

China's grasslands: past and future

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Introduction

For more than five years, *chinadialogue* has published in-depth reports on a wide range of environmental issues. In that time, with the kind support of experts, researchers, practitioners and journalists, our teams in Beijing, London, San Francisco and Delhi have written, commissioned and edited a vast quantity of articles, and conducted many interviews.

But like fading memories, our stock of past features gradually recedes into the background, making way for the fresh material we publish each day. Looking at old articles from time to time, we find much of the content to be as relevant as ever to the pressing issues of the day. Not wanting to leave this material simply to gather dust on a shelf, we have decided to produce a series of themed collections of articles, and in this way hope once again to share the vivid stories and expert viewpoints from our archives.

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Grassland deterioration

Editor's note:

For herders in most of China's pastoral areas, the gathering pace of grassland deterioration has been a theme of life. Shu Ni's article "Grit on the grasslands" records the events of a spring day on Inner Mongolia's once lush Ujimqin Grassland, where seasonal sandstorms have become a normal event as degraded land has spread out beyond herder settlements. W Chad Futrell's "Inner Mongolia: reign of sand" discusses the grasslands' declining ability to retain water, which is altering respiration and evaporation rates and, in turn, impacting on rainfall in other areas. "Briefing: deforestation and desertification", a five-year old piece by *chinadialogue's* Maryann Bird, reflects the worldwide attention given to Chinese desertification during a sandstorm epidemic in the country's northern regions. Desertification remains a hot topic today.

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Photos by Zhou Wei

Grit on the grasslands

Ni Shu May 27, 2011

It's sandstorm season and on the plains of northern China, herders are suffering. Shu Ni recalls a personal encounter with Inner Mongolia's desert winds.

It's springtime and, in Beijing, the sandy winds are back again, blown down from the country's far north. Six hundred kilometres from the Chinese capital, Inner Mongolia's Ujimqin Grassland has already seen four sandstorms this year. Ujimqin is one of the autonomous region's best-preserved grasslands, but even here damage is widespread.

People in the cities complain about the impact of sandstorms on urban life and take measures aimed at protecting urban interests. Several years of efforts have improved the situation in Beijing, but further afield environmental degradation is actually worsening.

I still clearly remember being caught in a sandstorm in east Ujimqin in the spring of 2010. I was staying with a herder named Yuandeng. His son and daughter-in-law had gone to the city, leaving him and his wife, Eji, alone on the pasture. A strong wind howled through the night, and I woke to see the dark sky tinged with yellow from the dust. After sunrise, the wind strengthened and the sky changed colour to match the ground. Yuandeng and Eji must have been in their fifties or sixties, but seeing the weather worsen, they put on clothes and goggles to protect themselves from the wind and readied their motorbike – it was time to get the sheep in.

The grasslands can be bitterly cold, but by March or April the weather starts to warm up. Once the temperatures of minus 30 or minus 40 degrees Celsius have stopped, local people say spring has arrived, though the grass still hasn't started to grow, the ground remains barren and it may still snow or drop below freezing. Heading out in zero visibility in these conditions is dangerous – if you lose your way, you can end up with frostbite or even freeze to death. But despite the wind, Yuandeng and Eji, concerned for their sheep, set off on their motorbike. Before leaving, Eji made a point of warning me not to go outside – it was dangerous, she said.

Fortunately, that afternoon a little snow fell and the wind eased off, settling the sandstorm, and they both



got home safely, with no loss to their herd. But Yuandeng spent the rest of the day glaring out the window – the sandstorm heralded bad news for the rest of the year.

“

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The grasslands are affected by various types of sandstorm – different sand is blown in from different places and can be yellow or white, fine or coarse. For the herders there are two kinds: those that carry sand from afar, and those that carry local sand. The one I saw was carrying local sand.

There are three main reasons that sand is blown up from the grasslands. First, the arable land dries out in the spring sun, meaning the earth is easily picked up by the wind. Second, where the grassland is damaged by, for example, herders keeping their cattle in one place and allowing them to trample the same patch of land, sand can be blown up from the deteriorated land. And third, where water resources are disappearing, large quantities of sand in dry river and lake beds can be whipped up by the spring wind. A fourth cause can be added to this list: open-cast mining.

What is damaging Yuandeng's grassland? For the answer, you need to look at his current pasture. It is a long strip of land, two to three kilometres wide and more than 12 kilometres long. When the household responsibility system was introduced and land was contracted out to households, this was often the way land was divided up, to ensure that everyone got a

share of the best pastures. Previously the herders had been nomadic but, once the grasslands were divided up, they were tied to their strip of land and settled down. That meant the mobility of the Mongolian yurt was no longer an advantage, and they started to live in houses.

For several square kilometres around Yuandeng's house, the constant treading of sheep and cattle has worn the ground bare. The grass never has a chance to grow, and the earth is exposed all year round. The livestock have also settled down, into barns 700 metres or 800 metres away, with a wide piece of damaged land between the house and the barns. When the policy of settling herders down was announced, experts warned that this would cause patches of damage – and this is a prime example.

Not understanding this at first, I asked Yuandeng why he hadn't built his home somewhere with better grass. "This is where we used to spend winter, the grass was fine!" Winter is the toughest time on the grasslands and, without enough grass, calves and lambs can easily die – and so the finest pastures were chosen for this season. But after 10 years here, everything has changed.

"It's no good now," said Yuandeng. "As soon as the spring desert winds get up they blow away the manure and then the grass is no good." Yuandeng calls the sandstorms "desert winds", and he has plenty of complaints about them: "We never saw any of these when we were young, did we?" "The desert winds change the grass – now we get Russian thistle, which is only good for pigs, it doesn't last any time at all." "It's no use looking after your own pasture; one bad pasture will ruin all the others." What does all this mean? The first time I heard it I didn't know, but it made sense once I'd seen my first sandstorm.

When the storm was over, I went outside to look around and found something strange – a downy grass on the bare ground by the door. Eji explained these were the roots of the grass, exposed after the soil had been blown away. It seemed almost like a covert attack: the damaged land still contained grass roots, but the wind had removed their cover, making it even less likely the grass could grow again.

Early the next day, I set out on foot to try to find the

family's herd of horses. I walked several kilometres to the east and saw that a layer of sandy soil had been left on the land. I took a photo to show Yuandeng: "That's finished it! Russian thistle will grow there now," he said. The forage grass eaten by livestock has a short growth period, and doesn't grow in spring – when the winds arrive, it hasn't started growing and cannot protect the soil exposed by animals. This means perennial grasses are needed to provide fodder and to fix the surface through autumn, winter and spring. However, sandstorms are causing the short-lived Russian thistle – which only comes once a year – to spread and the perennial grasses to recede.

In the past, we've heard it said that the patches of degradation caused by settled herders aren't important, and that grasslands further away can be protected. We've also heard that mining has less of an impact on the grasslands than herding and so on. But this misses the point: sandstorms affect the entire ecosystem and on the land. I took a photo to show Yuandeng: "That's finished it! Russian thistle will grow there now," he said. The forage grass eaten by livestock has a short growth period, and doesn't grow in spring – when the winds arrive, it hasn't started growing and cannot protect the soil exposed by animals. This means perennial grasses are needed to provide fodder and to fix the surface through autumn, winter and spring. However, sandstorms are causing the short-lived Russian thistle – which only comes once a year – to spread and the perennial grasses to recede.

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Yuandeng's village divided up the pastures in the early 1990s and started to settle down around 2000. His home is where the best winter pastures used to be, but now that area is damaged and will, in turn, affect other areas.

Several days ago, more strong winds swept through northern China. Not much sand reached Beijing, but

things were different out on the grasslands. When the wind blows, I always think of the worried expression on Yuandeng's face.

Shu Ni is a volunteer at Beijing Brooks Education Center's Man and Grasslands project and a freelance writer with a longstanding interest in grasslands.

Image from Shuny

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Inner Mongolia: reign of sand

W Chad Futrell April 7, 2008

A vast Chinese grassland – and a way of life – are turning to dust in an ancient land of breathtaking scenery. W Chad Futrell reports from a battleground in the fight between China’s development and its resource management.

[This article is an excerpt from “Reign of Sand: Inner Mongolia”, published by Circle of Blue. It is republished here with permission.]

An Asian Sahara of sand is moving closer every year to Beijing, blackening the sky, and producing environmental refugees and social unrest in Inner Mongolia and throughout China.

"Desertification is not a natural function," said John D Liu, an American-born journalist, researcher and director of the Environmental Education Media Project (EEMP) for China, a 10-year-old environmental organisation based in Beijing. "Scientifically what's happening is that the grasslands are losing natural infiltration and retention of water, which is altering respiration and evaporation rates. That affects relative humidity, and potentially precipitation in other regions."

"Socially and politically, what you are talking about are policy decisions made in earlier eras — from the 1950s to the 1990s — and now those mistakes are really biting them," added Liu, who's lived and worked in China since 1979. "They have to deal with the decisions made in those years. And in Inner Mongolia those decisions have produced some horrific consequences. Large areas of the region have been massively devegetated."

As Beijing prepares for the 29th Olympic Games in August 2008, the dust storms and deteriorating condition of Inner Mongolia's grasslands have also become a priority of Chinese environmental scientists and agronomists.

During the first of week of July, China will host the International Grassland and Rangeland Congress in Hohhot, the capital of Inner Mongolia, a high-plains city of 2.3 million people. Hong Fuzeng, head of the preparatory committee of the 2008 Congress and a grasslands scientist, said the conference will focus the attention of 3,000 rangeland experts from around the world on the environmental, demographic and

industrial trends that are turning Inner Mongolia's grasslands to desert.

The blowing sand, in short, is more evidence of the consequences of the irrational duel China fights daily as it promotes rapid industrial development while exposing land, water, communities and people to levels of pollution, waste and resource diminishment never before seen on the planet.

China is the most polluted country on earth. Its air and water consistently rank among the dirtiest anywhere. The World Health Organisation (WHO) estimates that pollution causes an estimated 750,000 premature deaths annually in China, the majority among the elderly and children.

There are economic costs as well. Earlier this year, the World Bank conservatively estimated that the cost of China's environmental degradation is 3.5% to 8% of the gross domestic product annually. The cost of desertification caused by water scarcity alone, said the bank, is roughly US\$31 billion a year. While many finance theorists predict that China may become the pre-eminent industrialised nation this century, environmental economists say China is outrunning the capacity of its natural resources to sustain such rapid development, and could instead experience a frightening ecological collapse.

Blowing sand has attracted environment advocates of all stripes in China. One of them is Chen Jiqun, an artist who specialises in landscapes and portraits. Chen was 20 years old in 1967 when he went to East Ujumchin Banner, a section of eastern Inner Mongolia 600 hundred miles north of China's capital.

Inner Mongolia during that period was a place of astonishing beauty and harshness. Though the air rarely was still and the ground was dry, great expanses of tall grass swept to the horizons, unfurling like a great waving sea beneath surpassingly huge skies. Summers were short and hot. Winters were ferocious, marked by blizzards and knife-edge cold. Thousands of Inner Mongolians, a people distinguished by sturdiness and stamina, followed the nomadic ways, freely herding livestock from one range to the next.

Chen Jiqun stayed for 13 years, working different jobs on the land as he painted. The grasslands of Chen Jiqun's student years live in his paintings: vast filled

with horses galloping between herds of sheep, goats and cows grazing on foot-high grass on the banks of rippled rivers.

Those paintings, drawn from personal history and memory, could now just as easily fall into the category of artistic fantasy. The grasslands of Inner Mongolia and other northern Chinese provinces are dying, turning into mini-deserts that grow and connect, forming oceans of sand. In some regions of the province, 70% of the grasslands have turned to desert. Inner Mongolia, according to conservative estimates, is losing 1,500 to 2,000 square miles (roughly 3,900 to 5,200 square kilometers) annually to the desert.

The speed of the conversion of grass to dust is astonishingly fast. Inner Mongolia, China's third-largest province, stretches 1,500 miles (2,400 kilometres) east to west and more than 600 miles (965 kilometres) north to south in some places. As recently as the 1960s, according to estimates by the Chinese environmental agency, almost three-quarters of Inner Mongolia was grass. The province's thin soil, 15 inches (381 millimetres) of rainfall annually, and nomadic herders supported one of the planet's most robust wild ranges, a grass ecosystem nearly twice as large as France.

No longer. According to estimates by the United Nations, since 1980 desert has claimed two million acres (810,000 hectares) of cropland, nearly six million acres (2.43 million hectares) of rangeland, and 16 million acres (6.5 million hectares) of forests in northern China. Almost a quarter of China already is desert. The steady desertification of northern China has put the world's fastest growing economy, a nation of 1.3 billion people, at the frontline of the global freshwater crisis.

Indeed, the images of Inner Mongolia that Chen painted, galloping horses and moving herds, are largely gone, the result of ineffective and disputed policies to try to contain the spreading desert. In essence, the Chinese government forced the nomadic herders and their grass-consuming animals to stop wandering.

Still, the desert and the sand storms are growing. Chen's goal is to help the nomadic herders he knows find solutions to the spreading sand. He believes herders have some answers, drawing on centuries of accumulated knowledge of the land and local conditions, and not on technical theories, many of them failed, mandated over the last four decades by Beijing.

There is little disagreement in China that changes in patterns of precipitation in an already parched region, leading to severe shortages of freshwater, plays an integral role in the spread of desertification. But agreeing on the underlying socioeconomic drivers and solving the problems have fostered divisions in the Chinese scientific community, and between the government and its people. The efforts to stabilise sand dunes, which have varied in their success, include aerial seeding, and planting a 74-million-acre (30-million-hectare) "Great Green Wall" of trees, 2,800 miles (4,500 kilometres) long, stretching from the northeast through Inner Mongolia to Xinjiang in the far west.

Chinese officials also have responded with various, sometimes conflicting, policies. In 1994, China joined the newly formed UN Convention to Combat Desertification (UNCCD). Two years later, it began to publish a series of management plans that, among other things, called for China to plant 95 million acres [39 million hectares] of grass, shrubs and trees to reduce desert conditions on 190 million acres [77 million hectares] of land by 2050.

Few are confident it will stabilise the land, and Chen is especially sceptical. "The scientists fence off the grasslands to run their experiments, but that's not natural, and so it doesn't work in the real world."

Though conceding that Chinese scientists have made some progress, he bitterly recalled past policies. "They planted poplar trees everywhere! The grasslands didn't have any trees, so how could they think that poplar trees were appropriate? Furthermore, practices that worked in one area were often taken as model practices to be implemented everywhere, regardless of whether the amount of rainfall or soil or climate were different!"

Other policies, some of them sources of intense disagreement, are meant to influence human behavior. None is more contentious than the "ecological migration" program, initiated in Inner Mongolia in 2001, which requires removing 640,000 Mongol, Kazakh and Tibetan herders from the grasslands of Inner Mongolia, Xinjiang and Tibet into towns and cities.

The forced movements, said the government, were intended to reduce pressure on the grasslands from overgrazing. But Mongols viewed the policy as discriminatory, a programme designed to make water, minerals and land more accessible to Han Chinese businesses and immigrants.

The relocation program has prompted frequent and sometimes violent protests. Still, almost every current assessment, even those by the Chinese government, indicates the technical and policy programs have not stopped the deserts. Each time Chen Jiqun returns to Inner Mongolia, he sees more ground where grass once grew. The stretches of sand expand, the water holes and rivers run dry.

In 1998, Chen felt he needed to respond. "I kept reading about what was happening on the grasslands, but it was never from the viewpoint of the Mongol herders. Actually, they were always cast as the cause of desertification rather than as the victims," he said.

Chen turned to his artistic spirit, finding a reservoir not only of empathy, intelligence, and anger, but also expert visual and communications skills. He had, in other words, the makings of an activist. Chen already was fluent in Chinese and Mongolian. He wrote well and painted superbly. His first step in responding to Inner Mongolia's human suffering and environmental deterioration was to start a bilingual Mongolian and Chinese website, Echoing Steppe, to help represent the views of the Mongol herders.

Echoing Steppe began as a free-form site, posting paintings and short text reports filled with anecdotes from herders, many by Chen, about what was happening. The site attracted the attention of Friends of Nature, an education and advocacy organisation formed in Beijing in 1994, and China's first legal nongovernmental organisation (NGO) specialising in environmental issues.

Liang Congjie, a professor at the Academy of Chinese Culture and the co-founder and president of Friends of Nature, took a personal interest in Chen's work, describing in words and pictures Inner Mongolia's deteriorating condition. Chen's reportage and images were fast turning him into one of the foremost experts on Inner Mongolia desertification.

By 2002 Chen found himself leading tours of Chinese students, activists, and interested citizens to the grasslands. He also studied laws that focussed on property rights, grasslands and desertification. Using the proceeds from the tours as well as his own money, Chen began translating and publishing those laws on Echoing Steppes.

"How can China become a nation of laws when its people can not even read the laws?" Chen said. He eventually added English translations to his website in order to raise international awareness about the situation in Inner Mongolia. He distributed copies of the laws to herders during his frequent trips to Inner Mongolia.

"Desertification is complex, and we have to hear all sides," said Chen. "But people have not heard the side of the Mongol herders. I want people to understand the history of the Mongolian grasslands from the herders' viewpoint, because if we don't understand the history of the grasslands, the grasslands don't have a future."

W Chad Futrell is a PhD candidate in development sociology at Cornell University in the United States. He recently completed two years of fieldwork on transnational environmental cooperation to prevent desertification and protect wetlands in Northeast Asia.

This article is an excerpt from "Reign of Sand: Inner Mongolia", published by Circle of Blue, a Pacific Institute project that addresses the earth's diminishing supply of fresh, clean water. It is republished here with permission.

