has brought new awareness and the opportunity to meet more Chinese intellectuals, professors and students on these issues. 'The awareness about the Tibetan problem including ecology is growing. More and more Chinese are really showing an interest and concern. That is very positive.' The Dalai Lama reiterates that not only cooperation at government level but with Chinese academics and people is very important. He urges participants to invite Chinese professors to these kinds of meetings and discuss. He refers to small NGOs in China that work on ecological issues and discussions that are taking place at important Chinese universities. 'But equally important is will. Just cooperation in the sense of mere discussion has not much practical effect.' The Dalai Lama mentions a Chinese research, which found that in some of these delicate areas, the population makes a difference to the use of water and pollution. Now, according to reliable information, there are plans to increase the population of Lhasa to 700,000 (currently the population is 3-400,000). Thorough research is needed to assess the implications from an ecological point of view. This needs to involve Chinese researchers and experts.

One participant from Pakistan refers to the South Pole. The South Pole was an area where at the height of the Cold War, governments from all over the world were able to come together on science and the environment and sign the

Antarctic Treaty, which is still valid today. Can the same idea be applied to some parts of Tibet where the glaciers are that are most vulnerable? He suggests that some kind of dialogue could be opened with the Chinese to declare some of these areas peace parks or areas of global heritage. The Dalai Lama likes the idea. With full agreement of India and Nepal, the neighbouring states, the creation of peace parks would be good. These ideas should first be well advocated and then eventually be taken to the concerned governments.

Education

A participant who has lived in Beijing for many years testifies to the environmental degradation in China in the 1990s. He notices that the Dalai Lama communicates with the Chinese people through letters to his Chinese brothers and sisters on various topics. Can he do something similar on the environment? Perhaps, to use a Buddhist phrase, call for compassion for the environment? 'As a great moral and spiritual authority in China, this would have a great effect.' Like he did a few years ago when he sent a message to the Tibetan people not to wear furs and trade tiger skins? Could His Holiness have the same effect on the glaciers were he to do that? The Dalai Lama jokingly responds his appeal was made because of criticism in the Indian media. He realizes that his message when it reached inside Tibet, triggered an immense response. Some Tibetan families even went as far as to burn their fur. The Chinese government was shocked and insisted these are Tibetan traditions that should be respected and preserved. The Dalai Lama relates the habits of the Tibetans to trade and wear tiger skins to the lack of proper –modern- education. He concedes that the traditional Tibetan education is limited 'These nomads wear ornaments on their head and tiger skin. Inside it is empty. I feel ashamed.' The Dalai Lama reiterates that first, you must educate people. 'The brain must be rich.' Whenever he gets the opportunity, he tells his people that they should learn about the environment, because they are ignorant about these matters. 'It is a question of our survival.'

Autonomy

A Dutch participant was present at a meeting between the Dalai Lama and the Chinese community in the Netherlands the day prior. There, the Dalai Lama stated that 'to manage the Tibetan environment, we need full autonomy.' She asks how full autonomy could benefit the management of the water resources on the Tibetan Plateau and the interests of wider region. The Dalai Lama responds that 'Basically, Tibetans know Tibet better.' Like where to cultivate, what place, what

crops, what time. During the Cultural Revolution, certain patterns had to be followed, slopes cultivated, new irrigation canals dug. In the end, it proved wasted energy because the sources of water dried up. Someone gave instructions to the Tibetans without knowing the real conditions of the place. 'That is a mistake.' The final authority now is with Han who see Tibetan culture as wasteful, without value and Buddhism as opium. 'Then, how can we preserve our cultural heritage and environment?' The Dalai Lama says it is much better if the final authority on these matters is with Tibetans, because 'Tibetans know better.' Foreign affairs and defence, these should be with the Central Government. The Dalai Lama recounts how he teased an Indian journalist years ago. 'Imagine something happens on the border. We Tibetans can't shoot Indians. So let them shoot.'

A Chinese participant, who conducts environmental research on the Tibetan Plateau, wholeheartedly agrees that Tibetans know this land 'absolutely better than Han Chinese do.' 'Chinese cannot devise the best policies for this region, because we do not know this land better than you do.' He expresses great concern about alleged plans of the Chinese government to remove all nomads from the pastures in Xinghai in 5 years time. That could be 'the biggest disaster in the region.' From his work with NGOs in Xinghai and Tibet and the bond he has developed with Tibetan nomads, he has realized that 'we really need to work together with Tibetans.' Unfortunately, the Chinese government is not thinking this way. The Dalai Lama responds that he knows about this information. Nomads grazing their herds are part of the environment. He expresses concern that nomads who have had a nomadic lifestyle for thousands of years, have no experience building up a new life in urban areas. 'Initially, some of them may feel very happy. But once the money is finished, they face a lot of problems.'

Sustainable management

A participant from a conservation organization underscores the need for a shared vision between India and China on ecosystem management on the Tibetan Plateau. He asks the Dalai Lama what he thinks about his own role and that of the United States to come to a non-political vision on how to sustainably manage, wisely use the Third Pole. The Dalai Lama says that countries like Nepal, India, Bangladesh, that are concerned with the rivers coming from Tibet have a right to address it. 'This is not interference, because this water starts in Tibet but runs mainly through these countries.' He urges the countries directly concerned to talk more about their common concern but sees no immediate role for himself as this may be counterproductive. The Dalai Lama emphasizes the importance of

objective Chinese research into environmental issues on the Tibetan Plateau. Turning to the Chinese researcher present, the Dalai Lama says: 'Our only hope is you, Han people, Han Chinese scholars who do unbiased research. Your voice is very precious.' A Dutch artist asks about how to address this problem in a non-political way, when the Tibetan Plateau is viewed in such political terms by the Chinese Government. Even some young Chinese have anti-Dalai lama sentiments. The Dalai Lama answers that 'our effort to reach out to the Chinese people is the most important.' A participant working on the Tibetan Plateau confirms that it is very challenging to work in a non-political way in the field.

Towards the end of the discussion, someone suggests that His Holiness and other religious leaders launch an appeal for the preservation of important water resources in the world at the climate negotiations in Copenhagen in December this year.

To conclude, the Dalai Lama emphasizes that it is very important that everyone remains committed to this issue.

Concluding remarks and thank you by Christa Meindersma

Your Holiness, thank you for your presence here today at the Hague Centre for Strategic Studies, at this roundtable on the regional strategic and ecological implications of the water reserves on the Tibetan Plateau.

The aim of this meeting was to deepen and sharpen our understanding of the effects of climate change on the water resources on the Tibetan Plateau, for Tibet, China and the region.

You, Your Holiness, have inspired us all with your presence, your words, and your insights today.

If one thing has become clear from this meeting, it is that the changes on the Tibetan Plateau, due to climate change and other factors, have serious security implications for Tibet, China and the wider Asian region. Water is and will be more so in the future an important factor in the relations between States.