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Briefing: deforestation and desertification

Maryann Bird July 7, 2006

China faces a major battle to revive its degraded and denuded land, writes Maryann Bird, in the fifth of a series of guides to hot topics in a warming world.

The United Nations has declared 2006 as the International Year of Deserts and Desertification, in recognition of the grave perils of desertification, a global phenomenon affecting a third of the earth's surface and more than one billion people in over 100 countries. As susceptible dryland areas lose their productive capacity, says the UN, desertification has potentially devastating social and economic consequences, including poverty, famine and political instability.

Acknowledging those connections, the UN Convention to Combat Desertification was established after the 1992 Earth Summit in Rio de Janeiro. The convention defined desertification as "land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities", and is the first international treaty to address the issues of poverty and environmental degradation in rural areas. It also is the first pact, says the UN, to "recognise that grassroots resource-users are central to identifying and implementing solutions"; to involve local women as well as men in the development process; to stress the need for an integrated approach, and to call for a global mechanism to mobilise resources through partnerships. (At the 2002 World Summit on Sustainable Development, the convention was singled out as a key instrument for poverty eradication in dryland rural areas.)

In establishing the International Year, the UN General Assembly emphasised concern over desertification and its implications for the UN's eight Millennium Development Goals, to be met by 2015. One of those goals is ensuring environmental stability. That involves integrating the principles of sustainable development into country policies and programmes; reversing the loss of environmental resources; reducing by 50 percent the proportion of people without sustainable access to safe drinking water; and, by 2020, achieving significant improvement in the lives of at least 100 million slum-dwellers.

China is on the frontline in the struggle with desertification. The country's grasslands have been



severely damaged and its soil eroded by overgrazing of livestock, drought, mining and other types of development. Also contributing to the worsening desertification situation is deforestation – the conversion of forested areas to non-forested ones, whether deliberately (such as by logging, agriculture or dam construction) or unintended (such as through catastrophic wildfires). Tree roots are essential for keeping topsoil in place; without them, soil erosion and flooding inevitably result.

“Some 2.64 million square kilometres of land in China has already been devoured by desertification – nearly one-third of its landmass.”

In China, the problems are acknowledged as immense. For example, “the deterioration of the plant cover in the headwaters of the Yangtze river has created major flooding problems,” according to the UN Environment Programme’s Global Deserts Outlook. “Massive efforts are now required to deal with the enormous problem of water erosion in the Loess Plateau, one of the most eroded regions in the world, on account of intensive agricultural practices on the steep mountain slopes.” The plateau is situated between the deserts of western China and the north China plain. As a result of the deterioration of water reserves, it has become essential to monitor groundwater levels and confront salinity problems on the vast plain.

On the Qinghai-Tibet plateau (“the roof of the world”), glaciers are shrinking by 7% a year because of climate change, the news agency Xinhua reported in May 2006. Dong Guangrong of the Chinese Academy of Sciences told the agency that as the glaciers retreat due to global warming, the high plateau is turning to desert – which will trigger more droughts and sandstorms.

Dong's study used more than 40 years' worth of data from nearly 681 Chinese weather stations. Average temperatures in Tibet have risen by 0.9 degrees C. since the 1980s, causing the glaciers to melt faster, Han Yongxiang of the National Meteorological Bureau told Xinhua.

Since February 2006, Beijing has sustained the worst sandstorm record in five years. Through a combination of forces, the Gobi desert is expanding by about 950 square miles annually, drawing ever closer to the capital. China is battling to stem the sandy tide through a decades-long programme to shield the city through the creation of a series of greenbelts. Popularly termed "the Green Great Wall", the government plans an eventual 2,800-mile network of forest belts, containing billions of trees, to stop the advancing desert, much like the Great Wall was erected centuries ago to keep out unwelcome invaders.

Some 2.64 million square kilometres of land in China has already been devoured by desertification – nearly one-third of its landmass, the government says. Zhu Lieke, deputy director of the State Forestry Administration, reported some progress, however, telling the Beijing International Conference on Women and Desertification in May 2006 that China's deserts are shrinking by 7,585 square kilometres annually, compared with yearly expansion of 10,400 square kilometres at the end of the 20th century.

Others are not so optimistic. The leading environmentalist Lester Brown of the Washington-based Earth Policy Institute, says a giant dust bowl is forming across northern China and that it "represents the largest conversion of productive land to desert anywhere in the world ... Here and there, there are successful pilot projects, but overall we are not anywhere close to arresting this situation. The deserts are expanding." In past years, says Brown, dust from storms originating in China has been traced all the way to the United States and Canada.

San Francisco-based Pacific Environment -- which works to protect the living environment of the Pacific Rim by promoting grassroots activism, strengthening communities and reforming international policies – is also worried about the larger picture. "The inability of China's farmers to eke out a crop from drying land," the organisation points out, "will force it to turn to the

world food market, further intensifying the stresses on land in grain-producing countries like the US and Canada."

Zhu acknowledges that the work China needs to do on desertification "remains tough" and, despite a yearly investment of 2 billion yuan (US \$250 million), restoring all the country's "curable" desertified land – 530,000 square kilometres -- by 2050 will be difficult. To reach that goal, he said, would cost at least 238.5 yuan (US\$29.8 billion).

The government, Zhu said, has been hampered by a shortage to funds with which to confront desertification, which, he added, affects the lives of 400 million people and causes direct economic losses of 54 billion yuan (US \$6.75 billion) annually. Zhu noted that overgrazing of livestock (which has greatly increased in China since the late 1970s), overlogging, collection of firewood and other human activities still were taking place in environmentally fragile areas, and global warming could worsen the trend toward desertification. The battle needs to be fought, Zhu said, by improving legislation, by severely punishing those who damage the environment and by strengthening international cooperation.

Yang Weixi, the chief engineer of China's Desertification Control Centre, told the Los Angeles Times in April 2006 that the millions of square kilometres of desert in China "will continue to be a source of sandstorms in the future, and we cannot cherish unrealistic expectations this problem will vanish overnight."

In one week in April, desert winds dumped 300,000 tons of sand and dust on Beijing, turning rooftops yellow and forcing residents to wear surgical masks. Meanwhile, in southern China, floods and mudslides – triggered by torrential rains and exacerbated in some cases by deforestation – have claimed lives and forced a great number of people to flee their homes. Over the past 40 years, Chinese meteorological studies indicate, the country has experienced rising temperatures. "Experts project that the 'northern drought, southern flood' weather pattern will break by 2015, as less precipitation falls in the rainy reaches of the Yangtze river and more comes to northern China," says the Worldwatch Institute. But it adds a cautionary – and worrying -- note: "Such projections could change, however, as human activities increasingly affect the global climate."

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London office*

image by Brooks.

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Migration and settlement

Editor's note:

China has long made efforts to improve grassland ecology and raise living standards for herders. Of various ecological policies introduced in recent decades, an initiative to relocate people away from areas under environmental pressure – “ecological migration” – has been highly significant. Residential construction and urbanisation schemes intended to improve people's lives and advance the economy have also been rapidly introduced. Such policies have changed the lives of many grassland herders.

Since 2006, *chinadialogue* has reported extensively on the issue of grassland relocation. Zhou Ligang's 2006 article “Alashan's environmental refugees” and a 2008 report by Feng Yongfeng about ecological migration on the Tibetan Plateau reflect the bewilderment of the majority of herders in the face of the government's policy. In “Tibet's disappearing grasslands”, Jonathan Watts describes the tension between grazing and settlement in Yushu, while Feng Yongfeng's “Material concerns in Sichuan” explains how a push to build housing for Tibetan herders in western Sichuan is driving up logging rates, bringing more unhappiness to relocated herders.

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Alashan's environmental refugees

Zhou Jigang December 6, 2006

Traditional herders in Inner Mongolia face poverty after being moved into towns to allow grasslands to recover, writes Zhou Jigang. Can Alashan's economy absorb them all, and what are the environmental risks?

The first sandstorm of autumn 2006 blew up in Alashan's Left Banner, an administrative division of Inner Mongolia, on August 27. Alashan (or Alxa), in the far west of this autonomous Mongol region of China, has been the focus of considerable attention in recent years for just that reason: it is one of the sources of Asia's sandstorms.

Official data show that Alashan's desert area expanded from 92.71% of its total land in 1996 to 93.14% in 2004, an increase of 0.43 percentage points -- and every tenth of a point represents another 200 square kilometres of infertile land. Alashan's three deserts -- the Badain Jaran, the Tengger and the Ulan Buh -- are gradually merging, already meeting in three places in Left Banner and four in the Right Banner locality.

"Increasing numbers of both people and livestock, and over-development of agriculture, are at the root of Alashan's environmental degradation," says Tsang Buch, chief of the Alashan League Forestry and Desert-Control Bureau.

Historical data put Alashan's population during the early years of the People's Republic (founded in 1949) at a little less than 35,000. Now, it is 212,000 -- a six-fold leap (in contrast to a 2.4-fold population increase nationally over the same period).

Due in large part to pre-1949 conscription by warlords in Ningxia and the famines of the 1950s and '60s, an influx of outsiders -- of different ethnicity -- moved into Alashan. They had an unprecedented impact on Alashan's grassland culture, and the population growth led to an increase in the number of livestock.

Currently, the ideal livestock population for the league's grasslands would be the equivalent of 700,000 sheep, but figures from July 2006 show that the actual figure is equivalent to two million sheep. And yet the herdspeople believe even that figure is an underestimate. In the 1990s, the village of Helan in Left



Banner raised 30,000 sheep, but government statistics showed only a third of that number.

To relieve pressure on the grasslands and allow the environment to recover, Alashan launched a succession of large-scale relocations of its inhabitants to the newly founded towns of Xitan and Manshuitan in Left Banner in 1989. The keeping of livestock was banned in the areas from which the people were moved.

In January 1995, the league's then-party secretary, Fu Laiwang, put forward a "relocation strategy" consisting of moving herders from their pastures to oases and towns to work in the private sector. Official reports show that, to the end of 2005, the league had relocated 19,082 people, and plans for 2006-10 will see a further 21,754 moved. That means that by 2010, 40,836 people -- 20% of the 2005 population of 212,000 and 80% of the herding population -- will have been relocated.

But solving the environmental issues has given rise to new social problems. The relocations have left large numbers of former herders in poverty.

In 1999, the Left Banner government decided to reforest pastures in the Helan Mountain Nature Reserve and relocate the local population. Some 6,000 locals were moved, 230,000 head of livestock disposed of and 230 acres of land converted.

Each relocated person received an RMB 500 resettlement allowance, with compensation of RMB 1,000 for each sheep pen demolished, RMB 140 per square metre for brick houses and RMB 100 per square meter for mud houses. (The RMB is now valued at roughly 7.8 to the US dollar.) Those in the first two rounds of relocation received RMB 4.95 per mu (one-fifteenth of a hectare) of land per year, for five years. In the third round, in 2001, that RMB 4.95 was replaced with 5.5 kilograms of past-its-best grain. After

relocation, the herders – now farmers – made most of their income from planting crops, but (including compensation) only earned one third of their original incomes.

When I visited Sumurtuu Gacha, former herder Tumurbaatar was tending to the chickens in his yard. He said that, on leaving the grasslands in 2005, his family had sold 400 head of sheep and has relied since then on government subsidies to survive. His family of seven will receive over RMB 100,000 in compensation annually, for a five-year period.

Tumurbaatar worries about the future. “What happens in five years? We’re not allowed to herd, and we’ve no land to farm. The government hasn’t arranged any work for us. All we can do is raise a few chickens and ducks. The village is full of people like us.”

Yang Mudan, deputy professor of economics at Alashan’s communist party school, stressed the problem of herders returning, or even becoming vagrants. A 2004 Environmental Quality Evaluation in Alashan found 34,000 herders living below the poverty line, with 4,700 in absolute poverty. Many areas were no longer able to support either man or livestock, and 20,000 herders had moved away, become environmental refugees.

The deputy governor of Alashan, Gong Jiadong, admits that “ensuring work for the herders is essential for successful relocation. Simply handing out compensation doesn’t work.”

Alashan’s administrative office decided to focus on encouraging private businesses to absorb those who are relocated. In early 2006, the “relocation strategy” was adjusted, with the focus shifting from oases to towns and cities. At the same time, Alashan’s drive towards urbanisation and industrialisation become more apparent.

“Economic growth in Alashan is quite fast, 30% a year on average,” according to the head of Alashan’s Environmental Testing Station, Tao Gerrela. “Most of that growth comes from industry.” A further 21,754 people are to be moved for environmental reasons between 2006 and 2010, but Yang Mudan believes it is still not certain that Alashan’s economy can absorb them.

Meanwhile, rapid industrialisation is causing more pollution and damaging the environment. Severe pollution has led to Alashan’s industrial centers – the towns of Lantai and Wusitai in Left Banner – being placed under strict supervision by the State Environmental Protection Administration and the Ministry of Land and Resources. The 600-kilometre journey from Bayan to Ejina Banner runs almost entirely through desolate gravel and sand desert.

How should the successes and failures of environmental policy in Alashan be explained?

Grasslands expert Liu Shurun is firmly opposed to enclosures and relocations, believing that it is not beneficial to the grass, to the people or the livestock – it is simply moving from one extreme to another. “Livestock, in appropriate numbers, are good for the grasslands – you can’t have grasslands without them,” he says.

Sheep eat 700 types of grass, and livestock eating and walking on the grass both stimulates growth and controls it. It is not harmful, and without animal activity, the grass grows out of control. Also, after enclosure, grasslands are no longer fertilised by livestock excrement and over time only one or two species of grass will survive, homogenising that population.

Liu points out that inappropriate environmental policies are a result of a farming nation’s failure to appreciate herding culture -- an unthinking application of Han Chinese experience. The enforced practice in Alashan can only be ascribed to government ignorance and an unchecked spread of the popular view of development. Liu goes as far as to say that herding has been the natural choice in Alashan for thousands of years, and that grassland society should be restructured around a nomadic system.

“For years now,” said the Alashan SEE Ecology Association’s deputy secretary, Deng Yi, “the government has been doing its utmost to protect the environment, but you can see that when separating people and the environment in order to allow the environment to recover is very effective. When livestock is kept out by fences, the pressure on nature is lessened. In fact, that fence is dead and people are alive, camels are big and sheep are small – that is to say, you can’t change people, and if the herders’ behaviour doesn’t change, any measures will only be for show.”

Song Jun, deputy head of the ecology association, believes that the scarcity of government successes in environmental protection is due to the top-down nature of implementation. The government designs the rules of the game and implements the projects – but it is not an interested party, a stakeholder.

Song believes that environmental protection should be commercialised, with interested parties identified, the government putting preferential policies in place, and environmental protection then implemented by the market. The herders should also participate, becoming beneficiaries of the ecology industry.

Zhou Jigang, formerly of Economy magazine and Hong Kong's Phoenix Weekly, focuses on in-depth reporting about macroeconomics and current affairs. His investigations into radioactive pollution in Baotou and China's underground industries both caused considerable controversy in China.

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Tibet's disappearing grasslands

Jonathan Watts September 22, 2010

Scientists say desertification of the high-altitude meadows is accelerating climate change and will have a profound impact on the area. Jonathan Watts talks with nomads who've seen changes right below their feet.

Like generations of Tibetan nomads before him, Phuntsok Dorje makes a living raising yaks and other livestock on the vast alpine grasslands that provide a thatch on the roof of the world.

But in recent years the vegetation around his home, the Tibetan plateau, has been destroyed by rising temperatures, excess livestock and plagues of insects and rodents.

The high-altitude meadows are rarely mentioned in discussions of global warming, but the changes to this ground have a profound impact on Tibetan politics and the world's ecological security.

For Phuntsok Dorje, the issue is more down to earth. He is used to dramatically shifting cloudscapes above his head, but it is the changes below his feet that make him uneasy.

"The grass used to be up to here," Phuntsok says, indicating a point on his leg a little below the knee. "Twenty years ago, we had to scythe it down. But now, well, you can see for yourself. It's so short it looks like moss."

The green prairie that used to surround his tent has become a brown desert. All that is left of the grasslands here are yellowing blotches on a stony surface riddled with rodent holes.

It is the same across much of this plateau, which encompasses an area a third of the size of the United States.

Scientists say the desertification of the mountain grasslands is accelerating climate change. Without its thatch, the roof of the world is less able to absorb moisture and more likely to radiate heat.

Partly because of this, the Tibetan mountains have warmed two to three times faster than the global average; the permafrost and glaciers of the earth's



"third pole" are melting.

“ People have not paid enough attention to the Tibetan plateau. They call it the Third Pole but actually it is more important than the Arctic or Antarctic because it is closer to human communities.

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To make matters worse, the towering Kunlun, Himalayan and Karakorum mountain ranges that surround the plateau act as a chimney for water vapour – which has a stronger greenhouse-gas effect than carbon dioxide – to be convected high into the stratosphere. Mixed with pollution, dust and black carbon (soot) from India and elsewhere, this spreads a brown cloud across swaths of the Eurasian landmass. When permafrost melts, it can also release methane, another powerful greenhouse gas. Xiao Ziniu, the director general of the Beijing climate centre, says Tibet's climate is the most sensitive in Asia and influences the globe.

Grassland degradation is evident along the twisting mountain road from Yushu to Xining, which passes through the Three Parallel Rivers national park, home to the upper reaches of the Yangtze, Yellow and Lancang rivers. Along some stretches the landscape is so barren it looks more like the Gobi desert than an alpine meadow.

Phuntsok Dorje is among the last of the nomads scratching a living in one of the worst affected areas. "There used to be five families on this plain. Now we are the only one left and there is not enough grass even for us," he says. "It's getting drier and drier and there are more and more rats every year."

Until about 10 years ago, the nearest town, Maduo, used to be the richest in Qinghai province thanks to

herding, fishing and mining, but residents say their economy has dried up along with the nearby wetlands.

"This all used to be a lake. There wasn't a road here then. Even a Jeep couldn't have made it through," said a Tibetan guide, Dalang Jiri, as we drove through the area. By one estimate, 70% of the former rangeland is now desert.

"Maduo is now very poor. There is no way to make a living," said a Tibetan teacher who gave only one name, Angang. "The mines have closed and grasslands are destroyed. People just depend on the money they get from the government. They just sit on the kang [a raised, heated, floor] and wait for the next payment."

Many of the local people are former herders moved off the land under a controversial "ecological migration" scheme launched in 2003. The government in Beijing is in the advanced stages of relocating between 50% and 80% of the 2.25 million nomads on the Tibetan plateau. According to state media, this programme aims to restore the grasslands, prevent overgrazing and improve living standards.

Qinghai is dotted with resettlement centres, many on the way to becoming ghettos. Nomads are paid an annual allowance – of 3,000 yuan (about US\$440) to 8,000 yuan (US\$1,180) per household – to give up herding for 10 years and be provided with housing. As in some Native American reservations in the United States and Canada, they have trouble finding jobs. Many end up either unemployed or recycling rubbish or collecting dung.

Some feel cheated. "If I could go back to herding, I would. But the land has been taken by the state and the livestock has been sold off so we are stuck here. It's hopeless," said Shang Lashi, a resident at a resettlement centre in Yushu. "We were promised jobs. But there is no work. We live on the 3,000 yuan a year allowance, but the officials deduct money from that for the housing, which was supposed to be free."

Their situation was made worse by the earthquake that struck Yushu earlier this year, killing hundreds. People were crushed when their new concrete homes collapsed, a risk they would not have faced in their itinerant life on the grasslands. Many are once again living under canvas – in disaster relief tents and without land or cattle.

In a sign of the sensitivity of the subject, the authorities declined to officially answer The Guardian's questions. Privately, officials said resettlement and other efforts to restore the grassland, including fencing off the worst areas, were worthwhile.

"The situation has improved slightly in the past five years. We are working on seven areas, planting trees and trying to restore the ecosystem around closed gold mines," said one environmental officer. The problem would not be solved in the short term. "This area is particularly fragile. Once the grasslands are destroyed, they rarely come back. It is very difficult to grow grass at high altitude."

The programme's effectiveness is questioned by others, including Wang Yongchen, founder of the Green Earth Volunteers NGO and a regular visitor to the plateau for 10 years. "Overgrazing was considered a possible cause of the grassland degradation, but things haven't improved since the herds were enclosed and the nomads moved. I think climate change and mining have had a bigger impact."

Assessing the programme is complicated by political tensions. In the past year, three prominent Tibetan environmental campaigners have been arrested after exposing corruption and flaws in wildlife conservation on the plateau.

Another activist, who declined to give his name, said it was difficult to comment. "The situation is complicated. Some areas of grassland are getting better. Others are worse. There are so many factors involved."

A growing population of pika, gerbils, mice and other rodents is also blamed for degradation of the land because they burrow into the soil and eat grass roots.

Zoologists say this highlights how ecosystems can quickly move out of balance. Rodent numbers have increased dramatically in 10 years because their natural predators – hawks, eagles and leopards – have been hunted close to extinction. Belatedly, the authorities are trying to protect wildlife and attract birds of prey by erecting steel vantage points to replace felled trees.

There is widespread agreement that this climatically important region needs more study.

"People have not paid enough attention to the Tibetan

plateau. They call it the third pole but actually it is more important than the Arctic or Antarctic because it is closer to human communities," said Yang Yong, a Chinese explorer and environmental activist. "This area needs a great deal more research. The changes to glaciers and grasslands are very fast. The desertification of the grassland is a very evident phenomenon on the plateau. It's a reaction by a sensitive ecosystem that will precede similar reactions elsewhere."

Phuntsok Dorje is unlikely to take part in any study. But he's seen enough to be pessimistic about the future. "The weather is changing. It used to rain a lot in the summer and snow in the winter. There was a strong contrast between the seasons, but not now. It's getting drier year after year. If it carries on like this, I have no idea what I will do."

Additional reporting by Cui Zheng

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The Tibetan Plateau: the plight of ecological migrants

Feng Yongfeng October 2, 2008

Herders from the ecologically degraded Tibetan Plateau expected a better life when they were relocated to newly constructed urban homes. But they were disappointed, writes Feng Yongfeng.

The grasslands of the Tibetan Plateau are steadily degrading, a phenomenon that the Chinese government blames on the cattle and sheep kept by local herders. From 2003, many of the herders in the area known as the Three Rivers Source, from which the Yangtze River, Yellow River and Mekong (Lancang) River originate, have been moved to the outskirts of urban areas in order to give the grasslands some respite. I found, however, that a failure to effectively replace herders' livelihoods has led to a drop in their living standards.

The 631 million yuan (US\$92 million) resettlement project aims to resettle 89,358 people in more than 10 counties, cities and autonomous prefectures of Qinghai province. To date, almost 60,000 people in 10,000 households have been moved from their homes to the outskirts of county seats, where the authorities provide housing and living subsidies.

The county of Zhiduo is known as the "first county on the Yangtze" and is home to the famous Hoh Xil, or Kekexili Nature Reserve. The village of Suojia, in Zhiduo, covers 8,000 square kilometres. It is an important habitat for wildlife including the Tibetan antelope and it is the source of the Tongtian River, a tributary of the Yangtze River. Since 2005, as part of the ecological resettlement program, herders have been moved from Suojia to the outskirts of the county town, forming a "migrant village" of almost 200 households.

The county town itself is not large, but there is a short distance between the migrants and the town proper, leading to a psychological gap between the two populations.

"Zhaduo" (a contraction of the Tibetan name Tashi Dorje), the deputy secretary-general of the Qinghai Three Rivers Ecological Protection Association, was once an assistant to Sonam Dargyi, a hero in the fight to save the Tibetan antelope who in 2006 received a posthumous CCTV award for his work, after he was



murdered by poachers in 1994.

“

*Here you've got to buy everything,
but on the pastures we already
had everything we needed:
we got it all from the animals.*

”

Zhaduo knows the new arrivals well. If they are not relatives, they are his friends. I accompanied him on visits to many of the migrants' homes. The government has provided each family with an identical house with a newly dug well in the yard and a stove in the centre of the house. This is the sum total of household goods the government has provided. Each household receives an annual subsidy of 6,000 yuan (\$877) and an extra 1,000 yuan (\$146) for fuel. These subsidies will be provided for 10 years, after which the migrants are free to return to their homes, if they wish.

The Kunlun Ethnic Culture Village, on the southern outskirts of Ge'ermu, is mainly occupied by ecological migrants from Qumalai county, where the Yellow River has its source. In Kunlun, 240 households have been settled; like those in Zhiduo, the migrants live outside the town proper. Their children can attend school in the town and they can use the local hospitals, but they are still regarded as "incomers" and are officially under the administration of their original county government.

Tsering Lobsang used to be a village head in Qumalai county. In 2005, like many other villagers, he was happy to hear about the relocation. Life in the city was bound to be better, he thought. But things were not as easy as he had hoped. "Here you've got to buy everything, but on the pastures we already had everything we needed: we got it all from the animals. We burned dung for fuel there, but here we've got to pay for coal or gas. There

we got water from the river, here it is piped and it's only on for an hour a day. At home we can go to the toilet anywhere, there's no danger of pollution. Here we've got a flushing toilet, but that's no use without water."

Tsering Lobsang is worried about the future: "After we arrived here, we sold off our livestock. Our houses were knocked down and the pastures were handed over to the state. But now we are here we can't find work. Lots of people are just sitting at home all day."

The new arrivals stand out in Ge'ermu, which did not have many Tibetan residents previously. According to the plan, the village was to build a range of public facilities, but the majority of them have not appeared. A rubbish collection point was built in 2006, but its contents were never taken away. It quickly filled up and started to stink. In the end, the village had no option but to dig a hole on some empty ground and use it as a dump.

The authorities of Qumalai, Zhiduo and Ge'ermu always hoped to provide jobs. The government has on occasion dispatched study groups to find solutions, but a lack of resources and technology has prevented any breakthrough. The migrants often feel they have been discarded.

A cadre from Qumalai said that the herders living on the outskirts of cities are themselves a "tourism resource": attractions based around their horses, ethnic dances and traditional tents could be developed. This was the idea behind Kunlun Ethnic Culture Village, where some of the migrants put up tents, with the young folk employed in service and entertainment jobs. But visitor numbers have been low.

In the migrant villages there is a small shop every few paces. This does not need any technology to set up, but business is slow and they are unlikely to survive. Some of the villagers have given up and gone home to work as herders for people who were allowed to stay on the pastures, which brings in a small income.

The residents of Kunlun started a stone-carving workshop in order to sell carvings to tourists. But visitor numbers were low and those who did come were not keen on carrying a heavy piece of stone home, so few were sold. Now a clothing factory is planned, but without funds it is unlikely to get off the ground.

Zhaduo is even more worried than the others: he doesn't know if the villagers will be able to integrate into town life, or if they will be able to get used to their original lifestyles if they move back in 10 years time. He says that traditional Tibetan lifestyles are very environmentally friendly, especially because of Tibetan religious traditions. Tibetan Buddhism advocates respect for life and nature, and teachings about sacred mountains and holy lakes match well with current environmental concepts. It is very easy to use these traditions and religious teachings to urge local herders to fight against environmentally damaging behaviour. A partnership between the Qinghai Three Rivers Ecological Protection Association and Conservation International proved the efficacy of this method.

"If the locals can realise environmental protection and sustainable development without relocating, would there be any need to move them?" asks Zhaduo. Perhaps this could be a new solution.

Backgrounder: the Three Rivers Source

The "Three Rivers Source" refers to the sources of the Yangtze River, Yellow River and Mekong, or Lancang River, located on the Tibetan Plateau in western China, in southern Qinghai province. The area covers 302,500 square kilometres and has a current population of 556,000, 90% of whom are Tibetan. There are also Han, Hui, Salar and Mongol residents.

Historically this was an area of alpine meadows dotted with lakes, home to wild plants and animals. In recent decades glaciers and snow on the mountains have receded. Lakes and wetlands are shrinking; the land is drying up and becoming desert. Soil and water is being lost from a wider area. Desertification and degradation of grasslands is worsening. Forests have been damaged and 20% of local species are endangered. In some areas it is hard for locals to survive and they have no choice but to move.

Feng Yongfeng is a reporter at Guangming Daily and cofounder of environmental NGO Green Beagle.

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Material concerns in Sichuan (1)

Feng Yongfeng June 22, 2011

A push to build housing for Tibetan herders is driving logging in Sichuan, where angry locals have taken matters into their own hands. Campaigner Feng Yongfeng gives a view from the ground.

Editor's note: in May, chinadialogue reported on a grassroots movement to protect forests in western Sichuan from destruction. Feng Yongfeng, a journalist and founder of Chinese environmental NGO Green Beagle, spent time in Dege county as part of that campaign. Here, he gives his account of the situation on the ground and the response of local people.

Dawa Zhuoma always looks forward to getting home to the area known as Maisu in Sichuan's Dege county and the large forest that will welcome her there. She collects folk songs and knows that, without the trees, those songs would never have been sung – the music is like the river flowing through the forest: it needs to be protected and nurtured by the trees.

But on a trip home several months ago, Dawa was first shocked and then angered by what she found: the forest she had been looking forward to seeing appeared to have moved, and the roadside was littered with felled trees. A chainsaw can cut down centuries-old spruce and fir in mere seconds – and chop it up into pieces in minutes.

And then the trucks started passing. Each of these enormous vehicles can carry many trees. It takes about an hour to completely fill one, after which it drives its load away to an area with a timber shortage, where it is used to build houses and make furniture.

The other villagers were just as shocked as Dawa. In early 2010, teams of workers – who seemed more like bandits to the locals – turned up in the valley and started to fell, chop up and transport trees. This has continued ever since.

Dege's trees grow on steep, unstable mountainsides. Once the trees are felled, areas of mountainside slump into the river like a wounded man, blocking roads and becoming a potential cause of disasters such as mudslides and flashfloods.

One day in June last year, the people of Maisu decided



they weren't going to stand for it any longer – they stormed the camps, sabotaged the chainsaws and chased away the loggers, putting an end to the felling.

“ One day in June last year, the people of Maisu decided they weren't going to stand for it any longer – they stormed the camps, sabotaged the chainsaws and chased away the loggers. ”

Then they built a simple hut at the entrance to the forest and erected a crude roadblock: this was the villagers' timber checkpoint. The Maisu area is made up of three villages – Puma, Dama and Yueba – and each village sends three people a day to man the checkpoint. Without their say-so, no one can remove a single tree, nor can the trucks get in. In the year since they set up this system, the villagers have stuck to their guns: “No trees will be taken, even if I have to die,” said one.

Maisu isn't an official administrative designation, but the name represents an area with a strong cultural tradition. It stretches several dozen kilometres along a mountain valley. The mountains, capped with snow in winter, are covered with trees. Barley, potatoes and turnips are planted on fields alongside the river. The local buildings are famous and attract tourists and cultural enthusiasts. Among them are well known monasteries, such as Dzongsar and the Buddhist college attached to it.

The area also has a famous hospital, which maintains Dege's long-lasting tradition of Tibetan medicine and where new formulas and treatments are researched. The hospital has been rebuilt recently and an in-patients department will soon be added. The local Tibetan incense is also famous for its medicinal properties.

Maisu is where Dawa was born and raised and is a part of Dege, one of the three main centres of Tibetan culture (the others are the Tibetan capital of Lhasa and Xiahe). Dege's Ngaxu grasslands (Axu in Chinese) are believed to be the birthplace of King Gesar, and many heroic deeds are supposed to have happened here. Dege is also home to an institution that prints Tibetan scripture – another reason why it is an important place for the gathering and transmission of Tibetan culture. Dege's temples, traditions and medicines are all sources of great pride for the local community.

The most attractive part of Tibetan culture is that history is always alive in the present. In environmental terms, there are few places where people have lived for thousands of years without change: where the faith is the same and the scenery the same. Attitudes towards nature also stay constant here. When someone hurts the natural world, the people will respond on its behalf – because they believe that they are one with nature. Nobody can stop them protecting their surroundings.

The people of Maisu are confident that the position they have adopted is the correct one. When the trucks first arrived last spring, the locals were told the timber would be used to build houses for the poor, and they were happy with that: even if the trees were precious, they knew it was right to fell them if it would help relieve poverty.

But two things made them suspicious. First, the tree-felling was excessive: all the trees along the roads and on the slopes were being taken – and the bigger the trees, the quicker they were felled. Second, when locals went to see the houses that were supposedly being built with these trees, they found that, in fact, hardly any timber was being used. The buildings were almost entirely made from concrete and stone.

If the wood wasn't being used for "houses for the poor", where was it going? The community heard rumours that the timber was being taken to Chengdu, the provincial capital, or Qamdo in Tibet, or to Yushu and Xining in Qinghai – wherever it was going, it wasn't going where it was supposed to. Worse, the bosses of the felling teams said they had bought up all the trees in the valley and that the area was set to be completely cleared over the next three years.

Completely cleared? It was unthinkable. In Maisu tradition, only fallen branches are used for firewood

and, when people fell trees for construction, they must make repeated apologies to mountain and tree spirits. If they see people out hunting with guns the locals often beg for mercy for the animals. How could anyone want to clear the mountainsides of trees?

In fact, the "poor" the locals were told about are the "timber poor". The provincial government wanted to build homes for grassland herders, but as there are no trees on the grasslands, there is a shortage of timber for construction.

In Maisu, people are both farmers and herders. Every household has cows and sheep, but they graze in the forests. In the summer, they move their herds up into the mountains, and live in simple wooden barns. Maisu homes are also classic mud, wood and stone constructions – local tradition demands the use of wood in homes – and are known for their solid walls built from gravel and mud, and exquisite structures made out of local wood. The ground floor of the buildings are given to livestock, while people live on the second floor and the attic is reserved for worship and burning mulberry branches.

The provincial government's programme to settle Tibetan herders includes spending 18 billion yuan (US\$2.8 billion) on the construction of 1,409 settlements and associated infrastructure in 29 herding counties within four years from 2009. The aim is to improve living conditions for 100,000 families with no fixed home, or only crude housing. It promises that "every family will have a home and a new tent, and every village an activity centre," along with better living and working conditions and improved infrastructure and public services.

In December 2008, a survey of 500 herding households in Sichuan found that almost 98% of them were willing to live in a fixed dwelling, and even more than that were willing to pay for a house to be built.

But you can't build a house without building materials – and that usually means trees. To provide wood for the project, timber supply points were designated in locations such as Dege. Villages with forests are obliged to provide timber to villages without. Some counties in Garze prefecture have no forests at all – and all of their wood needs to be brought in from outside.

Feng Yongfeng is a reporter at Guangming Daily and co-founder of environmental NGO Green Beagle.

Material concerns in Sichuan (2)

Feng Yongfeng June 22, 2011

Concluding his account of Sichuan's timber struggle, Feng Yongfeng talks to a local official fighting to balance political and environmental commitments in Dege county.

Zhang Kelin, head of the Dege Forestry Bureau, is fed up of felling. When I met him he was preparing to go out and plant trees – every year the bureau plants tens of thousands of them.

But his job also makes him a timber supplier. Zhang has been instructed to provide quality wood for Sichuan's herder-settlement project. As a political commitment, this is more important a part of his work than environmental protection.