Your Holiness, you have emphasized that water is a vehicle for cooperation – at the level of scientists as well as governments. Cooperation between Tibetan and Chinese researchers on the Plateau as well as between countries in the region. In this regard, you have stressed the importance of education and the important role played by young Chinese researchers. Their work on the Tibetan Plateau is crucial in enhancing understanding among China's policy-makers of the complexities of the Tibetan Plateau's fragile ecosystem.

The aim of this meeting was also to build bridges. Bridges between Asian and Dutch experts; between water, environmental and security experts, as well as between thinkers and do-ers.

Your Holiness, to me, this meeting is not a one off but the beginning of a new initiative to preserve Tibet's water resources in the interest of Tibet, China and peace and stability in Asia.

The network that has been created here today will define new initiatives as to what can be done to work towards that goal.

For me personally and on behalf of The Hague Centre for Strategic Studies, I like to thank you for your participation in this roundtable on water. It is an honor to receive you here on this precious occasion. For me, having known you for some time, it is also a personal privilege to have had the opportunity to invite you to the institute where I currently work.

Thank you for being with us here today. On behalf of The Hague Centre for Strategic Studies, it is my heartfelt pleasure to offer you a small token of our appreciation.

'If one thing has become clear from this meeting, it is that the changes on the Tibetan Plateau, due to climate change and other factors, have serious security implications for Tibet, China and the wider Asian region.'

CHRISTA MEINDERSMA

'No region better illustrates the dangers of water wars than the world's largest continent. According to a 2006 United Nations report, Asia has less fresh water – 3,920 cubic meters per person – than any other continent outside of the Antarctica.'

BRAHMA CHELLANEY

Presentation by Brahma Chellaney

Averting Water Wars

As the most-pressing resource, water holds the strategic key to peace, public health and prosperity. With its availability getting constricted in many parts of the world due to greater industrial and agricultural demands and global warming, water is likely to be the defining crisis of the 21st century.

In Asia, rapid economic growth is already putting strain on two resources linked to climate change. One is energy, the main contributor to the buildup of planet-warming greenhouse gases in the atmosphere. And the other is water, whose availability will be seriously affected by climate change, increasing the likelihood of water-related conflicts, as the Intergovernmental Panel on Climate Change has warned. The sharpening Asian competition over energy resources, driven in part by high GDP growth rates and in part by mercantilist attempts to lock up supplies, has obscured the other danger – that water shortages in much of Asia are becoming a threat to rapid economic modernization, prompting the building of upstream hydro-engineering projects on transnational rivers, with little concern for the interests of co-riparian states. If water geopolitics were to spur interstate tensions through reduced water flows to neighbouring states, the Asian renaissance could stall in the face of inter-riparian conflicts.

Water wars

No region better illustrates the dangers of water wars than the world's largest continent. According to a 2006 United Nations report, Asia has less fresh water – 3,920 cubic meters per person – than any other continent outside of the Antarctica. The report states that when the estimated reserves of lakes, rivers

and groundwater are added up, Asia has marginally less water per person than Europe or Africa, one-quarter that of North America, nearly one-tenth that of South America and 20 times less than Australia and Pacific islands. Yet Asia is home to almost 60 percent of the world's population.

In water-deficient Asia, most societies are agrarian societies, and the demand for water for farming is soaring. Asia's rapid industrialization and urbanization, additionally, are boosting demand for water considerably. Household water consumption in Asia is rising rapidly, according to the UN, but such is the water paucity that not many Asians can aspire for the lifestyle of Americans, who daily use 400 litres per person, or more than 2.5 times the average in Asia. Add to this picture the likely effects of climate change on soil moisture, rainfall, groundwater and river channels, and what emerges is a region torn by acute water shortages with a bearing on socioeconomic and political stability.

Take the case of China and India. These already are water-stressed economies. As China and India gain economic heft, they are increasingly drawing international attention. The two demographic titans are coming into their own at the same time in history, helping to highlight the ongoing major shifts in global politics and economy. However, when one examines natural endowments – such as arable land, water resources, mineral deposits, hydrocarbons and wetlands – the picture that emerges is not exactly gratifying for India and China. The two giants have entered an era of perennial water shortages, which are likely to parallel, in terms of per-capita water availability, the scarcity in the Middle East before long. India and China face the prospect that their rapid economic modernization may stall due to inadequate water resources. This prospect would become a reality if their industrial, agricultural and household demand for water continues to grow at the present frenetic pace.

Against this background, water has emerged as a key issue that would determine if Asia is headed toward mutually beneficial cooperation or deleterious interstate competition. No country would influence that direction more than China, which controls the aqua-rich Tibetan plateau – the source of almost all the major rivers of Asia. In fact, the Plateau of Tibet holds more fresh water than any place on the Earth, other than the polar icecaps. But while the water in the icecaps is all locked up, much of the water in Tibet is accessible.

Tibet's unique status

Tibet's status is unique: No other area in the world is a water repository of such size, serving as a lifeline for much of an entire continent. Stretching 2,400 kilo-

metres from east to west, and 1,448 kilometres from north to south, this is the world's largest plateau. It is also the world's highest plateau, with the average altitude in Tibet so high – 3,650 meters above sea level – that visitors and new Han settlers often need weeks to acclimatize.

Unique features have helped turn the Plateau of Tibet into Asia's 'water tower.' Tibet's vast glaciers, huge underground springs and high altitude have endowed it with the world's greatest river systems. Its river waters are a lifeline to the world's two most-populous states – China and India – and to all the countries stretching from Afghanistan to Vietnam in a contiguous arc. They include Bangladesh, Burma, Bhutan, Cambodia, Laos, Nepal, Pakistan and Thailand. All these countries together make up 47 percent of the global population.

Climate change

The spectre of water wars in Asia is also being highlighted both by climate change and by manmade environmental degradation in the form of shrinking forests and swamps that foster a cycle of chronic flooding and droughts through the depletion of nature's water storage and absorption cover. The Himalayan snow melt that feeds Asia's great rivers could be damagingly accelerated by global warming. Even Afghanistan depends for 80 percent of its water supplies on the Hindu Kush mountain range, the westernmost extension of the Himalayas and the source of the Helmand River, the Hari Rud River and the Kabul River.

Given Tibet's critical role as the main water source for southern and south-eastern Asia and for China, the destinies of the Indian subcontinent, the Indo-China peninsula and the People's Republic of China are inextricably linked. Intrastate water-sharing disputes are already rife in several Asian countries – from India and Pakistan to Southeast Asia and China. Intrastate water disputes, however, rarely get the international attention that an interstate discord does. Yet, as the history of the past quarter of a century attests, intrastate water conflicts can be quite damaging and violent. In Asia, water has served as a factor in fuelling intrastate insurgencies or in inciting ethnic bloodletting. For instance, the July 2006 shutdown of the Sri Lankan Maavilaru Dam's sluice gate triggered days of bloody clashes between government forces and the Liberation Tigers of Tamil Eelam (LTTE), with the military accusing the guerrillas of blocking the waterway and retaliating with heavy shelling. The fighting over the Maavilaru Dam left at least 425 people dead in a 10-day period, with the rebels justifying their offensive on grounds that the government was deliberately not supplying water to the Tamil minority areas. Other intrastate disputes are exemplified by

the row within Pakistan over Punjab province's appropriation of water resources, to the detriment of downstream Sind and Baluchistan, and by the various water-related wrangles in India and China.

Intra-state disputes

Of greater concern should be interstate conflict over sharing of river-water resources, given the growing water scarcity and the existence of as many as 57 interstate river basins in Asia. Add to this picture China's attempts to dam or redirect the southward flow of river waters from the Tibetan plateau, where major rivers originate, including the Indus, the Mekong, the Yangtze, the Yellow, the Salween, the Brahmaputra, the Karnali and the Sutlej. Among Asia's mighty rivers, only the Ganges starts from the Indian side of the Himalayas. Even the Irrawaddy, Burma's principal river running through the centre of the country, originates just across the Burmese border with Tibet.

Interstate conflicts

The 10 major watersheds formed by the Himalayas and the Tibetan highlands spread out river waters far and wide in Asia. Control over the 2.5 million-square-kilometre Tibetan plateau gives China tremendous leverage, besides access to vast natural resources. Having extensively contaminated its own major rivers through unbridled industrialization, China now threatens the ecological viability of river systems linked to southern and south-eastern Asia in its bid to meet its thirst for water and energy.

China has been so aggressive in dam building that it has dammed all its rivers except the Salween (known in China as the Nu). Despite environmental concerns expressed by scientists and officials, the southern Chinese province of Yunnan is still hoping to build dams and hydropower plants on the Salween, which originates in Tibet and flows into Burma and Thailand. It is Burma's longest river. Interstate conflict, however, will surface only when an idea is translated into action to benefit one state at the expense of a riparian neighbour. Such a conflict-engendering idea certainly would be the diversion of the waters of the Brahmaputra, which originates in Tibet as the Yarlung Tsangpo river. It is the world's highest river and also one of the fastest-flowing, and traverses a distance of 2,057 kilometres before flowing into the Bay of Bengal through Bangladesh, where it first merges with the Ganges to form a giant delta.

As water woes have aggravated in its north owing to unsustainable intensive farming, a rapid expansion of cities, industrial revolution and a falling water

table, China has increasingly turned its attention to the bounteous water reserves that the Tibetan plateau holds. With China depleting and polluting its rivers and aquifers, the World Bank has warned of 'catastrophic consequences for future generations.' Bordered by the rapidly expanding Ordos and Gobi deserts, China now acknowledges that its water scarcity is acute.

Today, China is pursuing massive inter-basin and inter-river water transfer projects on the Tibetan plateau. These inter-basin and inter-river water transfer projects threaten to export China's water crisis to 'the roof of the world' by damaging the delicate Tibetan ecosystem. The projects also carry seeds of inter-riparian conflict in Asia. An officially blessed book, titled *Tibet's Waters Will Save China*,¹¹ has supported inter-basin and inter-river water transfer projects in Tibet and championed the northward rerouting of the waters of the Brahmaputra River. Some 10,000 copies of this book were bought by the Chinese government and its agencies for circulation to officials.

China's 'Great South-North Water Transfer Project' has been pursued with unflinching resolve. This South-North Project is an overly ambitious engineering attempt to correct the imbalance in water availability, with the south holding four-fifths of China's water resources. Currently home to 22 percent of the world's population, which is projected to grow to 1.6 billion by 2045, China fancies inter-basin and inter-river water transfer projects as a way to address the demands of its increasingly water-stressed economy. Beijing, however, has yet to factor in the likely environmental damage that such mammoth diversions would wreak, or the potential impact of climate change on the long-term availability of the water resources it is eyeing in the Tibetan plateau.

It should not be forgotten that the northward diversion of the waters from the Tibetan plateau is an idea enthusiastically backed by Chinese President Hu Jintao, a hydrologist who made his name through a brutal martial-law crackdown in Tibet in 1989. Indeed, Hu owes his swift rise to the top of the communist party hierarchy to that martial-law crackdown. In crushing protestors at Tiananmen Square two months later, strongman Deng Xiaoping actually took a page out of Hu's Tibet playbook. The March 2008 Tibetan uprising, coinciding with Hu's re-election as president, however, drew attention to the counterproductive nature of the Hu-backed policies – from seeking to change the demo-

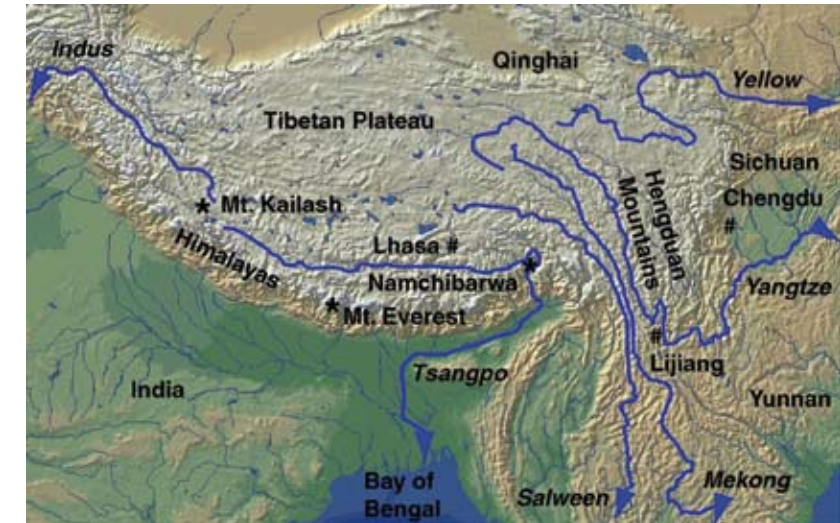
11 Li Ling, *Tibet's Water Will Save China* (Mandarin), Sponsored by the Ministry of Water Resources, Beijing, November 2005.

graphic realities on the ground in Tibet through the 'Go West' Han-migration campaign, to draconian curbs on Tibetan farmland and monastic life. The Tibetans' feelings of subjugation and loss have been deepened as they have been pushed to the margins of society, with their distinct culture being reduced to a mere showpiece to draw tourists and boost the Han-benefiting local economy. China's riparian neighbours have increasingly viewed with disquiet Chinese hydro-engineering projects on the vast Tibetan plateau. Conflict over such projects could easily spill across international borders.