The county plans to build 7,000 homes for herders over the next three years, along with several hundred village halls. That will require at least 160,000 cubic metres of wood. Dege also needs to provide timber to counties without their own trees to fell, such as Shiqu, as well as the reconstruction programme in Yushu in Qinghai, which was hit by an earthquake in 2010. And so six timber-supply points have been designated as places where the necessary timber can be felled.

Zhang explained that the bureau has issued strict rules on logging. Villages carrying out construction must calculate how much each household will need – usually about 20 cubic metres – and apply for a felling quota from the forestry bureau. Once they have that, they can go to the timber-supply points to fell the trees.

But the herders themselves don't know how to cut down trees, and so companies are employed to fell and transport the timber. Once the trees have been chopped down, they are delivered to the villages and used in construction. In order to encourage participation in the project, the government is providing large subsidies to the herders – about 60,000 yuan (US\$9,300) per household. This means they hardly need to spend any of their own money.

But it is hard to avoid trees being illegally felled and sold. "Our bureau has very few employees, but we've been strengthening supervision," said Zhang.

Zhang admits that the larger felling quotas have put pressure on the environment. Dege has 32% forest



coverage and lies at a high altitude – only 10,000 or 20,000 cubic metres of new wood grow here every year. So providing 160,000 cubic metres in three years far outstrips the natural replacement rate.

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It is hard to avoid trees being illegally felled and sold. 'Our bureau has very few employees, but we've been strengthening supervision,' said Zhang.

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Also, if trees are included that grow by water sources, or on slopes and other geologically vulnerable sites, there is bound to be an impact on the environment and community: mudslides will be more frequent, biodiversity reduced and there will be a psychological impact on local people.

Zhang explained that the local campaign to protect the trees would have consequences elsewhere: "The fact that people in Maisu are not allowing felling will increase the pressure on the other locations. Of course, we're doing our best to reduce the use of timber in construction in favour of cement, tiles and corrugated steel. If that's successful, we may be able to reduce timber demand for the county to 60,000 cubic metres or less."

When I visited Maisu, the locals had been working to prevent felling for 10 months, but the county government still hadn't sent anyone to the area resolve the issue. Zhang argued that there is no need for the locals in Maisu to get involved, as the felling isn't even happening in their villages – in fact, much of it is taking place in neighbouring Baiyu county, or in areas of disputed ownership. He added that the checkpoint is illegal: "They have no right to do anything outside of their administrative area."

But the people here aren't concerned with borders, and traditionally this area counts as Maisu. They also believe that, even if this land isn't officially theirs, they still have a duty to intervene. Some of the people employed to chop down the trees have started visiting temples to repent and swear that they won't do it again. Felled trees lie uncollected by the river and road – nobody wants to claim them as their own. Sometimes someone will take a few pieces of timber home by motorbike, but only off-cuts. Even though the trees have been felled, they belong to the forest, not the people.

In October last year, a visitor to the area, named Wang Wuzhi, discovered that tree-felling was taking place in Maisu and uploaded a number of pictures to the internet. Greenpeace responded quickly and sent a team to the scene to investigate (see chinadialogue article "Saving Sichuan's trees" for more details). In mid-March this year, the team arrived in Dege, and Wang joined them as a volunteer.

Their field study found that that, in places like Baiyu, large stretches of natural forest had been destructively felled. Yi Lan, forest campaigner for Greenpeace China, explained that most of the trees chopped down were firs and spruce firs, with trunks measuring up to a metre in diameter. Some were more than 20 metres tall. In a high-altitude temperate region like this it takes over a century for a tree like that to grow.

Greenpeace visited the 80-kilometre long Dengqu valley in Baiyu county and saw fallen fir trees littering the slopes on both sides of the river, with marks left where they had been dragged down the mountainside. These are steep and loose slopes and felling here can trigger landslides. This precious natural forest should protect water sources – but now the trees lie scattered on the slopes and in the river.

Yi Lan explained that 2011 is the UN International Year of Forests, and the first year of the second phase of China's natural forest-protection programme. That second phase will see China work to halt commercial felling of natural forests on the upper reaches of the Yangtze River and the upper and middle reaches of the Yellow River. Sichuan is within the scope of the programme, and any felling of natural forest here should be tightly controlled and monitored.

In March 2006, Greenpeace and scientists and

cartographers from around the world published the result of three years of work – the most detailed map to date of the world's natural forests. Satellite data was used to map the area and distribution of all unspoiled forests of more than 500 square kilometres. According to that map, China's unspoiled natural forests account for a mere 2% of total forests. Most of these are concentrated in the same areas: along the Nu River and the border with Burma in Yunnan, at the bend in the Yarlung Zangbo River in Tibet, in a few spots in Xinjiang and north-east China – and in Baiyu and other areas in western Sichuan.

Feng Yongfeng is a reporter at Guangming Daily and co-founder of environmental NGO Green Beagle.

image from microfotos.com

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Kashmir's urban jungle

Athar Parvaiz May 20, 2011

Unbridled urban development is destroying Kashmir's precious wetlands and government apathy is to blame, writes Athar Parvaiz from northern India.

Srinagar city, the capital of Kashmir nestled in the north Indian Himalayas, has witnessed massive urbanisation over recent years. Now home to 1.4 million people, the area of the city has expanded substantially, making land management a complex phenomenon. With hardly any regulation of urban growth, the inhabitants and ecology of the area – already under severe pressure from environmental hazards, siltation and encroachments – are exposed to further danger.

Experts argue that, if rapid urbanisation is allowed to continue unchecked, Kashmir's precious wetlands might vanish within a few years. This would endanger millions of animals and migratory birds that flock to Kashmir's wetlands every year. Experts warn that the number of winged visitors has steadily declined over the last few years. "Encroachment of the wetlands and their siltation is the major cause of decline in the number of migratory birds," said Shahid Ahmad, an environmentalist who has worked on several wetlands in Kashmir.

"For example, the Hokersar wetland, situated 16 kilometres north of Srinagar, has shrunk to 4.5 square kilometres from its original area of 13.75 square kilometres. The Haigam wetland, further north, has been reduced to almost half its original size," explained Ahmad. Many of the 500 wetlands in and around Srinagar city recorded by the Environment and Remote Sensing Department of the state government in the late 1990s have completely vanished.

Mian Javed is the Environment and Remote Sensing Department's director in Srinagar. He voiced his concern that precious little has been done to save the wetlands and other natural resources like forests and wildlife: "The un-planned and un-regulated growth, industrialisation and urbanisation throughout the Himalayan state of Jammu & Kashmir in general and Kashmir in particular have taken a heavy toll on our natural resources, like forests, lakes, rivers, streams and the ecosystems supported by these assets," said Javed.

Javed, previously director of Srinagar's pollution control



board, described the impact as alarming. "The pace of eco-restoration and rehabilitation of affected habitats is disproportionate to the rate of degradation of our environment. Huge resources are needed to restore the lost glory of our precious but fragile eco-systems," he observed.

“ Many of the 500 wetlands in and around Srinagar city recorded in the late 1990s have completely vanished ”

Environmental experts say that, in the past, Srinagar city – with its naturally-balanced environment of forests, wetlands, rich agricultural land, mountains and built-up areas – used to play host to all kinds of inhabitants. "Wetlands used to provide an important function regulating water regimes especially during floods," said Shahid Ahmad, who teaches environmental science at Kashmir University. "Many wildlife species also depend on these water bodies for their survival. These wetlands have been threatened either by explosive spread of obnoxious weed growth, or by increasing pollution from indiscriminate discharge of domestic effluents and run-off from agricultural fields."

Dal Lake and Nagin Lake have been squeezed from around 36 square kilometres to around 12.5 square kilometres due to sewage, soil erosion, agricultural run-off and deforestation. The construction of increasing numbers of floating gardens and houses in and around the lake has added to pressures. All of this has speeded up the process of eutrophication in lakes, threatening the very existence of these water bodies and aquatic life.

In the absence of appropriate drainage and sewerage systems, Srinagar city's effluents are directly or

indirectly drained into various water bodies. The challenge of waste disposal has assumed epic proportions due to rapid population growth and unauthorised settlements that have built up in low-lying areas of Srinagar. This has had a severe impact on water quality.

Several species of fish unique to the waters of Kashmir are in danger of extinction due to high levels of pollution, environmentalists say. According to freshwater fish specialist professor AR Yousuf, excessive use of herbicides, pesticides and sub-standard fertilisers dumped into Kashmir's waters is the main threat to the survival of these fish species. Experts like Yousuf are worried that the use of such chemicals in agriculture and horticulture has seen a major increase in recent years.

Yet another worrisome consequence of rapid urban expansion is the growing incidence of timber smuggling, fuelled by the construction boom. In the absence of a coherent forestry policy or sufficient regulation, this is causing widespread destruction in the forests of Kashmir. Diversion of forest land to make way for development projects is also nibbling away at precious forest resources.

Sources within the state forestry department disclosed that, while some diversion of forest land for development projects is unavoidable, "both the government and construction agencies prefer to divert their projects to forest land rather than privately-owned land in order to avoid any compensation issues."

The construction boom is not only feeding on forest wealth, but also consuming thousands of hectares of agricultural land. According to Nazir Ahmad Qazi, deputy director of law enforcement at Kashmir's agriculture department, more than 10,000 hectares of agricultural land in Kashmir has been converted for residential and commercial use over the past few years.

"The concept of horizontal expansion, prevalent in Srinagar for decades, is proving quite disastrous, since, unlike vertical expansion, it consumes additional space and construction material including timber," said Nissar Ahmad, forest conservator for central Kashmir.

Environmental experts in Kashmir blame the relevant government departments for the environmental mess this Himalayan state finds itself in today. "We have

been urging the state government to declare a land-use policy for many years, but it is yet to come out with any such policy. That is why we are in such a terrible mess," observed professor Shakeel Ahmed Rumshoo of Kashmir University, who has done extensive environmental work in Kashmir.

The government of Jammu & Kashmir has failed to prepare its State of Environment Report (SOER) – a mandatory assessment of environmental damage – even though other states and union territories in India managed to complete theirs in time to be approved by the Ministry of Environment and Forests in the 10th Five Year Plan back in 2002.

"Most of the (government) departments in Kashmir are yet to submit the data. We have sent many reminders underscoring the urgency of preparing the report, but there has been no response," SOER coordinator Mutahirra Abida Wahid Deva was quoted as saying in a local newspaper.

Interestingly, the offending departments – including those for tourism, housing and urban development, plus the Lakes and Waterways Development Authority – all hold the key to safeguarding the environment and ecology. But, as Deva observed, without the preparation of a comprehensive SOER, Jammu & Kashmir will lose funds under "Green India", a central government-sponsored scheme that provides money to state authorities to minimise environmental damage caused by reckless development. Experts say that without such funds there is little hope of restoring Kashmir's water and forest resources to their original state, or avoiding further destruction.

Athar Parvaiz is an environmental journalist based in Kashmir.

Image from batschmidt

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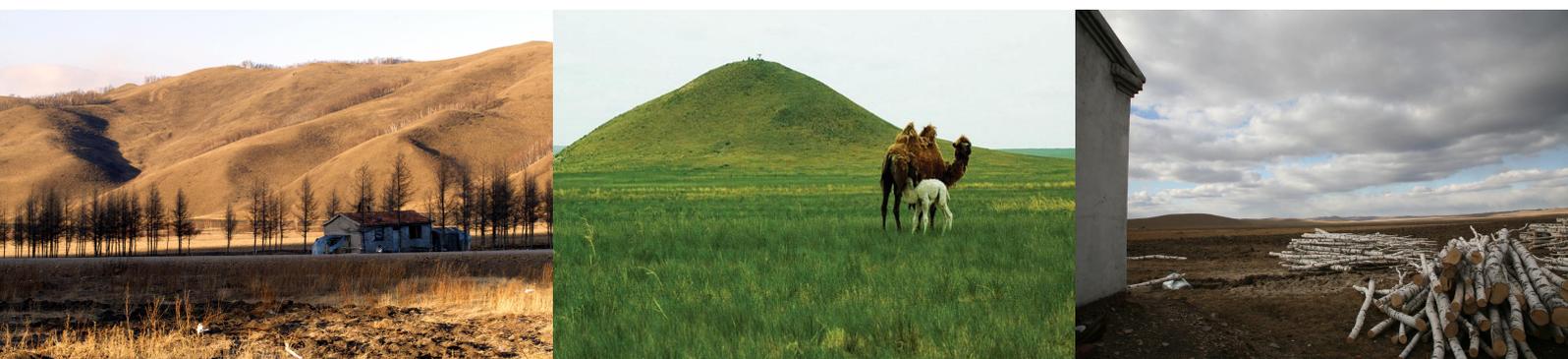
Governance

Editor's note:

Two articles by Beth Walker and Emily Yeh consider the impacts of grassland protection policies through a close look at Chinese government programme “retire livestock and restore grassland”. Yeh’s piece in particular, “Restoring the grasslands?”, provides a detailed account of the background to this project and the measures introduced under it, as well as evaluating its results.

Alongside government policies, herders have been taking protective action of their own. In “Joining forces on the grasslands”, Zhou Wei describes how the Inner Mongolian village of Hargobi introduced a grassland management system off its own back. And in “Building communities and saving the environment”, Feng Yongfeng explains how efforts to monitor and manage natural resources in a Tibetan herding area of south China’s Three Parallel Rivers site are rooted in local tradition.

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Photos by BROOKS' People and Grassland Project

Policies for an eco-plateau

Beth Walker January 25, 2010

Climate change poses new threats to life on the grasslands of the Tibetan plateau. Beth Walker introduces a week-long series about government responses to the challenge, their environmental and social effects.

Tibetan grasslands constitute one of the most important grazing ecosystems in the world. Since 2000, when China began its “Western Development Strategy”, the global significance of the Tibetan plateau region has been widely recognised, both as the “third pole” – a water tower upon which around 40% of the world’s population depend – and as a geographic region with a unique natural and cultural heritage.

Traditional pastoralism, and to a lesser extent subsistence hunting, have been practiced in this high-altitude, fragile ecosystem for over 5,000 years. However, climate change is now leading to historically unprecedented pressures. For example, at the centre of the plateau at the source of the Yellow River, over one-third of the grasslands have transformed into semi-desert conditions.

The Chinese government has introduced a number of policies aimed at reversing this trend and protecting the ecology and biodiversity of the grasslands over the last decades. Since the 1980s, these have included the assignment of property rights and the fencing of rangeland. As the Western Development Strategy began, the first programme to be adopted and implemented was a nationwide environmental restoration program. The “farmland to forest” policy, or “grain to green” (tuigeng huanlin), which converted steep cultivated land to forest, was one of the most important initiatives. In grassland areas, it is known as the “pastures to grassland” policy (tuimu huancao). The basic premise of this policy is that a decade of respite from livestock grazing is necessary for degraded grassland to be restored to its natural state, and therefore domestic livestock – and their herders – should be moved away. Now, new fencing is being erected at an unprecedented rate in rural grassland areas.

However, this policy has been recently overshadowed by another attempt to conserve the region, known as “ecological migration” (shengtai yimin). Since the mid 1990s, “ecological migration” has been used to describe



the planned relocation of people from areas under environmental pressure. It was adopted as official state policy in 2002. The major target of this policy has been the Sanjiangyuan (“Three river sources”) region of Qinghai, situated in the centre of the Tibetan plateau, which encompasses the headwaters of three major Asian rivers: the Yellow River, the Yangtze River, and Mekong River. In 2003, the area became the second-largest nature reserve in the world, as well as the highest and most extensive wetland protected area.

Now, tens of thousands of families have been asked to move from these fragile grassland areas and adopt new livelihoods in farming, or to live in new towns. In Qinghai, for example, 35 resettlement communities have already been built and 51 more are under construction. According to government plans, over 100,000 people (17% of the region’s population) will have been relocated from Sanjiangyuan by the start of this year, with the aim of restoring the grassland ecosystem.

However, these resettlement projects have raised serious concerns, mainly among academics, about the policy and its effects on minority groups in China. According to some scholars, these kinds of projects have historically been as much about the urbanisation of nomadic peoples (in this case, mostly ethnic Tibetans and Mongolians), as they have been about protecting the environment. Moreover, recent studies have suggested that overgrazing may not in fact be the major driver of environmental degradation

In her article for chinadialogue tomorrow, “Restoring the grasslands?”, Emily Yeh reviews recent Chinese government grassland policies and relocation programmes. Yeh writes that recent studies suggest the

environmental and social benefits of such measures have been overstated. Later in the week, Judith Shapiro looks in detail at the tragic history of the Lakota Sioux in the American state of South Dakota, and asks what China can learn from the sad history of Native American resettlement.

Beth Walker is a researcher at chinadialogue's "the third pole" project

Image from Friends of Grassland

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Restoring the grasslands?

Emily Yeh January 26, 2010

China has introduced a number of policies to protect the environment of the grasslands. But studies suggest the ecological and social benefits of such measures have been overstated, writes Emily Yeh.

In 2003, China introduced a new programme, known as “retire livestock and restore grassland” (tuimu huancao), which called for grazing removal in order to halt and reverse severe grassland degradation. This scheme established various types of fenced zones, including those in which grazing is to be closed for several months annually (a form of rotational grazing), and those where grazing is to be banned for five or 10 years – or in some cases, permanently.

The seasonal rotational grazing and seeding aspects of tuimu huancao resemble other grassland policies, which have been implemented since the 1980s due to concerns about widespread degradation. These have included a number of technical solutions, including the eradication of pikas (a type of rabbit), subsidisation of permanent winter homes, building of fences, provision of livestock shelters and planting of supplemental winter fodder.