Discussion

Against this background, I would like to leave the following questions for our discussion:

1. **What steps can help avert or contain water-related tensions or conflicts between riparian states in Asia?**
2. **Can an upstream state, in seeking to mitigate its own water crisis, be allowed to potentially create serious water shortages among other co-riparian states?**
3. **Based on cooperation attempted in the past or still in effect, what mechanisms can be useful, especially to regulate competition over the sharing of waters of transnational rivers?**
4. **If the downstream state is not simply to be the price-taker over the use of river waters, what sort of international regulatory and oversight standards and practices need to be evolved to help achieve a better balance of obligations and benefits between co-riparian states?**
5. **Given that the ecological health of Tibet's major river systems depends on cooperation between riparian states and sustainable practices, how can a mutually beneficial relationship be established regionally?**
6. **With water scarcity beginning to haunt many Asian communities, what kind of environmentally friendly water-management techniques need to be adopted?**





'The protection of the upper watersheds of these rivers on the Tibetan Plateau is an issue of global importance.'

WILLEM FERWERDA

Presentation by Willem Ferwerda

The Importance of Ecosystem Management on the Tibetan Plateau for Regional Security

The Tibetan Plateau is the highest plateau on earth, averaging about 4000 m in elevation, and has an area of roughly 2.5 million square kilometres that spans western China's Tibet Autonomous Region (TAR) and Qinghai Province as well as parts of Sichuan, Yunnan, Gansu, and Xinjiang Provinces. By way of comparison, the Tibetan Plateau is about the size of Spain, France, Germany, Italy, the Netherlands, Belgium, Switzerland, Austria, Poland, the Czech Republic, Slovakia, Hungary, and Slovenia combined. This vast plateau can be divided into three broad ecological zones:

- the high altitude steppe grasslands of the northern Tibet Autonomous Region (TAR) and Qinghai Province,
- the forested areas of the eastern and south-eastern plateau, and
- the mixed shrub and agricultural lands of south-central Tibet.

Interspersed throughout these three zones are high mountain ranges with extensive alpine zones and permanent ice fields, the most notable of which is the Himalaya Range. Tibet is thus known as 'The Third Pole'.

Biodiversity and wildlife

Flagship species of the plateau areas are the Tibetan antelope (chiru), wild yak, Tibetan argali, Tibetan brown bear, manul, and critically endangered Przewalski's gazelle, all endemic species to this area. Snow leopard and blue sheep (bharal) are found in the alpine areas of all three zones, while bird species

such as the black-necked crane migrates between summer nesting grounds on the northern steppes and wintering grounds throughout the southern Tibetan Plateau. Several species are endangered and on the IUCN Red List of Threatened Species.

Water resources and wetlands

Tibet is a land of thousands of rivers, lakes, and wetlands. In spite of being an extremely arid region receiving only 50 to 500 mm of rain/snow annually (in comparison The Netherlands: 800 mm/y), primarily during the short rainy season from early June to September, some of Asia's most important rivers originate on the Tibetan Plateau. These include the Yangtze, Mekong, Indus, Yellow River, Brahmaputra, Salween, Sutlej and Karnali, which throughout human history have nurtured many of Asia's most prominent civilizations and continue to provide the life-giving waters for nearly one-third of mankind residing in China, the Indian Subcontinent, and Southeast Asia. Thus, the protection of the upper watersheds of these rivers on the Tibetan Plateau is an issue of global importance.

In addition to these well-known ocean-flowing rivers, there are also many lesser known large tributaries to these river systems that originate on the high plateau as well as hundreds of rivers that flow to saline closed-basin lakes and wetlands in the interior of the Tibetan Plateau. These closed-basin rivers, lakes, and wetlands in Tibet's vast interior are a critical summer nesting habitat for tens of thousands of migratory waterfowl. These water lush wet meadow pastures are used by both wild and domestic animals for grazing. The three best known of Tibet's many closed basin lakes are the roughly 80 km long Seling and Namtso Lakes and the over 100 km long Qinghai Lake. There are also many freshwater lakes and wetlands to be found on the Tibetan Plateau, which are often themselves the source of rivers. Whether fresh or saltwater, fish of these remote water bodies are as yet little studied but are presumed to be endemic due to the high degree of isolation of the Tibetan water bodies, particularly in case of the plateau's many closed basins.

Dynamics of the water bodies

Regardless of the type of water body, the primary source of most of Tibet's many rivers, lakes, and wetlands continues to be the glaciers and perennial snow fields found scattered throughout the high mountains of the Tibetan Plateau, which include most of the world's highest and most storied peaks as well as numerous lesser known 'snow peaks' that rise to elevations in excess of 6000 m. This peren-

nial ice and snow covers about four percent of the total area of the Tibetan Plateau, however, the continued existence of much of this ice and snow, as well as the vast areas of permafrost that underlie approximately half of the Tibet Plateau, are now threatened by Global Warming.

Regional values

The high altitude wetlands of the Tibetan Plateau not only form the headwaters of many of Asia's most important rivers, they also provide habitat critical for the survival of many species of migratory birds, fish and mammals. In addition, these wetland areas are generally surrounded by some of the most productive grasslands on the Tibetan Plateau and are important water holes for domestic livestock. Consequently many of Tibet's wetlands are also of great importance to thousands of nomadic livestock herders who make up the vast majority of residents on the Tibet's grasslands. Not to mention the cultural importance of the landscape and the many sacred areas.

Threats to Tibet's water resources

So, the Plateau's high altitude, rugged terrain, and harsh climate have resulted in the creation of fairly sustainable but relatively low productive systems of traditional agricultural and livestock rearing. Consequently, throughout the centuries, the Plateau's human population has remained low. To date, Tibet's landscapes and ecosystems have remained relatively intact, but the drive to modernize Tibet over the past few decades has led to a rapid surge in the human population and upset the delicate balance between man and nature on the Tibetan Plateau. At the same time global warming threatens to severely alter the natural hydrological regime of the entire Plateau. Both, development activities and climate change, have the potential to radically alter the landscape and ecosystems of Tibet. The negative effects of both, are already beginning to be seen. Once vast populations of wild livestock and predators have rapidly dwindled while forests have been felled and grasslands have turned to desert. Perhaps most significantly, the Tibetan Plateau's formerly sufficient water resources are now threatened by both degradation and depletion. A development that will not only adversely affect the residents and ecosystems of the Plateau, but also the millions of people of lowland Asia who depend on water flowing off the Tibet Plateau for their very existence. At least 500 million people in South Asia and 250 million people in China are at risk from declining glacial flows on the Tibetan Plateau.

Threats to rivers

Compared to much of Asia, Tibet's river water quality and riverine ecosystems remain in relatively good condition. However, Tibet's rivers are now coming under threat from a variety of economic and development activities.