In addition to stressing technical interventions, these policies included the extension of the household responsibility system – which gave farmers rights to their fields – from agricultural to pastoral areas. The rationale for promoting the privatisation of use-rights to winter pasture was based on the assumption that this would give herders the proper incentives both to better manage their land and also to become more efficient market producers, thus raising their standard of living. The possibility of having poorer families with fewer livestock rent their pastures to families with more livestock as an income generating strategy for the former is also considered a benefit in some areas.

As is the case with many policies, implementation of tuimu huancao varies widely. In the Tibetan Autonomous Region (TAR), interventions in line with previous policies, such as seeding of grass, are stressed. Herders would prefer to use the fencing material provided by the project to reserve higher productivity alpine marsh meadows for use as winter or emergency fodder. However, officials – who determine which areas



will be fenced – follow the policy of fencing off only lower-productivity alpine meadows and sandy areas, for various lengths of time, in order to improve them. This difference, stemming from different understandings of local grassland ecology, leads to a lack of local enthusiasm for the project, as does lack of compensation for loss of grazing areas, particularly where it has been promised to local herders.

“ Large-scale boundary fencing, together with use-rights privatisation, reduces mobility across the landscape. This could potentially increase vulnerability to devastating snowstorms, which climate-change models predict will become more frequent and severe. ”

Attempts at seeding appear not to be very successful thus far, particularly in the drier western areas of the TAR. In some parts of Sichuan province’s Ganzi prefecture, tuimu huancao has taken the form of distinctive concrete-post fencing along the highway, some of which does not even form full enclosures. However, local residents must guard the valuable fence from thieves, lest the fence goes missing when officials come to inspect.

While some aspects of tuimu huancao extend previous policies by focusing on technical measures to improve herders’ management of their pastures, other components of the programme are quite different from previous policies, insofar as they seek to remove pastoralists from the land entirely. This dramatically different form has been implemented in the core area of the Sanjiangyuan (“the source of the three rivers”) National-level Nature Reserve in Qinghai, a region which has been dubbed China’s “water tower,” and is considered vital to the country’s ecological security. Here, tuimu huancao is being implemented in

conjunction with ecological migration, with herders to settle for 10 years, or permanently, in towns.

According to provincial government plans, those who resettle voluntarily in groups and who permanently give up livestock herding are to be given 80,000 yuan (US\$11,718) as compensation, as well as 8,000 yuan (US\$1,172) of grain subsidies over five years; those who voluntarily resettle as individual households and who give up herding for at least 10 years are given 40,000 yuan (US\$5,859) and 6,000 yuan (US\$879) as grain subsidies; and finally herders who had moved ahead of project implementation because of deteriorating environmental conditions are to receive 20,000 yuan (US\$2,930) compensation packages and 3,000 yuan (US\$439) of grain subsidies per year.

Several different goals have been linked to the combination of tuimu huancao and ecological migration: a significant improvement in the region's ecology, as well as the standard of living of the pastoralists. Furthermore, the State Council's "White Paper on China's Policies and Actions for Addressing Climate Change" explicitly lists tuimu huancao as a climate adaptation strategy. To what extent, though, are these goals likely to be met? Evidence to date suggests that the ecological benefits are questionable while the social costs are high.

For tuimu huancao and ecological migration to improve grassland degradation in any given area, several conditions must hold true: grasslands must be degraded; overgrazing must be a primary cause of the problem; and removal of grazing must be able to move the ecosystem out of its undesirable state. However, a number of scientists (for example, see Richard Harris, "Rangeland Degradation on the Qinghai-Tibetan Plateau", available here) have questioned sweeping statements about pervasive degradation across the plateau. Indeed, some of the data on which commonly cited statistics about the extent of degradation and the rate at which it is increasing is based, appear to be from undocumented and methodologically dubious surveys.

Recent attempts to more rigorously quantify the extent of degradation have had conflicting results. Thus, while overgrazing in the past or present is undoubtedly a key driver of vegetation change in some areas, other factors such as climate change – and interactions between multiple factors – may also play important roles. To date, few rigorous studies have been conducted to

investigate these multiple interacting factors, or the extent to which ecosystems can transition to other states under conditions imposed by various interventions. Much work remains to be done in demonstrating the ecological effects of grazing removal in areas where it is being implemented.

Furthermore, there are reasons to believe that tuimu huancao in its various forms will not be a win-win solution for both rangeland health and climate-change adaptation. Large-scale boundary fencing, together with use-rights privatisation, reduces mobility across the landscape. (Although small-scale fencing for reserve pasture or fodder production is generally welcome). This could potentially increase vulnerability to devastating snowstorms, which climate-change models predict will become more frequent and severe. In addition, such fencing can have negative effects for migratory wildlife, as well as for local livelihoods, as a result of the uneven spatial distribution of rangeland resources.

A study conducted by Chinese scientists in Sichuan's Ruo'ergai county found that the number of herders facing lack of water availability tripled after household rangeland allocation. (See Yan Zhaoli et al, "A review of rangeland privatization and its implications in the Tibetan Plateau", available here). Furthermore, recent ecological evidence from warming and grazing experiments on the eastern Tibetan plateau suggests that the presence of moderate grazing actually helps control the expected effects of global warming on reduction of biodiversity and rangeland quality. Experimental warming leads to decreased species richness, including of medicinal plants, as well as decreased biomass, including palatable biomass. However, these effects are dampened in the presence of grazing (see articles by Julia Klein, available here). These results suggest tuimu huancao may not be adaptive for climate change.

Studies to date of those who have been resettled through ecological migration also suggest that the benefits of resettlement for improving the livelihoods of herders are overstated. Some who have voluntarily resettled have expressed regrets about doing so, saying they did not realise the extent to which everything in their new town-based lives must be purchased with cash. For many families, government compensation has been inadequate, especially as inflation drives up costs while subsidies remain the same. In one study

conducted in Golok, the annual income of those resettled in towns was reportedly lower than their earlier subsistence income, while expenditures were higher; those interviewed also stated that their health conditions had declined after resettlement, because of changes in living conditions as well as diet.

Contributing significantly to the problems is the fact that the Tibetan ex-pastoralists do not have Chinese language and other skills needed to earn an income in the towns. While some are employed as unskilled construction labourers, or have found work in new income opportunities, such as breeding and selling Tibetan mastiffs, most are subsisting only on temporary subsidies and income from digging caterpillar fungus.

Those who do not have the labour power to dig caterpillar fungus are the worst off. Participants of skills training workshops have often still been unable to find work. Once subsidies run out, problems stemming from this unemployment and under-employment will be exacerbated. Indeed, social problems have already emerged, with resettlement areas quickly earning nicknames such as “robber villages,” purportedly because former pastoralists, idle and without income, have resorted to theft.

At the same time, in many parts of the Sanjiangyuan area, it is primarily those families with few or no livestock who have resettled. Some of their pastures are still being grazed by other families, thus undermining the original ecological rationales of the program. Given all of these factors, in many areas, tuimu huancao and ecological migration seem unlikely to be successful in living up to their worthy environmental and social goals. Instead, they may neither improve rangeland conditions nor enhance climate adaptation, while also having negative effects on local livelihoods.

However, much more rigorous empirical work remains to be done to examine the causes and extent of rangeland degradation, the socioeconomic and ecological effects of current policies, and the best measures to enhance local capacity to adapt to global climate change on the Tibetan plateau.

Emily Yeh is assistant professor of geography at the University of Colorado, Boulder. Educated at MIT and the University of California, Berkeley, she has conducted research on property rights, natural resource conflicts,

environmental history, emerging environmentalisms and the political economy and cultural politics of development and land-use change in Tibet.

image by Zhou Li

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Joining forces on the grasslands

Zhou Wei April 8, 2011

Cooperative herding in Inner Mongolia embodies the spirit of traditional nomad culture – it is also a path to economic development and grassland protection, writes Zhou Wei.

This winter, continuous snows covered the pastures of Inner Mongolia's East Ujumchin Banner. On the phone to Hobshalt, I could make out the sound of wind and motors. "These past few days have been hectic," he said. "We have had blizzards and the livestock can't get to the grass. Our cooperative is sending members out to take fodder to the herders." He did not sound worried – work was going on, just like normal.

Hobshalt is 40 years old, handsome and stocky. For almost 20 years, he has been the head of Hargobi village. For many years, he has also been in charge of its cooperative, using his popularity among local herders to drive efforts to help the poor and protect the grasslands and earning an excellent reputation among the people of East Ujumchin.

I first visited the village in 2007, with a group from Beijing. Our car had pulled in by the roadside when I saw a man on horseback galloping towards us in a cloud of dust, his blue Mongolian robes flowing in the wind, like something out of the movies. Entering a yurt we were told to let the elders in first, and then take our seats according to age and gender. We drank a toast and then carefully sipped our tea, trying not to cause any offence.

The first thing we noticed about the village was its respect for tradition – something many herding areas have lost. I also noted that, in contrast to our experience elsewhere on the grasslands, where we filmed and photographed the herders, here they were taking photos of us. They remained calm and confident even when meeting academics and officials from Beijing, and that left a deep impression.

East Ujumchin is at the northern tip of the Xilin Gol League, one of Inner Mongolia's 12 prefectures, and has lush grazing and better preserved grasslands culture than many other parts of the region. But like the rest of China, both its ecology and economy are vulnerable to harsh winds and snows. Sudden droughts and blizzards have been known to bankrupt more than half of local herders.



After the snows this year, the East Ujumchin government dispatched emergency fodder and transportation equipment, but delivering the supplies over snow-blocked roads through a vast and sparsely-populated region was a huge challenge. The East Ujumchin government ended up passing the task of delivery on to local committees. But, unlike other village heads, Hobshalt then delegated that task to members of the cooperative. With the herders looking after themselves and each other, the fodder was quickly and efficiently delivered.

“ Once the grasslands were parcelled out to households, the herders had too much invested in ‘their’ land, and the success or failure of that pasture came to mean the success or failure of the household. ”

A drought in 2001 killed half of Hargobi's livestock, leaving many herders with no choice but to take high-interest loans in a bid to stem their losses. Later, unable to make repayments, the herders were forced to lease their pastures to the money lenders who, for a quick return, overgrazed and damaged the land. This kind of harm originating from high-interest borrowing is common in Inner Mongolia. Herders in areas where traditions of cooperation have been lost frequently have to resort to such loans after disaster strikes.

Over the last 20 years, under the household responsibility system, land in Inner Mongolia has been contracted out to individual households, the majority of which have put up fences to protect their plots. The herders say this fragments the grasslands and destroys traditions of cooperation and nomadism. In the past,

the grasslands belonged to everyone. Herders in the east would travel thousands of kilometres to find fertile pastures, while those in the west would travel to the east to avoid drought or snow. In Mongolian, this kind of long-distance nomadism is called “aoteer”, a key method for avoiding danger. Wherever the nomads travelled, they would be welcomed as far-travelled guests.

Precipitation in Mongolia is variable and unevenly distributed – drought and blizzards can strike anywhere. As a result, herders traditionally worked together and looked out for each other. Hospitality was not just good manners, it was essential for survival: a herder knew that the next time it might be him seeking help in a distant place. But once the grasslands were parcelled out to households, the herders had too much invested in “their” land, and the success or failure of that pasture came to mean the success or failure of the household. Now if herders travel with their livestock to avoid disasters, they find water wells guarded by their owners and fees for grazing collected per head of livestock.

But if they stay home, they are forced to take high-interest loans so that they can buy fodder, and countless herders are left bankrupt and bereft of their land once the disaster has passed. The subsequent over-use of grasslands by lenders is a major factor in grassland degradation.

Hobshalt realised that, to have any hope of protecting the grasslands, the herders needed to work together. On behalf of the village, he helped poor households clear their debts and reclaim their land, and reallocated resources: poor herders without livestock were provided with stable livelihoods through paid labour or by renting out their land at a reasonable rate to richer herders. He also set up a system within the village to help pay for children from poor families to go to school or to leave for further education.

Then he started to think about a cooperative. He founded an association to apply those traditional nomadic practices still valid in modern herding and to organise the herders to jointly manage the grasslands. Elderly members of nomadic tribes are stores of knowledge and, in Hargobi, they sit on a herding committee, which acts as the decision-making body. All policy decisions are discussed and decided by the committee. Hobshalt has a reputation for being a fair and selfless village head.

In July 2007, a conference on grassland development cooperatives organised by the committee was held near East Ujumchin. The Agricultural Cooperative Law, which encourages Chinese farmers to work together, had just come into effect and the idea of cooperatives had reached the grasslands. Some herders with experience of cooperation were already looking for modern ways to apply it. After the meeting, Hobshalt registered a cooperative.

One of its first actions was to establish a breeding network for Ujumchin sheep, a large, robust animal that is said to have accompanied Ghengis Khan on his journeys of conquest. Once the pride of many herders, it has been neglected due to government policy on animal stock. After the cooperative was founded, the herders came together to purchase high-quality breeding animals. Now they all raise breeding animals, which fetch twice the price of a normal Ujumchin sheep. “When the price for livestock increases, you can shrink the herd, and then there’s less pressure on the grasslands,” said Hobshalt.

In 2009, he took a group of herders to Hulun Buir, in north-eastern Inner Mongolia, to learn from the experiences of other herding cooperatives and started plans to bring livestock products to the market. While the herders are benefitting from cooperation, they are still vulnerable. Hobshalt has seen others registering brand names for products and, along with some of the herders, is advocating a similar move for their cooperative. Then they can develop markets together, establish their own sales team and tackle problems of exploitation by middle men and the monopoly of existing brands.

Statistics from Inner Mongolia’s Pasture Management Office show that, between 2006 and 2008, the number of cooperatives in the region increased from 260 to 390, with the number of households involved jumping from more than 15,500 to almost 37,700. Many of these were cooperative organisations (cooperatives or associations) founded by the herders themselves, as at Hargobi, though some have been founded by opportunists taking advantage of government policy.

Ao Renqi, a researcher at the Inner Mongolia Academy of Social Sciences, who has long studied herding cooperatives, told chinadialogue: “We’re interested in cooperatives founded by the herders themselves.

The cooperative tradition and spirit is the heart of Mongolian herding communes – and also offers a route to both protecting the grasslands and developing the economy.”

Zhou Wei is associate editor in chinadialogue's Beijing office

Photo from Brooks shows a meeting of an Inner Mongolian herding cooperative.

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Building communities and saving the environment

Feng Yongfeng September 11, 2007

Local knowledge is helping conservationists protect the fragile ecology of northwest China's grasslands. Feng Yongfeng reports from the village of Cuochi on the Qinghai-Tibet plateau.

On July 18, the herders of Cuochi village in northwest China's Qinghai province launched the "Ecological Culture Festival". At the same time, Wang Dajun, a professor at the Peking University School of Bioscience, made a speech in Beijing to the Green Journalists Salon (founded by Wang Yongchen and Zhang Kejia) where he described the charms of Cuochi, its joy and its fears.

Cuochi lies at the centre of a wild animal reserve in the Three River Source Nature Reserve, which covers an area of 2,124.5 square kilometers on the Qinghai-Tibet plateau, at an average elevation of 4,200 metres above sea level. Its highest point is 4,800 metres, and Cuochi is one of the highest herding villages in China.

The first-time visitor to Cuochi will be struck by its peaceful air and the sense that the village is removed from the stresses of everyday life. The scenery is picturesque, its people are kind and welcoming. However, visit more often and it becomes apparent what huge changes are taking place. Roads have been built, cutting the journey from Golmud to Cuochi from three or four days to a half-day. The villagers now ride motorbikes instead of horses. Some own digital cameras and similar electrical devices, which they recharge at a new, solar-powered electricity point.

Quick, convenient travel and the exchange of products and information have given the villagers modern comforts. But there have also been negative consequences. Cuochi – like many places in China – once prided itself on the harmony it achieved between people, and between people and the environment; a harmony that has gradually been disappearing. One example is to be seen in the deterioration of Cuochi's grasslands. However, the village has started to come up with its own ways of reversing this trend.

Haxi Zhaxiduojie, known to locals as "Zhaduo", is deputy secretary of the local environmental protection committee. He won an award this year from China Central Television for his work improving environmental



protection and helping community cohesion. His work is popularly called "community management", and Cuochi Village has been its main testing-ground.

Under the community management scheme, villagers were mobilised to study the environment – its recurring natural phenomena, flora, fauna and geography – at the same time as they tend to their cows and goats. Zhaduo believes that environmental protection is ultimately a question of community cohesion, of turning selfishness into public-mindedness. Some people think this can only follow once people have become rich. There are many places in China where the attitude to environmental protection is "pollute first, clean up later". But as the saying goes, we should not wait until the patient is near death before administering the cure; better to help the patient stay fit in the first place. "People are always saying that we need money before we can start conserving the environment," says Zhaduo. "But money does not bring wisdom, or a sense of the public good; sometimes it can even erode these."

Lü Zhi, the head of the China office for Conservation International and a professor of conservation biology at Peking University, leads a team that has strengthened Cuochi's research capabilities. Lu and Wang Dajun help villagers to design experiments, devise methodologies and analyse their results. Says Wang: "The herders are highly sensitive to their environment; they have accumulated far more knowledge than us about the environment over the years. Our research is aimed at mobilising and building on this knowledge."

"In Qinghai today," says Wang, "pikas are being killed in huge numbers. Cuochi is the only area that does not kill pikas, because they discovered that grassland deterioration is not caused by the pika; the animals

only appear where the grassland is already degraded. It's the same with marmots. Marmots are valuable these days; people come from outside to hunt and kill them indiscriminately. But like pikas, they are an important part of the ecosystem on the plateau. If numbers decline, how will the wolves, brown bears and birds of prey survive? If they are all killed, will the grassland ever be able to recover? In many areas, parts of the grassland are now being sectioned off for protection, and this is very popular with the herders. However, we are trying to remind them that carving up the grasslands, which are supposed to be interconnected, is not going to be a sustainable option."