Perhaps the largest threat to natural river systems on the Tibetan Plateau comes from dam construction for hydropower generation and flood control. While there are presently numerous small-capacity hydropower generation systems operating in Tibet, government plans currently call for the construction of a number of large hydropower dams on the canyons of Tibet's major rivers, including on the Yangtze, Mekong, and Salween. These dams will eventually link the power grids of Tibet and Yunnan Province, and permanently alter the ecological character of the affected rivers. Reports suggest that hydroelectric power could generate some 1,800 billion kilowatt hours a year.

River diversions are also a large threat to the water sources for the whole region. As China becomes increasingly stressed for water, it comes closer to slaking its thirst with Tibet's Yalong Tsangpo River, known in India as the Brahmaputra. International interests downstream worry about the impact on the environment, agriculture and politics. China currently plans to divert the Yalong Tsangpo as the river bends from Tibet toward India. It intends to use the water for a hydro-electric project, as well as for its population in the dry north and northwest. If the diversion occurs, north-eastern India and Bangladesh could access significantly less water from the Brahmaputra – a detriment to their agriculture and an environmental hazard.

A third major issue affecting Tibet's rivers is pollution from a variety of sources, including mining, poor agriculture practices, solid waste disposal, and logging. Perhaps the largest potential point source of pollution comes from the numerous mines found scattered across Tibet, particularly the Yulong Copper Mine, which is one of Asia's ten largest copper mines and precariously perched on the divide between the Mekong and Yangtze watersheds in eastern Tibet.

Another large issue with respect to river water quality is the use of chemical fertilizers and pesticides by Tibetan farmers. During the 1980s, at the instigation of government agricultural bureaus, Tibetan farmers began to use chemical fertilizers as their primary fertilizer. Not surprisingly, much of the chemical fertilizer applied to fields is eventually washed into rivers and streams, a problem which affects nearly all waterways in Tibet's farming areas.

In spite of the region-wide ten year logging ban put in place following the 1998 Yangtze flood, illegal logging for both household use and at a commercial

scale continue in eastern Tibet, which combined with the effects of overgrazing on steep hillside pastures and farming on river bank plots has led to severe erosion in some areas of eastern Tibet that unnecessarily release large amounts of sediment into Tibet's rivers.

Threats to lakes

In general, Tibetans refuse to eat fish for religious reasons while most lakes are too far from markets and processing plants to make them useful for commercial fishing purposes. As a result, numerous lakes in Tibet have pristine ecosystems that have been unaltered to the present day. As yet, little is known about the fish ecology of Tibet's remote closed basin lakes, and much research is needed to document the ecology of these lakes before they are forever altered by human activities. Unfortunately, beginning only in the past few years, some residents of the Tibetan plateau have discovered that many of these remote lakes are full of fish, and have begun fishing operations on a commercial scale, despite these operations being legally prohibited throughout Tibet. These high altitude lakes are very low productive ecosystems and recover very slow from overfishing, while the introduction of boats and nets from other areas has the potential to introduce invasive species to isolated lakes, and possibly radically alter the very character of a lake's faunal makeup.

Threats to wetlands

Direct threats to Tibet's wetlands come from farming and herding activities. At present, the ecological integrity of the Ruoergai wetlands is under threat from a variety of activities related to herding, including overgrazing, overuse of groundwater, use of pesticides to control both weeds and rodents, destruction of tussock grasses to 'improve pastures,' and privatization and fencing off of marshes for grazing of livestock. Nomadism is the traditional adaptive but hard lifestyle of Tibetans. With the access of modernization, nomadic herdsmen prefer to settle down on the grassland for more easy life. So, household's animals will remain basically on the same pasture, rather than rotate the grazing areas, which was the traditional way to recover from grazing. The result is overgrazing and more pressure to the grassland and wetland.

Impacts of global warming on the Tibetan Plateau

Global climate change is beginning to have a severe impact on the ecology of the Tibetan Plateau. Scientists report that average temperatures in Tibet have

increased 1°C over the past few decades, a rate of warming much higher than for lower elevations, which has revealed the high plateau's extreme sensitivity to climate change. Furthermore, temperatures on the Tibetan Plateau in 2006 were the warmest since records for the region began to be kept in 1951 while analysis of ice cores from glaciers in the TAR Himalaya indicate that the 1990s were the warmest decade of the previous 1000 years.

The effects of this rapid warming trend on the Tibetan Plateau are potentially dire and already beginning to be seen. Perhaps the most visible effect of global warming has been the rapid melt off of the region's extensive glacier cover. Since the 1980's the total cover of glacial ice in the Tibet and Himalaya region has decreased by about 6 %, or 6600 km², and now stands at 105,000 km², of which approximately 50,000 km² lie inside China. Scientists warn that at the present rate of melt off, the Tibetan Plateau's glaciers could disappear entirely within 100 years. Perhaps the best documented of these glaciers, Western Sichuan's Hailuoguo Glacier, has retreated 1700 m in 60 year (1930 and 1998), with the rate of the glacier's retreat expected to accelerate rapidly in coming years. The ice is melting faster than elsewhere also due to black carbon winds from India's lowlands.

We also see the melting of the vast permafrost areas, increased rates of evaporation and reduced precipitation. These three factors are already contributing to the lowering of ground water tables in much of the region, and are also being blamed for reduced productivity of the Tibetan Plateau's vast grasslands as the region becomes increasingly warm and arid. At the same time, many of the region's lakes and wetlands are beginning to dry up and are in danger of disappearing entirely, although initially a number of these lakes and wetlands were actually overflowing with excess glacier melt water, flooding valuable shorelines pastures and displacing nomads in the process. In addition, melting of permafrost will also have a costly impact on transportation infrastructure on the Plateau, as long stretches of highway and the Qinghai-Tibet railroad are laid directly across permafrost and will be subject to severe slumping and settling should these extensive permafrost zones melt.

Ultimately, it is predicted that global warming will lead to the widespread desertification of much of the Tibetan Plateau, accompanied by shorter winters, droughts, sandstorms, and the loss of both wildlife habitat and the livelihoods of millions of livestock herders and farmers.

Impact downstreams

The impact of the disappearance of the Tibetan Plateau's glaciers on both the ecology of the region and human livelihoods will be catastrophic. Not only for the residents of Tibet, but also for the more than 500 millions of downstream users of Tibet's waters. Initially, melting of glaciers will result in increased river flow volumes accompanied by increased occurrence of both seasonal flooding and flash floods caused by bursting of moraines holding back glacial meltwater lakes. This increased frequency and magnitude of flooding will in turn lead to rapid erosion and loss of scarce agricultural land along river banks in mountainous areas, as well as severe damage to the region's already inadequate hydropower generation facilities. Once glaciers have disappeared, the region's rivers will have greatly reduced seasonal flows during the long dry seasons from October to June, as at present the time-released flow of water from glaciers in the region can typically account for 70 % of total river flow during the dry period. This reduced flow will severely affect downstream users, particularly subsistence farmers, as well as water-dependent industries and hydropower generation capacity. Many rivers will likely run completely dry in the latter half of dry season.

Depleted Tibetan ecosystems as a security risk

Tibet's ecosystems are of vital importance to the highly water-dependent societies inside Tibet and the millions of people and organisms downstreams. Parallel to what we see in other regions like the Andes and Middle East, the sustainable management of ecosystems and water is becoming a seriously security issue. Today, we observe the following tensions in the region:

- tensions between China, India, Pakistan and Bangladesh, as the increase of populations is causing an increase of water needs;
- tensions between India and Bangladesh on water, coastal issues and migrants. The border between the two countries forms one long fence;
- tensions due to increase of political instability in Pakistan, which may be a threat to the management of the Indus. However, in spite of these tensions the Indus Water Treaty (1960) is still working relatively well;
- tensions among water related issues (dams, water infrastructure) between China, India and Bangladesh;
- tensions due to the political instability in Kashmir region as well as Afghanistan, where also water is involved effects of climate change are similar;

- tensions due to environmental issues and unsustainable use of ecosystems in Tibet itself.

Today, the dominant belief is based on straightforward technical solutions (dams, hydropower). What I miss with developers and policymakers is, what I call ‘ecosystem thinking’. It means thinking based on building bridges and bringing connectivity, between economic systems and ecological systems, between technical and social solutions, etc. ‘Ecosystem thinking’ integrates ecological principles in decisions concerning economy (markets, growth, etc.), development and technical solutions. Unfortunately policy makers are yet not focused on cross bordering environmental issues, and lack a long term vision based on the sustainable ecosystem management. It is important that we understand that this old thinking has to change if we really want to achieve results on the ground.

Wise use of Tibet’s ecosystems strengthens the regional security

How can we mitigate and prevent looming threats to Tibet’s water resources and ecosystems to safeguard the livelihoods of millions of people and maintain its important biodiversity? Is there any change that we halt the present way of looking towards this issue, so that we can avoid a catastrophe?

The impact of climate change and ecological depletion on the Tibetan Plateau is not a regional but more a global issue. Crucial is that the scientific community and related national institutions should convince their regional policymakers and governments that the only way forwards in working towards solutions is: seeing the Tibetan Plateau from an Ecosystem Perspective.

Then, possible next steps are:

- 1) Starting an (international) scientific debate around the Tibet’s Third Pole with the aim of bringing ecosystem thinking into the heart and minds of the policymakers. The debate should be a-political and transparent;
- 2) In spite of all the political differences, China will hopefully in close cooperation with India, take a first step to formulate a Global Vision on the wise management of Tibetan Plateau ecosystems and downstream areas.
- 3) Under Chinese leadership and in good cooperation with the other neighbouring countries such a vision should be based on the ecosystem approach as the strategy for the integrated management of land, water and living resources that promotes sustainable use in an equitable way. This approach places human needs at the centre and aims to manage the ecosystem, based on the

multiple functions that ecosystems perform and the multiple uses that are made of these functions. Make use of existing international conventions, like Ramsar, UNESCO, Climate Change, Biological Diversity, etc.

So, what can we do now? Some suggestions:

- 1) Organise a Regional Ecosystem Conference, in which a vision for the region will be discussed
- 2) Stimulate cooperation programmes on the impacts of climate change, water resources and restoration of ecosystems
- 3) Formulate Action Plans especially in India (black carbon) to halt local emissions
- 4) Start with talks on policy level between China and India to find a common approach towards Copenhagen (UNCCC) and after

This region gave us Buddhism and Hinduism, two global religions, both with a similar and clear view about what the relationship between Man and Nature should be. Today, Science has given us many insights, which supports this view: ecosystems are the basis of men’s existence, our economy, culture and our water resources.

China may be proud to be the global steward of the planet’s Third Pole. It has the scientific resources, the local knowledge and the will power to do so. In my opinion it is the only guarantee for a peaceful future based on strong economic and ecological security of the region.

Or, as we say at IUCN: a **just** world that **values** and **conserves** nature.

Acknowledgements

Wouter Veening (*Institute for Environmental Security*)



'There are EU regulations which make countries cooperate on the principle of solidarity, in such a way that we don't hinder our neighbouring states.'

PARTICIPANT

Discussion Session 2

Implications and Sustainable Solutions

The second round of discussion focuses on the strategic implications of climate change on the Tibetan Plateau, as well as solutions. Several issues are discussed, such as multilateral cooperation, adaptation or mitigation and the spectre of water wars in Asia.

Shared resource

Participants suggest that the water resources on the Tibetan Plateau are a shared resource. A participant responds that this means recognition that the water is not a resource that belongs to one country but a resource in which others have a stake. That requires joint assessment, management and conservation as well as a willingness to engage each other on conservation and management. In the case of China, these conditions are not met. Someone who was involved in diplomacy on environmental issues with China, cautions that Chinese have a 'allergic reaction' to the suggestion that these water resources are international in nature or shared. It may sound logical that India and China would take certain initiatives or exercise joint leadership on these issues but China is not ready to cooperate with India in any joint venture. 'If India were to suggest joint scientific surveys on the Tibetan Plateau it will be immediately condemned as Indian interference in the internal affairs of China. It will be seen as an example of how India is seeking to undermine Chinese authority.' Participants suggest a solution should be sought in a multilateral context rather than bilaterally. One participant agrees that China is more comfortable in a multilateral setting but cautions that China opposes any multilateral regional institutional mechanisms. China is

more open to international norm setting and institutional mechanisms at the international level, which are applied regionally.

Someone underlines the importance of US engagement on the issue. He recalls there is a lot of scientific cooperation, between US and Chinese scientists at multiple levels. 'If the [American] administration would say that we should really make this a priority in Copenhagen, then we may be able to move forward. Unless the US gets serious, China never will be. Other participants agree but urge for action behind words. 'Even in the best case scenario where we come up with a nice rich agreement in Copenhagen, those targets will be meaningless unless there is political will to translate all that commitment into action.' One participant comments that in the end the real question is whether China, in the 21st century, wants to be a global citizen and live at peace with its neighbours. 'That is the only leverage that you can get.' Though everyone agrees that the Chinese government is increasingly concerned with the environment, some participants fear that China will take as much water as they could before becoming being forced by an international regime to become a responsible player. For example in the South-North Water Transfer China diverts a lot of water from the Brahmaputra to the northern part of China.