This research is also work for the public good, and this is why it can become a new force for community cohesion. Zhaduo, Lü and their colleagues are looking for ways to get villagers interested in research and public works. They hope that a greater appreciation of the relationships between people and nature will help them withstand the negative effects that an invasion of commercial products brings. "People aren't afraid of transport links and material goods," says Lü. "What they're afraid of are the effects these things can have on people and nature. Community management, and the research that goes along with it, can help foster a spirit of public works, and help to slow down or prevent community breakdown."

With this in mind, the Ecological Culture Festival hopes to help prevent the loss of the area's unique charms, while creating a sense of community belonging. For almost 10 days, the village became a site of constant activity, from performances of local songs, dances and storytelling, to lessons on recognising flora and fauna, and a photography competition.

Zhaduo says that the festival fits in with elements of Tibetan tradition. It ensures the continuation of local traditions, while adding to environmental ideas. Environmental films, costume performances and horse-racing all add to the experience. Together, the activities hope to foster a positive spirit among the villagers, awakening an enthusiasm to take part in conservation work.

Conservation International sees the festival an important part of training for its workers, encouraging them to put their environmental knowledge into practice, particularly with regard to the environment of the plateau. Its staff can learn a lot about community

conservation from the herders. Sun Shan, director of the Conservation International project, says that the festival stirs up feelings of happiness, mixed with concern about the future. "Sometimes it's hard to tell whether it's us helping them, or them helping us," says Sun. "Maybe we're all just working to save ourselves".

Feng Yongfeng is a reporter at Guangming Daily and cofounder of environmental NGO Green Beagle.

All pictures courtesy of Conservation International

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Grassland stories from around the world

Editor's note:

Conflicts surrounding modernisation, development and livestock raising have been played out time and again on the grasslands, not just in China but across the world. Some have responded on *chinadialogue* by exploring the road ahead, while others have reflected on lessons of the past.

In "Modern and mobile", Ced Hesse reports on how African pastoralists are responding to the forces of modernisation. Local people recognise that nomadic herding boosts African economies at the same time as protecting livestock from the impacts of drought, but bit by bit the grasslands are being carved up for other uses, presenting serious problems both for grazing animals and the economic health of the sector. The challenges faced here are similar to those on China's grasslands, but different solutions are being pursued.

Judith Shapiro offers a warning for China's western development drive in her three-part essay "Facing America's demons". The United States' past efforts to open up its western regions and conquer nature is often drawn upon as a model for China's Go West campaign. But Shapiro revisits a tragic history in which white settlers uprooted Native Americans from their lands, doing untold damage to local ecology and culture. In the last section of this article, Shapiro urges China to pay attention to America's mistakes and avoid the same disastrous path.

Ronnie Vernooy's two-part essay "Mongolia's herders show the way" describes how comanagement schemes that help pastoralist communities deal with the impacts of climate change and overgrazing are spreading across the region.

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Modern and mobile (1)

Ced Hesse March 10, 2010

Nomadic pastoralism boosts African economies and protects livestock from drought. So why is it under threat? Ced Hesse explains.

Mobile-livestock keeping, or pastoralism, plays a critical role in the economic prosperity of Africa's drylands. Across east and west Africa, an estimated 50 million livestock producers support their families, their communities, and a massive meat, skins and hides industry based on animals that are fed solely on natural dryland pastures. Where other land-use systems are failing in the face of global climate change, mobile-livestock keeping is generating huge national and regional economic benefits.

Today's pastoralists download the latest market prices for cattle on their mobile phones, use cheap Chinese motorbikes to reach distant herds or lost camels and trek their livestock thousands of kilometres by foot, truck or ship to trade them nationally and internationally. Prevalent perceptions of pastoralists are that they are a minority, out of touch with the rest of the world and practicing an archaic and outmoded lifestyle. The reality is that pastoralists are fully integrated with wider global processes.

But moving is now becoming a serious problem. Grazing lands are being taken over for other uses and access to water and markets is increasingly difficult. With reduced mobility the economic profitability of livestock keeping is being critically undermined. Animals are producing less meat, less milk and are more susceptible to drought and disease. This is contributing to poverty, resource degradation and conflict.

New thinking, new policies and innovative practices for pastoralist mobility are beginning to take root in many parts of dryland Africa. The African Union and other regional institutions are recognising the huge benefits to be reaped from supporting livestock mobility. This is encouraging several governments to develop informed, progressive policies that reflect the needs of modern pastoralism.

Why move?

Essentially, pastoralists move to take their animals to places where they can find the best quality grazing. It is the scattering of different pastures over different



places at different times that makes mobile-livestock keeping so productive in what is otherwise a difficult environment. To sedentary-livestock keepers, who rely on uniformity and economies of scale, randomly variable concentrations of nutrients on the range would be a serious constraint to productivity. But to pastoralists, who are mobile and maintain populations of selectively feeding animals, it represents a resource.

“ Where pastoralists become squeezed into smaller grazing areas, competition for a dwindling resource increases and conflict becomes inevitable and self-perpetuating. ”

Modern ranching is often believed to be an improvement over traditional livestock management. But research in Ethiopia, Kenya, Botswana and Zimbabwe comparing the productivity of ranching against pastoralism all came to the same conclusion: pastoralism consistently outperforms ranching and to a quite significant degree. Whether measured in terms of meat production, generating energy (calories) or providing cash, pastoralism gives a higher return per hectare of land than ranching.

In east Africa, the intra-regional livestock trade is a major and growing industry, with an annual value in excess of US\$65 million (444 million yuan). The profitability of this trade is dependent on livestock being mobile, particularly across borders. In many countries of the Sahel, livestock's contribution to total agricultural GDP is above 40%. These figures are sizable, and yet they still fail to capture the full contribution of pastoral production systems to national economies. National accounts are based only on the value of final products such as meat and hides and leave out the

many social, security and ecological benefits mobile-livestock production adds.

During periods of drought or disaster, mobility becomes absolutely essential for pastoralists, when they are forced to move in order to survive. Drought is a normal occurrence in drylands, and is a key reason why mobile-livestock keeping, rather than crops, is the production strategy of choice.

Obstacles

Pastoralists are increasingly constrained. Farms frequently block access to their grazing areas; national border controls hinder their trade patterns; and the areas they traditionally preserve for times of drought are now national parks or agricultural schemes. In other areas national government policies actively encourage pastoralists to settle and be “modern”. These policies are often driven by unfounded perceptions that pastoralism is economically inefficient and environmentally destructive. Alternative land uses, including large-scale agriculture and national parks, are believed to bring in more national revenues and to have less environmental impact. But this is not evidence based.

Farming is one of the biggest challenges to pastoral mobility. The slow but inexorable advance of family farms, combined in places with the establishment of large-scale commercial farming, is swallowing up vast areas of grazing lands. The United Nations Environment Programme (UNEP) has called for a moratorium on the expansion of large mechanised farms in Sudan's central semi-arid regions, sounding a warning that it was a “future flashpoint” for conflict between farmers and pastoralists. Northern Sudan's huge commercial farms have been blamed for fuelling conflict and for environmental degradation and human rights abuses.

Particularly in east Africa, the loss of land to national parks, game reserves, hunting blocks and conservation severely restricts pastoral mobility as much of this land either consists of critical dry- or wet-season grazing or cuts across seasonal migration routes. The creation of Uganda's Kidepo Valley National Park in the 1960s, on the border with Sudan and Kenya, severely restricts the movement of the Toposa from southern Sudan to dry-season grazing in Kaabong district, northern Uganda. Within Kaabong District, Dodoth pastoralists have also lost critical wet-season grazing in the north-eastern Timu forest when it was declared a forest reserve in

2000, according to research by Michael Godwin Wantsusi of the Karamoja Agro-Pastoral Development Programme. Yet a lot of evidence suggests that pastoralism is far more compatible with wildlife than other forms of land use, particularly crop farming.

Both non-pastoralists and pastoralists are enclosing the rangelands. From the Borana in southern Ethiopia, to the Fulani in Niger and Burkina Faso and Somali groups in Somaliland, a territory in the Horn of Africa, pastoral families are fencing grazing land. Poverty, due to shrinking herd sizes, is driving thousands of pastoral families throughout east and west Africa to fence off the rangelands to practice rain-fed agriculture and, where water is available, dry-season gardening. Others are enclosing land from a fear of losing out as more and more land is taken or are seeking to protect the rangeland from farming or the cutting of trees for charcoal.

It is not known how much former pastoralist-grazing land has been lost overall but much of it is in the form of wheat farms, sugar farms, irrigated tobacco, cotton and sorghum schemes, flower and vegetable farms, game and cattle ranches, national parks and forest reserves. And it is not just the sheer extent of the lost land that is so important; it is the nature of that lost land that is critical. Much of the alienation concerns strategic areas such as wetlands or riverine forests. Here, because of higher and more stable moisture, pastures of higher nutritional content can be found, particularly in the dry season when the surrounding range is dry and poor.

These areas represent “islands” of high-quality pasture where livestock feed until the arrival of new, fresh grass with the next rainy season. The loss of these areas undermines the profitability and resilience of the whole pastoral system. Little research has been carried out to calculate the economic and environmental impacts the loss of these areas has had on national economies, and whether the expected benefits from the new land-use systems are greater than the benefits lost as a result of displacing pastoralism.

Conflicts are also a major block to mobility, altering grazing patterns, reducing productivity and increasing environmental degradation. The enduring conflicts in Chad and Sudan mean pastoralists move together in larger groups for security but have subsequently found it more difficult to access high quality pasture and water. Sudan's conflict with Egypt also reduced access

to key grazing areas for Beja pastoralists in Red Sea state, north-west Sudan. Where grazing areas cannot be accessed, the under-utilisation of pasture leads to bush encroachment. Where pastoralists become squeezed into smaller grazing areas, competition for a dwindling resource increases and conflict becomes inevitable and self-perpetuating.

Across the drylands inappropriate policies are blocking livestock mobility. Enduring perceptions of pastoralism as an outdated, economically inefficient and environmentally destructive land-use system continue to drive rangeland and livestock policy in much of Africa. Yet, none of these perceptions are evidence-based, informed by past failure or reflect current scientific knowledge of the dynamics in dryland environments and livelihood systems. Nor are they designed with the participation of pastoral communities. These persistent beliefs must be left behind in the twentieth century.

Ced Hesse is principal researcher in the climate-change group at the International Institute for Environment and Development (IIED). Co-authors of this piece were Saverio Kratli, Izzy Birch and Magda Nassef.

An earlier version of this article was published in book form by the IIED as "Modern and mobile: The future of livestock production in Africa's drylands", edited by Helen de Jode. It is summarised and used here with permission.

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Modern and mobile (2)

Ced Hesse March 10, 2010

African pastoralism has been dismissed as outdated and inefficient. But awareness of its social and environmental benefits is growing, says Ced Hesse.

In many parts of dryland Africa, national governments are beginning to value pastoralism and the importance of mobility for productivity. Innovative policies now recognise and reflect pastoralism's crucial role within local, national and regional economies, and new activities put these policies into practice.

Recognising that pastoralism frequently needs to cross international borders, and that regional trade needs support, several international institutions are formalising cross-border pastoral mobility. This provides nation states with a benchmark to design their own policy and legislation. The Economic Community of West African States (ECOWAS) has led the way, providing an institutional framework to facilitate cross-border livestock mobility. Cross-border movement is authorised by granting a certificate that controls the departure of pastoralists from their home countries and assures the health of local herds.

Over the past 15 years, the pace of policy reform in west Africa has been considerable. The governments of Burkina Faso, Guinea, Mali, Mauritania and Niger have all passed specific pastoral laws to protect pastoral land and to facilitate livestock mobility both within countries and across international borders. In eastern Africa, too, there is some progress. The Poverty Reduction Strategy Papers of Ethiopia, Kenya, Uganda and Tanzania all recognise pastoralism as a livelihood system deserving of support. East Africa has also established influential pastoral parliamentary groups that offer oversight of government policy. Pastoralists' Day in Ethiopia and Pastoralists' Week in Kenya are now regular features on these countries' political calendars.

Decentralisation throughout the Sahel has introduced a radical new agenda involving civil society in areas traditionally controlled by government. The devolution of authority for the management of local affairs including land and the provision of key services such as water, health and education through local government reforms, decentralisation and regionalisation in Mali, Niger, Sudan, Ethiopia, Tanzania and Burkina Faso offer hope for the more active involvement of pastoral communities in the implementation of policies that



affect their lives in many countries. These reforms vindicate pastoral indigenous knowledge and practice, as well as the scientific research that confirms the critical role of livestock mobility in maximising productivity and preserving the environment from degradation.

“ For 7,000 years pastoralists have used mobility to respond quickly to variations in the drylands' climate. ”

In west Africa the Wodaabe (Fulani) of Niger are increasingly internet-aware. These groups develop their own websites in French and English and, more recently, Spanish to reach out to a wider public, to defend their way of life and to explain the key role of mobility. The Wodaabe have adapted their traditional gathering of clans and created an internationally-renowned General Assembly. Donors, non-governmental organisations (NGOs) and tourists are all invited to attend what has become a cultural festival, further raising the political visibility of these emerging new forms of social organisation.

These innovations are assisted by new thinking among development agencies, who, after decades of development failure, now facilitate more holistic interventions in pastoral areas. Projects that focussed solely on water development, animal health or range management have been replaced with concern about social, institutional and governance issues. Peace building is on the increase, as are experiments with ways to protect key pastoral assets in the event of drought or disease. And the importance of markets has finally been recognised with innovations ranging from pastoral credit provision to drought insurance.

Much attention is paid to addressing land tenure and establishing appropriate institutional mechanisms at the outset to reconcile the competing interests over

resources often found in Africa's rangelands. These rangelands are part of what is broadly called the "commons" – natural resources that are owned, managed and used collectively by different users, either simultaneously or sequentially often under different tenure arrangements. Through experience, projects now acknowledge that rules for the management of these areas must recognise and secure these multiple interests.

Millions and millions of US dollars have been spent in pastoral-drought relief in dryland Africa since the 1970s. Nearly all of this money has gone on buying food aid, which while saving pastoral lives has failed to save their livelihoods. For many pastoral communities, the return of the rains after the drought has not allowed them to return to mobile-livestock keeping. Having lost their animals during the drought, they either remain in or around the towns from which they received the food aid that saved their lives, sometimes succeeding in a new livelihood, or they try their hand at agriculture, charcoal making or, in extreme cases, adopting a violent lifestyle.

Groundbreaking work by a consortium of agencies including Save the Children in eastern Africa has been experimenting with market-based approaches to protect the key livelihood assets of pastoral communities. By providing cash for work, as opposed to food for work, or by facilitating controlled destocking of pastoral livestock through the market with private traders, pastoralists in Ethiopia and Kenya managed to save their core breeding herd through the drought of 2006. These initiatives take a livelihoods approach to emergency response, which not only helps to harmonise relief and development interventions, so often contradictory, but also strengthens pastoralists' resilience to drought.

Global challenges

Unlike other land uses, pastoralism is uniquely capable of adapting to climate change. Although climatic variability is the norm in Africa's drylands, human-induced climate change is beginning to pose a serious challenge. Climate is becoming more variable and less predictable. Successive poor rains, shifts in the beginning and end of the rainy seasons, increased rainfall intensity – which often runs off in floods and damages crops and infrastructure – increases and decreases in rainfall in varying parts of the continent

and increases in drought-related shocks, are all current trends observed across the continent. These trends are likely to continue over the short to medium term.

Pastoralists that are mobile are in a better position to quickly and successfully adapt to a changing climate than those tied to sedentary land uses. For 7,000 years pastoralists have used mobility to respond quickly to variations in the drylands' climate, and used specialist risk-spreading strategies as an insurance against the potential loss of their stock. Whether pastoralists will successfully adapt to the current climate change will depend on how the environmental and developmental challenges are tackled and whether mobility is secured. To continue to adapt, pastoralist communities need to be informed of changes to come and be involved in planning for the future.

The livestock sector, and by implication pastoralism, has been accused of contributing to global warming through methane emissions. The Food and Agriculture Organisation of the United Nations's high-profile report, "Livestock's Long Shadow", found livestock to be responsible for 18% of greenhouse-gas emissions measured in carbon dioxide equivalent, a higher share than transport. When the data is unravelled, however, it becomes clear that livestock have been globally aggregated, with European intensive-milk production, south-east Asian high-intensity pig farming, US beef burger feedlots and ranching and African pastoralism all lumped together. Until we have a better understanding of the environmental impacts of the different livestock sectors, it is a mistake to conclude that mobile-livestock keeping in Africa's drylands does more harm through its contribution to global warming than good through its contribution to national food security, economic growth and carbon sequestration.

There is now increasing interest in exploring the value of pastoralism in mitigating the impact of climate change, with the carbon sequestration capability of Africa's pastures emerging as a real opportunity for the drylands. Thirteen million square kilometres of grasslands are found in Africa. Grasslands store approximately 34% of the global stock of carbon dioxide – a service worth US\$7 (47.8 yuan) for every 10,000 square metres, according to research by Robert Constanza, director of the Gund Institute of Ecological Economics, and others. What is important to note is that grasslands' capacity to store carbon is significantly reduced in heavily degraded areas, or where rangelands

are converted to croplands.