A Dutch participant suggests the experience of the Netherlands in international cooperation in water management could possibly be useful in this regard. 75% of Dutch fresh water comes from abroad. 'That means that all Dutch policies have to be coordinated with our neighbours.' Actually, within the European Union all river basins have an international institution. 'We have EU regulations which force member states to get together in a way which is based on the principle of solidarity, in such a way that we don't hinder our neighbouring states.' This type of thinking may be useful.

Water wars

Participants have a heated debate over the spectre of conflicts over scarce water. Some participants doubt whether the changes to the water resources on the Tibetan Plateau can lead to conflicts. According to one expert, there is very little historic evidence that water is a source of direct military conflict, although it is a source of political difficulties. Quite the opposite, in recent history countries that were at war have continued to discuss shared use of water. Water has been a cause for cooperation. Someone else agrees that most disputes over water are internal. Others disagree, arguing that there are plenty of conflicts and disputes that relate to water, for example in the Middle East, Kashmir and Tibet.

'Why is Tibet so important for China? Water and its mineral resources. If you strip Tibet of its resources, what is left but a very inhospitable territory?' Water wars may not be officially declared but 'water could be an underlying driver of conflict.' The meeting concludes that water causes problems between people and communities, even if these are not formally labelled water wars. 'Besides, history is not always a good predictor for the future.'

One expert reminds the meeting that water is becoming an issue in the bilateral relations between states. For instance, water was not an issue in the relations between India and China until 3 or 4 years ago until India discovered that China had built all these dams of which India did not know. When President Hu Jintao came to India in 2006, water was on the agenda for the first time. Both countries agreed to set up a joint mechanism. This shows that water is an issue bilaterally between China and all its South-East Asian neighbours. It also is an issue between China and Nepal, and between China and Kazakhstan. 'The changing paradigm in Asia is making water an issue in interstate relations.' One expert suggests that neutral data should be gathered to predict whether there may or may not be conflict.

Adaptation or mitigation

The discussion then looks at the management of the water resources on the Tibetan Plateau; the question being whether the focus should be on adaptation or mitigation. One participant contends: 'all those glaciers will continue melting. We need to talk adaptation, we need to talk how to deal with it'. Others agree. 'It is no longer about how to stop climate change, but how to deal with the effects.' Other experts emphasize that China, is first of all, a victim of climate change. The drying up of the rivers, desertification of the Tibetan Plateau, erosion, tremendous droughts and pollution, which are all climate change related. 'But China is also dependent on export. If they want to continue to export, they cannot have a negative image with climate change, pollution, etc.' The brand 'made in China' has to be an acceptable brand to western consumers. A Dutch participant states that effective adaptation programs are essential for environmental protection. He mentions an example of a Dutch adaptation program that benefited both people and nature 'Room for Rivers.' This is a program where nature restoration is a tool to create room for water. 'But I've seen few examples in the Himalayas where we can find this win-win situation.' Another Dutch expert suggests looking at climate change more as a challenge than a problem and think in terms of devising a climate adaptation policy.

One participant cautions that there is a paradox: the better you organize adaptation, the less motivation there is for mitigation. In fact, the best adaptation is mitigation. For instance, in a discussion he had recently attended, there was a debate on migration as a form of adaptation. ‘Of course we have to do consequence management because that is inevitable. But the better you organize that, the less incentive there is to do mitigation.’

Solutions

There are different ideas for concrete solutions. One participant proposes to create transboundary peace parks, which protect upper-level ecosystem for the benefit of local people. ‘These instruments are concrete and effective. You can see that it works.’ He argues that we should provoke in China a sense of pride of being the custodian of this unique ecosystem on the Tibetan Plateau, so that they are proud of maintaining and conserving this area. There are examples of countries –like Colombia, Ecuador, Peru and Venezuela– who have devised mechanisms to protect upper-level ecosystems for the benefit of local living people. Another participant suggests declaring the Changtang a world heritage site.

The Changtang is one of the least populated pristine areas on earth with rare wildlife species and the source of many great rivers.

Another participant advises to focus on the demand side in terms of policy priorities. ‘The demand aspect is in many ways the low hanging fruit. If only you can get people to cooperate over water conservation strategies and techniques.

I think that is something that all sides could agree on very easily.’ Some participants emphasize the importance of water conservation technology. China has a very inefficient system of water usage, especially with regards to agriculture, which is 65 to 75% of its usage. Others stress the importance of international environmental law. ‘We need to have it strengthened.’ The UN Watercourse Convention, for instance, could be a foundation upon which to build a solid body of law.

Another participant suggests looking more closely at the link between the environment and economy. He asserts that there is a recognition on the part of China that the environment is causing economic decline. Another participant stresses the need to create a sense of urgency among policy makers. Thinktanks should play a role in this, by creating a network of concerned scholars and scientists from around the world.

Concluding remarks

The moderator concludes that while wars end, climate change isn’t going to end. ‘Climate change is going to be serial crises. So whilst after the war is over you rebuild your institutions and politics, we are now entering a situation in which we are not going to have that breathing space. If we want to get it remotely right we have to build those institutions now, we have to build the frameworks and make the connections now and hope that they do withstand whatever is coming down the road.’ She advises that it is important to look at the demand side as well as to look at wastage. Though this does not solve the problem or meet the challenge, it buys you time. ‘It’s like mitigation doesn’t solve the problem, but it buys you time.’ ‘I am under no illusion,’ she says, ‘that those glaciers are going to stop melting, they are not.’ She urges to start looking at adaptation strategies. That is the challenge.



List of participants

Guest of honour:

His Holiness the Dalai Lama

Moderator:

Isabel Hilton MA, Director Chinadialogue

Speakers:

Prof. Brahma Chellaney, Professor of Strategic Studies at the Centre for Policy Research, New Delhi

Willem Ferwerda MSc, Director IUCN Netherlands Committee

Dr. Hemanta Mishra, former Advisor Asian Development Bank

Participants:

Prof. Saleem Ali, Visiting Fellow Brookings Institute Doha Centre

Eric Boessenkool MA, Ministry of Transport and Water

Maj. Gen. (rtd) R.N.L.M.C. (Kees) Homan MA, LL.M, Institute Clingendael

Mr. Huib Klamer LL.M, Senior Advisor, UN Global Compact/VNO-NCW

Mr. Henk Schulte Nordholt, sinologist

Peter Slager MA, BLØF (Dutch artist/filmer)

Wouter Veening MSc, Director Institute for Environmental Security

Mr. Tashi Wangdila, Representative HH the Dalai Lama in Brussels

Hosts:

Prof. Dr. Rob de Wijk, Director, The Hague Centre for Strategic Studies

Ms. Christa Meindersma, LL.M, Deputy Director, The Hague Centre for Strategic Studies



Biographies of participants

His Holiness the Dalai Lama is the spiritual and political leader of the Tibetan people. At the age of two, he was recognized as the incarnation of the 13th Dalai Lama. He has continued to work tirelessly to find a lasting solution for Tibet through appeals to the United Nations, Heads of State and governments around the world. In 1987, His Holiness proposed the Five-Point Peace Plan for Tibet as the first step towards a peaceful solution to the worsening human rights situation in Tibet. This plan envisaged Tibet as a sanctuary and zone of peace in the heart of Asia. Since 2002, eight rounds of talks have taken place between representatives of the Dalai Lama and the Chinese authorities. The Dalai Lama advocates a Middle Way approach aimed at achieving genuine autonomy for the Tibetan people within China. His Holiness the Dalai Lama was awarded the Nobel Peace Prize in 1989. More recently, in September 2006, he received the highest civilian honour in the United States, the Congressional Gold Medal, in recognition of his advocacy of human rights. In 2008, he was chosen 'most respected statesman' in the European Union and United States by a Herald Tribune poll.