Rangelands, and pastoralism in general, are increasingly seen as having positive environmental impacts. The grazing action of livestock is recognised as having helped maintain healthy populations of wildlife – the cornerstone of much of Africa’s tourism industry. East African savannah landscapes have been largely shaped over the course of the past 3,000 to 4,000 years by pastoralist land-management practices. Well-managed grazing opens up pastures, stimulates vegetation growth, contributes to seed dispersal and pasture diversity and enhances nutrient cycling through the ecosystem. Where mobility is reduced and pastoralists are confined to limited spaces, evidence of overgrazing becomes apparent.

Where mobility is secured, pastoralism has massive environmental benefits, can adapt to climate change, and presents African governments with the very real possibility of grasslands generating revenues as carbon sinks. When their livelihoods are secure, pastoralists freely patrol inhospitable and remote border regions and can help reduce conflict. And when their herding strategies and practices are secured, pastoralism allows the economic independence of millions of people in the drylands, who would otherwise have little alternative but to fuel urban poverty and undesired social dynamics.

Future policy decisions need to take into account the many valuable benefits and services provided by pastoralism. If the pastoral system is allowed to flip into irreversible destitution, there is a real danger that all these benefits and services will be lost. Losing pastoralism is not in the public interest.

Ced Hesse is principal researcher in the climate-change group at the International Institute for Environment and Development (IIED). Co-authors of this piece were Saverio Kratli, Izzy Birch and Magda Nassef.

An earlier version of this article was published in book form by the IIED as “Modern and mobile: The future of livestock production in Africa’s drylands”, edited by Helen de Jode. It is summarised and used here with permission.

image by Zhou Wei

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Facing America's demons (1)

Judith Shapiro January 28, 2010

The treatment of indigenous peoples in the United States has left a stain on the past that China should not ignore, argues Judith Shapiro.

In its current phase of rapid development, China often looks to the experience of western countries for inspiration. The development and nature-conquest of the western United States is sometimes seen as a model for China's "Develop the West" campaign. The environmental clean-up that occurred after the western industrial revolution is often mentioned to defend China's environmental crisis, in the hope that the emerging Chinese middle class will press for an "environmental Kuznets curve".

However, using the west as a model for economic development and environmental restoration can be a grave mistake. In the United States, such development came at great cost for indigenous peoples and for the environment, damage that cannot be undone. The great wealth of the United States rests on an "original sin" of the theft of lands and resources of the millions of Native Americans who lived in America when white settlers arrived.

Today, legal challenges to that theft are still being contested in the courts, while the social and economic problems of the Indians who have been so profoundly victimised over the last two centuries remain an enduring stain on US honour and integrity and are a heavy and painful historical legacy. These injustices haunt our nation and cannot easily be rectified. Emerging economies aspiring to join a global community of civilised nations should learn from America's errors.

A core theme of US experience in developing the west is the forcible relocation of Native Americans through atrocities such as the 1831 "Trail of Tears", during which the Choctaw, Cherokee, Seminole and other nations were moved from the south-eastern part of the United States to what is today's Oklahoma, thousands of Indians dying from disease and starvation along the way.

During the nineteenth century and early-twentieth century, the systematic effort to weaken and destroy Native Americans was official national policy. In the



mid-nineteenth century, battles wiped out entire populations, including women and children, while "bounty hunters" were rewarded for each Indian scalp they produced. Other strategies involved eradication of traditional food animals such as the buffalo, theft and slaughter of horses (the Indians' transportation for hunting and defence), and the deliberate introduction of smallpox.

“ Emerging economies aspiring to join a global community of civilised nations should learn from America's errors. ”

Later, after the defeated Indians were squeezed into reservations, Native American children were forced into boarding schools where they were forbidden to practice their own cultural traditions or speak their native languages. The natives were gradually relocated into smaller and smaller plots of inferior land until the territory that they retained was only a tiny fraction of their former empires. The story is long, painful and twisted. Many promises were made and broken, many treaties signed and abrogated. As the Sioux leader Red Cloud said, famously, "They made us many promises, more than I can remember, but they never kept but one: they promised to take our land and they took it."

This is a classic story of colonisation and imperial expansion. Political scientists say that states expand their territories in order to capture access to resources, to gain territory for excess populations, and to secure markets for trade. The story of the Lakota Sioux is just that, a struggle over land and resources that changed as new resources such as gold and uranium were discovered on lands formerly conceded to the Indians.

A huge population wave of white settlers travelling

from the east in search of new lives ultimately doomed the Indians, leaving Red Cloud to comment in 1870, "The white children have surrounded me and left nothing but an island. When we first had this land we were strong, but now are melting like snow on a hillside, while you are grown like spring grass." He further begged, futilely, "I have two mountains, Paha Sapa (Black Hills) and the Big Horn Mountains. I want the father (president) to make no roads through them."

This is also a story of cultural genocide as white people, who claimed that they knew what was best for the "uncivilised" and "savage" nomadic peoples, forced the Indians into reservations, where they were made to give up their hunting culture. Above all it is a story which has resulted in six generations of complete dependency on the US government, decimation of tradition and identity and deep problems of unemployment, alcoholism, gangs, depression, factionalised tribal leadership and unfulfilled longing for justice and a return to former glory.

While I may seem critical or even biased, the US Supreme Court validated these criticisms in its 1980 decision on restitution for the illegal taking of the Black Hills, and the broad outlines of this history are commonly accepted. Unfortunately, many young Americans are not taught this history in their schools and many Indians today feel as if they are forgotten or invisible.

The Lakota Sioux were moved to reservations in South Dakota, in the mid-western United States, after lengthy struggles of resistance. I spent a week on the Pine Ridge Indian Reservation in May 2009 with a group of American University students seeking to understand efforts to improve the lives of the local people. The 13,000 square-kilometre reservation was created in 1889, and is the second largest Indian reservation in the United States. Pine Ridge is larger than the state of Connecticut, in the east of the country, and has a population estimated at more than 30,000, though the official figure is only 19,000 because many are homeless or avoid the census-taker.

The reservation is today one of the poorest places in the country, with an average annual income of only about US\$3,000 (20,500 yuan) per capita, and its people are faced with social and economic problems as profound as any to be found in the developing world.

The teen suicide rate is among the highest in the nation, twice the national average; infant mortality is 300 times the national average; diabetes and tuberculosis rates are eight times the national average; alcoholism is rampant despite the ban on liquor within reservation boundaries, and unemployment is at 85%. Life expectancy for a male living on the reservation is only 46 years and for a female it is 49. Many homes have no running water or electricity, and racist violence is routine in neighboring towns and in Rapid City, the nearest large town. Although the tribal government is supposed to be "autonomous", major decisions are controlled by the federal government's Bureau of Indian Affairs (BIA).

Dislocations from native lands and transformations of familiar landscapes were important ingredients in creating the deep social problems that the reserve faces today.

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image by Sage shows a reservation flag.

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Facing America's demons (2)

Judith Shapiro January 28, 2010

White settlers in America uprooted indigenous people from their lands, causing untold environmental and cultural destruction. In the second segment of a three-part article, Judith Shapiro tells the story of one tribe.

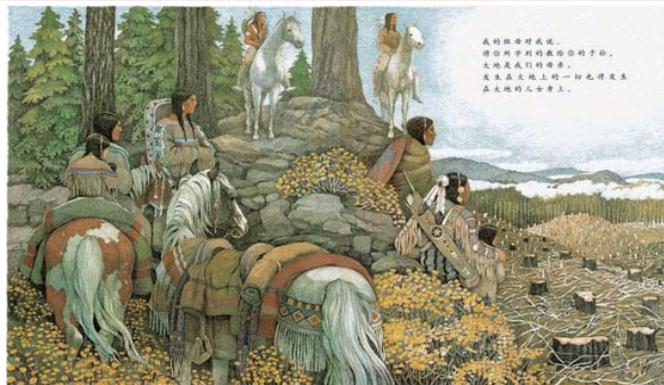
The Lakota, a division of other Sioux nations including Dakota and Nakota, were once a nomadic people who roamed prairies and plains, hunting buffalo over a vast area stretching from Wisconsin to the Bighorn Mountains of Wyoming, north into Canada, and south to Kansas.

Tribal legends traced their origins to the Black Hills of today's South Dakota, and these mountains, where white people eventually carved the images of four US presidents into Mount Rushmore, are among the seized territories that are most profoundly regretted and contested in the US court system today.

The Lakota, the largest group of Sioux, were further subdivided into bands including the Oglala, Hunkpapa, and five others. When the reservations were established, all Indians had to "enroll" in a tribe, and today the Pine Ridge Indian Reservation is the home to the Oglala Sioux.

The traditional diet consisted of buffalo, a lean, high-protein food, supplemented by wild turnips, chokecherries, and a few domesticated vegetables, such as corn and squash, acquired through trade with other tribes. Early contact with white people rested primarily on the fur trade; Fort Laramie was built in 1834 to facilitate the trade in buffalo hides after the beaver had been trapped-out. French-descended fur traders intermarried with the Indians and produced "half-breed" children, who served as interpreters and facilitated further fruitful contacts between whites and the Sioux.

By the mid-nineteenth century, however, buffalo began to disappear as whites armed with guns slaughtered them en masse in order to harvest their tongues, which were considered a delicacy. This deeply offended the Indians, who used every bit of the animal for food, shelter, clothing, and religious ritual. The Oregon Trail toward the Pacific Northwest passed through Fort Laramie and the influx of whites threatened Lakota sovereignty and livelihood.



A series of battles ended with the famous treaty of 1868, in which the United States recognised the entire western half of South Dakota (which included the Black Hills) as the Great Sioux Reservation as well as eastern Wyoming as "unceded Indian territory." No Americans were to be allowed into these areas except to trade and conduct government business. Importantly, no changes were to be permitted to the treaty unless three-quarters of all adult Indian males signed and, today, court challenges to subsequent US seizures of Indian lands rest on this provision, since the signatures on documents that subsequently modified the treaty were incomplete.

“ *In the name of modernisation, the ecosystems of the great American plains were utterly and irretrievably transformed.* ”

As more gold was confirmed through General George Armstrong Custer's famous 1874 expedition, the United States tried to purchase the Black Hills, and an enormous gold rush began. The Indians refused to sell, for they had no concept of land ownership; the leader Black Hawk commented, for example, "My reason teaches me that land cannot be sold. The Great Spirit gave it to his children to live upon. So long as they occupy and cultivate it, they have a right to the soil. Nothing can be sold but such things as can be carried away."

The Indians were pressured to relocate. Many of them did so, as the buffalo were nearly gone and there was little hunting. The US Army then ordered all Indians to go to their "agencies" or reservation centres, and those who refused were labelled as "hostile". A series of "Powder River" skirmishes culminated in the 1876 Battle of Little Big Horn against General Custer, which made leaders such as Crazy Horse famous. This was the last major victory for the Indians and the beginning of a precipitous decline in their fortunes.

In 1877, the Indians were forced, through starvation induced by the withholding of rations, to give up the Black Hills. Even then, most refused to sign the new treaty, and only one-tenth of the signatures were obtained, not the required three-quarters. By 1878, Pine Ridge and other reservations were well established, and later agreements forced upon the Indians permitted immigrant farmers and miners to colonise other parts of Indian lands.

The remaining patchwork of Indian reservations is but a shadow of the territory originally promised in the peace treaty of 1868. The buffalo have been decimated, the tall-grass prairies that once stood as high as a man's shoulders has gone to desert through overgrazing and farming, the last of the passenger pigeons, which once darkened the skies for days through their great migrations, died in 1914 in a zoo. In the name of modernisation and the founding of a "New World" based on what were believed to be limitless resources, the ecosystems of the great American plains were utterly and irretrievably transformed.

By the late-nineteenth century, then, the Sioux Indians had lost all trace of their traditional hunting lifestyle. Their livelihood was gone, they were forbidden to pursue nomadic ways, and they were forced into complete dependency on the government for food, as legal wards of the state.

In the last years of the century, in what was perhaps a symptom of the profundity of the cultural depression, a prophetic mystical movement spread all over Indian lands, sparked by a visionary named Wovoka, a Paiute Indian. His vision was that Indians should dance a "Ghost Dance" that would revive their dead ancestors, bring back the buffalo, and remove the whites from America. The Oglala Lakota Sioux adopted this vision with fervour and added the idea that wearing a special "Ghost Shirt" would protect the wearer from white people's bullets.

By 1890, hundreds of Indians were dancing. The whites panicked and tried to ban the dance, and the famous spiritual leader Sitting Bull, a supporter of the dance was killed. Tensions mounted, leaving some Indians to move into the badlands, where they were stopped by members of the 7th US Cavalry. Eventually, Chief Big Foot surrendered, and the group was escorted back toward Pine Ridge Reservation. As they camped at Wounded Knee Creek, shots were fired. Believing

that the ghost shirts would protect them, the Indians failed to protect themselves and a great massacre of hundreds of Indian men, women and children took place. The December 29, 1890 massacre at Wounded Knee is considered the end of Indian efforts to resist the white man, and the beginning of more than a century of grief and loss of cultural identity.

Americanisation and forcible assimilation followed. Well-meaning missionaries from different Christian sects were assigned Indian reservations so they would not need to compete with each other; the Episcopal Church received rights to Pine Ridge when president Ulysses S Grant installed religious clergymen as government agents (thus departing from the principle of separation of church and state). Believing that they were doing the right thing for the poor heathens, they taught that their religion was best and the Indians were ignorant devil worshippers. They took Indian children out of the reservation to faraway boarding schools, where their long braids were cut and they were taught that their parents were savages. Children were forbidden to speak Lakota language in school. Eventually, many Indians internalised the message that their culture was inferior and developed a profound self-loathing that psychologists recognize as a form of massive cultural trauma.

Traditional government was replaced by that of the Bureau of Indian Affairs (BIA), which hired cooperative Oglala to enforce white people's laws. Although land was supposed to be assigned to Indians, the Indians, as noted above, did not have a concept of land ownership and much of the land was tricked away from them. Subsequent generational claims made land-tenure rights impossibly complicated.

There were further twists in the history when, in 1934, the Indian Reorganization Act allowed tribes to write constitutions and the BIA stopped suppressing local culture. This policy changed once again in the 1950s, when the US government temporarily pursued a policy of "termination" or ending tribal life and encouraging relocation out of the reservation to other cities in the United States. Few Indians were equipped with the skills necessary to make it and most eventually returned to "the rez".

Today, Indian males have little function as they are completely dependent on the government. Families have no tradition of going to work and holding jobs.

The lands that they have been given are relatively unfertile and lacking in natural resources; the Black Hills lands, rich in minerals, were seized and in any case traditional Sioux beliefs would have forbidden digging into the earth. Tribal governments do not hold real power, but they are nonetheless factionalised and corrupt. In the 1960s, a militant group called the American Indian Movement embarked on a struggle against corrupt conservatives who were running the reservation. They marched to Washington and took over the BIA for several days; when they returned to the reservation, violent skirmishes among factions ended in a 1973 four-month standoff against Federal marshals on the site of the old Wounded Knee Massacre. Bitterness over these events lingers even today.

In 1975, the Indian Self-Determination and Education Assistance Act allowed for greater self-government, including the right of Indians to run their own police force and to control the schools. Meanwhile, lawsuits pursuing land claims under the treaty of 1868 made their way all the way to the US Supreme Court, which ruled in 1980 that the Indians were entitled to compensation for the theft of their land, plus interest. They handed down a monetary judgment for the US\$17 million (116 million yuan) initial offering price, plus interest, which today amounts to more than US\$400 million.(2.7 billion yuan).

However, the Sioux have refused to accept the money, arguing that their land is not for sale and that they were not properly represented by their attorneys. To this day, many Lakota argue for the return of the Black Hills under the terms of the treaty of 1868 and continue to pursue legal and diplomatic avenues to get back their lands.

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Image by Jeffers

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Facing America's demons (3)

Judith Shapiro January 28, 2010

In the conclusion of a three-part article on American Indians, Judith Shapiro urges China to heed the grievous mistakes of the United States in the development of its lands.

The history of the forced removal of the Lakota Sioux from their lands, while it seems to have happened long ago, is vibrantly alive for the Indians living on the reservation today. Many of them can tell stories of how their parents were sent to faraway boarding schools and taught that their culture was inferior. The ban on Lakota culture and language was lifted only in 1971, well within the memory of many living adults.

The profound cultural trauma that these people have experienced has left many of them deeply hopeless and without a clear sense of their own future or destiny as a nation. Everywhere I went during a week I spent on the Pine Ridge Indian Reservation, I heard again the stories of the treaty of 1868, of the massacre at Wounded Knee, and of the theft of the sacred Black Hills which are held to be the origin of the Lakota people. I experienced the profound mistrust of outsiders, particularly white people. And I witnessed among some residents a sense of defeat far more profound than any I have observed in all my travels in less developed countries throughout the world.

On the reservation today, the only truly successful business is a gambling casino called Prairie Winds (Native Americans are exempt from state prohibitions on organised gambling). Unfortunately, but not surprisingly, many of those who lose money are themselves Native Americans. There is talk of developing wind power; so far these conversations have not led to substantial results. While there is also talk of oil and mineral resources, the Indians will not permit the sacred lands to be scarred with mines, and in a case of "environmental injustice", new uranium mines off the reservation threaten to taint downstream Indian rivers with radioactive materials.

There are signs of hope, but these are few: two Native American brothers have been appointed to lead the Badlands National Park and Mount Rushmore. An image of the great Indian warrior Crazy Horse is being carved a few miles away from the images of the US presidents. A sacred Black Hills mountain, Bear Butte, is



being closed to non-Indians during times when rituals are most important, although its peace is also gravely threatened by the opening of a nearby rifle range, and the bars, campgrounds, and concert venues have greatly offended the local tribes.