Prof. Saleem H. Ali is associate professor of environmental planning at the University of Vermont (USA) and a senior fellow at the United Nations mandated University for Peace (Costa Rica). He has been the principal advisor for the Asia Society's leadership group on water security in Asia (report published in April 2009). Dr. Ali received his doctorate in environmental planning from the Massachusetts Institute of Technology, a Masters in environmental law and policy from Yale University and Bachelors degree in chemistry from Tufts University. In 2007 he was chosen as one of 8 'revolutionary minds' for his work on environmental peace-building by Seed magazine.

Eric Boessenkool, MA currently is Senior Advisor International Affairs for the DG Rijkswaterstaat - Ministry of Transport Public Works and Watermanagement. Tasks include international cooperation on Transport, Water Management and Infrastructure, among others with China and the US. Before that he worked for several years as a (senior) policy adviser at the DG Water, also at the Ministry, on European and national flood risk management and waterscarcity issues. He also worked at the Directorate for International Affairs. He studied International Relations and History at the University of Groningen.

Prof. Brahma Chellaney is Professor of Strategic Studies at the Centre for Policy Research. He has served as a member of the Policy Advisory Group headed by the Foreign Minister of India. Before that, Professor Chellaney was an adviser to India's National Security Council until January 2000, serving as convenor of the External Security Group of the National Security Advisory Board. A specialist on international security and arms control issues, Professor Chellaney has held appointments at the Harvard University, the Brookings Institution, the Johns Hopkins University's School of Advanced International Studies and the Australian National University.

Willem Ferwerda, MSc is a Tropical ecologist by training in Amsterdam (The Netherlands) and Bogotá (Colombia) with degrees in management and psychology. After 10 years in business (international tourism), he worked for IUCN NL in ecosystem management and conservation projects in Asia, Africa and Latin America. As director of IUCN NL he aims to bring 'ecosystem thinking' in the heart of decision makers, through influencing policies, convening and supporting projects. He joins a number of boards and thinktanks related to ecology, society and environmental issues.

Isabel Hilton, MA is an international print and broadcast journalist based in London. She is founder and editor of www.chinadialogue.net, a unique, fully bilingual web platform devoted to environmental and climate change issues, and of www.thethirdpole.net, a regional web based initiative devoted to the impact of climate change on the Himalaya and the watershed.

Maj. Gen. (rtd) R.N.L.M.C. Kees Homan is former director of the Netherlands Defence College. His research at Clingendael Institute focuses on international security issues and a wide range of strategic and military studies.

At present, General Homan's research projects include Afghanistan, NATO's new strategic concept and the effect of climate change on security. General Homan is a regular commentator for Dutch and foreign public news services.

Huib Klamer, LL.M is Senior Advisor, UN Global Compact/VNO-NCW. He did research after worker's participation, worked in several HRM functions and as a consultant. From 1985 until now he is senior advisor of the Dutch employers' federation VNO-NCW. His subjects include corporate social responsibility, ethics, and religion. He is also secretary of the Global Compact Network Netherlands (a network, associated with the UN).

Christa Meindersma, LL.M is deputy director of The Hague Centre for Strategic Studies and director conflict management. She is an international lawyer with broad experience in international affairs and diplomacy. Previously she worked as senior political adviser at the United Nations and the Netherlands' Ministry of Foreign Affairs. Christa Meindersma has been involved in peace negotiations and policy advise in East Timor, Nigeria, Cameroon, Kosovo, Darfur, Nepal and New York. Christa is a member of the Committee on Peace and Security of the Advisory Council on International Affairs.

Dr. Hemanta Raj Mishra is the President of the Bridge Fund – an environment and sustainable development organization. He has two decades of distinguished service with international agencies such as the World Bank, Asian Development Bank, the Global Environment Facility, and the Smithsonian Institution, and has operational experience in over 20 countries – mostly in Asia. He is a recipient of the prestigious J. Paul Getty Conservation Prize for his innovative works in balancing environmental conservation with human needs in the Himalayas. Mishra has a Ph.D in Natural Resource Management from the University of Edinburgh (U.K.) and several publications to his credit.

Peter Slager, MA studied Dutch Language and Culture at Utrecht University, and thereafter worked as a radio reporter for a couple of years. In 1998, rockband BLØF, in which he is bassist, textwriter, and composer, experienced a great breakthrough, after which he became fulltime musician. In 2007, he made the Dutch movie 'Een Manier Om Thuis Te Komen' with Chiem van Houwinge jr., in which BLØF collaborated with musicians from all over the world. Currently he is initiating a movie on Tibet and water.

Wouter Veening, MSc worked as policy adviser to the Dutch Ministry of the Environment and as Director Policy at IUCN Netherlands where he was involved in shaping the environmental dimension of Dutch bilateral and multilateral development cooperation (World Bank, IMF, regional development banks), of EU aid and trade policies, with a strong focus on conservation and sustainable management of the tropical rainforests. In 2002 he co-founded the Institute for Environmental Security, an international NGO, located in The Hague opposite the Peace Palace, with as main objective to safeguard the services of the environment for man and nature and to thus to contribute to peace, justice and security.

Mr. Tashi Wangdila is the Representative of His Holiness the Dalai Lama in Brussel. Prior, he was the Representative to the Americas. He has held that position since April 16, 2005. Since 1966 he has served the Central Tibetan Administration, Tibet's government-in-exile. He has held the position of kalon, or Cabinet Minister, in virtually every major department, including the Department of Religion and Culture, Department of Home, Department of Education, Department of Information and International Relations, Department of Security, and Department of Health. Before assuming his current position, Wangdila was the Dalai Lama's representative to the Indian government in New Delhi.

Prof. dr. Rob de Wijk is director of the Hague Centre for Strategic Studies and a Professor of Strategic Studies at the University of Leiden (2000). From 2000 to 2003 he was Director of the Research Centre of the RNMA. Prof. dr. Rob de Wijk is an expert on security issues and European integration.