“ *Instead of the buffalo, passenger pigeon and tall-grass prairie, the central United States saw desertification and dust storms.* ”

A college, the Oglala Lakota College, has been opened on the reservation, where it offers advanced degrees in Lakota studies, nursing, business, information science, social work and other relevant fields. A "Lakotafund" has been created to extend micro-credit to small businesses such as beadwork and other traditional handicrafts. Some who have left the reservation to pursue advanced degrees and learn skills in other parts of the country have returned to try to make a contribution back home.

Meanwhile, in Washington, DC, the National Museum of the American Indian, established in 1989 by an act of Congress in an effort to acknowledge the great wrong of our history, is managed by Native Americans, whose greatest desire is to convey the message that "we're still here". Whether the US president, Barack Obama, will encourage Congress to revisit the great question of ownership of the Black Hills, and whether there are symbolic measures that could be taken to help move the Sioux nation toward healing, remains to be seen.

What, then, are we to take as lessons from this horrific story, and what might be relevant for Chinese policy makers today? First, it is worth reflecting on the relationship between resources, land, nation-building, and power – and reflecting seriously on the question

of how to build a strong, prosperous nation while safeguarding justice for all citizens. Sometimes rigorous introspection and honesty may be required to discover whether one is using cultural superiority and stereotyping as a way to rationalise the seizure of other people's land. In this case, resource extraction was a primary motivation for seizing Indians' land, but it was often cloaked in rhetoric about doing what was best for the Indians.

Second, good intentions can sometimes be highly destructive. The American missionaries and civilisers truly believed that in forbidding the use of Lakota language and the practice of Lakota customs they were doing the right thing – even, perhaps, saving the Indians' "souls" and allowing them to find a place in heaven by converting them to Christianity. However, the deprivation of identity and pride has turned out to be devastating for the native people, who are now trying to recover some of their traditions by reviving rituals such as the Sun Dance and to re-learn their language in native-run schools.

Third, modern technologies such as the gun, the road and the railroad, and foreign diseases such as smallpox, were highly destructive to the native peoples, and created an "uneven playing field" such that the native peoples had little chance of preserving their way of life. As environmental historians such as Jared Diamond and Alfred Crosby teach us, the outcome of this sort of clash of cultures can be determined as much by technology, disease and introduced species as by more conventional measures of military superiority.

Fourth, one of the high prices of civilisation and resource extraction is often environmental degradation and ecosystem transformation. Instead of the buffalo, passenger pigeon and tall grass prairie, the central United States saw desertification and dust storms, especially in the 1920s, a heavy and enduring price to pay for our overly enthusiastic grazing and farming practices.

Finally, indigenous peoples' knowledge, while often not expressed in ways that modern "science" can hear and respect, nonetheless often can point the way toward more sustainable relationships with the land. Although some have warned against romanticising Native American wisdom and called "the ecological Indian" a myth, it is undeniable that the Sioux elders predicted that in the wasteful and over-consuming way of the white man lay ecological disaster.

I hope that this cautionary tale of the Pine Ridge Sioux provides fruit for reflection and discussion. Although there are obviously great historical differences between the United States and China, we have much to learn from each other, especially at this time when the gaps in our economic and social development are decreasing and we are coming more and more to resemble each other.

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Image from club.sohu

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Mongolian herders show the way (1)

Ronnie Vernooy

Climate change and overgrazing have had negative impacts on pastoralist communities in central Asia, writes Ronnie Vernooy. But comanagement schemes point towards a solution.

Mongolia is the country of endless plains and eternal blue skies. Eighty percent of the land area is covered by grassland, giving home to about 35 million horses, cattle, sheep, goats, and camels. Half of the country's population of 2.7 million depends on livestock production, which contributes more than 20% of the country's GDP. More than these numbers can tell, nomadic pastoralism is a way of life. For centuries, herders have roamed the grasslands "following our animals," as the herders' adage goes, building, packing, and rebuilding their traditional gers, or tents, to make their living from nature's bounty.

And, yet, this ancient lifestyle is under threat. A decade ago, herders first observed the impacts of climate change with the increase in severe weather events like storms, droughts and extremely harsh winters, known as zud. The 2010 zud was one of the worst ever, resulting in the death of approximately 8.5 million livestock or 20% of the 2009 national herd. That year, 770,000 herders were affected, of which 43,500 were left without a single animal; 164,000 lost more than half of their livestock. Herders and the government alike were not prepared and ill-equipped to deal with the consequences despite ample warning.

The 2009 national assessment on climate change in Mongolia summarised a number of major trends: since 1940, the annual mean temperature has increased by 2.14 degrees Celsius, winter precipitation has increased and warm season precipitation has slightly decreased. Recent research on climate change projections for the rest of the century suggests that winters will become milder and snowy; summer seasons will become warmer; annual precipitation will increase up to 20%; and anomalous climate phenomena, such as extreme winters, will become a common feature. Nomadic livelihoods, which fully depend on the weather, are becoming increasingly vulnerable as a result.

However, increased vulnerability is not only caused by the impacts of climate change. Overgrazing has also played a role in degrading scarce natural resources. Up



to 30% of Mongolia's grassland biomass production has been lost over the past 40 years. At the same time, the Gobi desert, which dominates the southern half of the country, has been steadily expanding north at a pace of 150 kilometres every 20 years. When traveling through central Mongolia, one can easily observe this process firsthand—where a few years ago there were still pastures and patches of cropland, now only sandy fields remain.

“

The increasing desertification and widespread climate change impacts require action at levels higher than the individual household or single community.”

Overgrazing has been stimulated by the collapse, in the early 1990s, of the country's Soviet-style control of agriculture, which had involved a communal system to manage land and herds. Since then, land has remained state owned, but livestock has been privatised, giving herders a strong incentive to increase the size of their herds. Under this trend, combined with a prolonged period of relatively pleasant, soft winters at the end of the twentieth century, the livestock population in Mongolia rapidly reached 30 million head for the first time in its history. The result was disastrous: wide-scale overgrazing and pasture degradation. Since 2006 rural poverty has been increasing, despite overall growth in the Mongolian economy. The provision of social and economic services for rural areas (including health care, education, transportation, communication and credit) has remained poor or collapsed altogether.

The government has begun to respond to the threat to herders and their way of life. In a number of regions across the country, herders, in collaboration with local governments and researchers, and supported by a number of new policy measures and laws, are practicing comanagement, a form of adaptive management that

builds community resilience. The concept has been popularised by the academic and activist H Ykhanbai.

Since the 1990s, when the scale of Mongolia's degradation became apparent, Ykhanbai has sought an alternative to both top-down and laissez-faire development strategies. Ykhanbai was uniquely suited to the task: raised in a herder family in the far away Altai Mountains, he attended the University of St. Petersburg, Russia, where he studied Garrett Hardin on the "tragedy of the commons" and economist Elinor Ostrom on collective action. Ykhanbai understood that pastures in Mongolia are a common pool resource shared by many users, while private ownership of livestock allows herders to become real managers of their own businesses. Sustainable management of herds therefore depends on the carrying capacity of pastures and on the interactions between neighboring herders who rely on the same resources.

In Ykhanbai's words, "I gained this knowledge from childhood, as a herder. The limited capacity of herders and local government to sustainably manage pasture resources can be complemented by the participation of other stakeholders at various levels. Together, they can manage the resource base more effectively. The increasing desertification and widespread climate change impacts require action at levels higher than the individual household or single community."

Ronnie Vernooy is a rural development sociologist with a particular interest in agricultural biodiversity and natural resource management. This article first appeared in Solutions journal. It is reproduced here with permission.

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Mongolian herders show the way (2)

Ronnie Vernooy

In the second section of a two-part series, Ronnie Vernooy introduces how one group of nomads transformed their community. China, he writes, could learn important lessons.

With H Ykhanbai's efforts, comanagement of pasture resources was first introduced in Mongolia at the end of the 1990s in a number of pilot sites across the country, including the dry steppe region, the forest steppe areas, and the high Altai Mountains. More recently, comanagement has been introduced for forest resources in regions dominated by forests. The benefits have been striking. Take one herder community as an example: Ikhbulag community of Khotont district is located in the central dry steppe and forest region, in Arkhangai province, about 280 kilometres west of the capital of Ulaanbaatar (see part one, to read how climate change and overgrazing have affected herders in Mongolia). The district covers an area of about 2,200 square kilometres and has a population of about 4,400. Ikhbulag is situated in a relatively small mountain valley of about 450 square kilometres, surrounded by the hills and mountains of the Khangai mountain range, with cedar forests on one side, but barren wasteland on the other. The name Ikhbulag or "big spring" refers to the more than 20 springs that used to flow in the area, most of which have now dried up. The small Ikhbulag River, the source of which is in the Berkhe hills, runs through the valley. The ancestors of the local herders may have chosen the valley for its abundant natural resources—forests, water, and pasture for their livestock—as well as for the protection it affords from the wind and the storms during harsh winters.

The area is currently inhabited by about 30 nomadic herding households that graze their livestock in a rotation across four seasonal pastures in and around the valley. The community is scattered around the valley, forming khot ails – or camps of gers – consisting of two to eight households, all of which have close kinship ties. These households gather in winter and spring campsites with simple livestock shelters in the valley. They disperse in summer and autumn, following the flow of fresh water and green pasture to neighboring areas, Arjargalant along the Tsagaan Sumiin River to the east and Orkhon to the west.

The first comanagement group in Khotont district was formed in 2001 in Arjargalant, a neighbor community



“ Since the families in Ikhbulag started to practice comanagement and related activities, not only have their knowledge and skills improved, but annual household incomes have increased as well. ”

of Ikhbulag. In 2002, inspired by the Arjargalant experience, about 30 Ikhbulag families formed their own comanagement group. Herders gave several reasons for joining, including the need to work together and become better organised, to protect natural resources and to improve their livelihoods. The comanagement group held many meetings to discuss what they wanted to do together and how. The community then signed a formal comanagement contract with the district government on pasture use according to the Community-Based Natural Resource Management Procedure, approved in 2006 and updated in 2010. In the contract, boundaries for seasonal pasture and forest are agreed to and marked on topographic maps. All regulatory measures as well as responsibilities for protection and use rights are transferred to the community. The contract is reviewed annually and, if deemed necessary by all parties, renewed or adjusted. At the heart of this comanagement process is the establishment of clear and effective roles and responsibilities for the stakeholders, in this case, the community herders, local leaders, and the state, represented through local government as well as through the staff of several ministries, such as the Ministry of Nature, the Environment and Tourism.

Ikhbulag herders explain that their efforts are one way to deal with the major climate changes that they have confronted in recent years. They have noted that the area has become dryer, while the number of extreme

weather events, such as storms and zuds, seems to be on the rise. In the last 10 years, it has rained fewer than 10 times each year. Among those dry years, 2002, 2003 and 2009 were the worst. Many rivers have dried up. For the community, there is no major river within 35 miles anymore. One of the herders observed: “20 years ago, grasses were so tall that you could not see a calf, but now they barely cover the soil. Animals cannot get enough grass to gain fat against the harsh winter. That makes livestock more vulnerable when heavy snow comes. The other reason is that they eat up all the short grasses during the dry summer. Then when winter comes, there is not enough grass left. Stuck in the heavy snow, many animals die.” This is exactly what happened in the 2010 zud.

In response, the community members agreed to change their practices in the following ways: to collectively prepare hay and fodder; to reduce the number of animals, while improving their quality (for example, professional animal breeders have assisted with improving goat herds); to move earlier in the year to new camps to allow the badly degraded pastures more time to recuperate; to build better, more numerous shelters; to diversify income sources; and to grow potatoes and vegetables. Women in Ikhbulag play an important role in comanagement. Over the last few years, they have become more outspoken and active in natural resource management, taking the lead in participatory monitoring and evaluation of the community’s comanagement efforts and setting up a women’s group to encourage income-generating activities, such as handicrafts. They demonstrate their skills to other members of the group and are active in the yearly exhibitions of community products. Recently, they supported the establishment of a community shop that sells local products, thus generating a higher profit margin than sales that require middlemen.

According to an assessment carried out by Ykhanbai and his team of researchers, since the families in Ikhbulag started to practice comanagement and related activities, not only have their knowledge and skills improved, but annual household incomes have increased as well. Incomes have risen steadily, ranging from 5% to 10% per year. They discovered that the rate of growth in income was higher in households classified as middle and low income, suggesting that the efforts have been able to reach and involve those most affected by the difficult situation the country has faced in the years of transition.

According to Mongolia’s new Articles to the Law on Environmental Protection (2005) and the Minister’s Decree 114 (2006) on “community procedure for protection, sound use, and allocation of natural resources,” comanagement will be scaled up and used in all provinces and districts of Mongolia. Although not easy to implement, comanagement has been shown to be an effective strategy to deal with the multiple vulnerabilities that herders face today. In the case of transitional economies, such as Mongolia, the implementation of comanagement approaches requires adequate time as well as clear stipulation of what the government will and will not do to support the agreements. Community-based pasture management practices have had a positive impact on the natural resource base in the pilot study sites and on the livelihoods of herders. As a result, herders in pilot communities and, more recently, beyond these communities, have started paying much more attention to ecosystem sustainability, combating desertification, and dealing with climate change. Comanagement is important for adaptation to climate change and for reducing natural resource degradation because it treats local people as the key social units for their own development.

Mongolia could serve as an inspiring example to others. Neighboring countries in Central Asia, currently undergoing a similar process of transition, have started to study and learn from the Mongolian experience to overcome their own “tragedy of the commons.” Researchers are trying to adapt Mongolia’s comanagement practices to the more sedentary forms of pastoralism that exist in central Asia. In several villages in Kyrgyzstan and Kazakhstan, herder-farmers, formerly belonging to state farms, have come together with local government representatives to establish small management groups to jointly plan sustainable forms of livestock management, while maintaining individual ownership of resources. The researchers and herder-farmers asked Ykhanbai to assist them, which he has agreed to do. China could learn a lesson or two as well. China’s strategy for privatising grasslands—parceling and enclosure combined with intensification of land use—has had poor results. Some are now arguing for a radical change in policy and practice: breaking down enclosures; terminating intensive land use (for example, for crop production); and reopening the grassland to collectively managed practices. Comanagement takes time and effort to become operational but, once established, becomes a

driver of innovation. Mongolian herders, never afraid of exploring new terrain, show the way.

Ronnie Vernooy is a rural development sociologist with a particular interest in agricultural biodiversity and natural resource management. This article first appeared in Solutions journal. It is reproduced here with permission.

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Linking development and protection

Editor's note:

“Riding roughshod in Inner Mongolia” examines the plight of the Mongolian Baicha Horse, an animal intricately entwined with grassland ecology, through economic and cultural transformation. A campaign to protect the horse breed, also known as Iron Hoof, was triggered by a local government environmental policy and, as a herder-led initiative, attracted media and public attention. Tourism is thought by many to be an industry that can drive environmental protection at the same time as boosting the economy. But “Bashang’s tourist trail” shows us the negative consequences badly managed tourism can bring, particularly on local ecology and culture.

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Photos by Chang Qing, Zhou Wei

Riding roughshod in Inner Mongolia

Zhou Wei November 23, 2010

Grassland protection policies in northern China threaten to wipe out a rare breed of horse and ancient cultural emblem. Zhou Wei went to meet two herders trying to save them.

On November 12, two herders from Khaskatun in Inner Mongolia wrote to the local authority petitioning it to protect the Mongolian Baicha horse (or “Iron Hoof”) and the culture that comes with it. They believe that, unchecked, a new local-government policy will soon drive this rare breed to extinction.

In March, the Khaskatun government banned herders from putting horses and goats out to pasture all year round in order to “protect the grasslands”. Village and town authorities followed this up by setting actual time limits for grazing and telling herders to provide fodder for their horses in order to protect grassland vegetation.

When they heard about the policy, two horse herders called Baoyin Dalai and Alateng rushed out to borrow money and buy up Baicha horses. As far as they are concerned, these animals are not to blame for the deteriorating state of the grasslands. Moreover, they are the key emblem of the Khaskatun grasslands’ culture and history – and, as such, indispensable.

In August, I visited the two herdsman and the horses they are protecting. Below Baiyin Aobao Mountain, thickets of trees cast patterns of light and shade over yellowing grass. A small herd of horses, kicking up clouds of dust, weaved around a corral with Baoyin Dalai riding at their rear, looking magnificent with lasso in hand. Yan Jun, a neighbouring villager who had dropped by, told me herds of horses like this used to be a common sight – but now even small groups of 10 or so are rare.

Baoyin Dalai and Alateng have put everything into this group of a dozen or so horses, seven of which were frantically bought from Baichagou, where the horses originate, before the new policy came into effect, using a high-interest loan of 60,000 yuan (US\$9,000).

Khaskatun grassland lies north-west of Inner Mongolia’s Chifeng city and borders Xilin Gol prefecture. It boasts ample rainfall and varied landscapes, is close to both Beijing and Shangdu – or Xanadu as it is widely known



in the west – and has a rich history and culture. The Baicha horse is one embodiment of that. Historical documents and stories say these were war horses left behind by the Mongol army as it fled China at the end of the Yuan dynasty. Baicha horses, just one of several famous Mongolian breeds, are small but tough, and take their Mongolian name – literally “iron hoof” – from their ability to walk on stony ground. They originate in the rugged area of Baicha, hence their other name. Baicha is now a Chinese farming area, but the breed of horses is still relatively pure.

“The damage to the grasslands seen today is not caused by livestock eating the grass, but by fenced-in animals repeatedly walking over the same areas.”

Professor Manglai, secretary-general of the China Horse Industry Association and deputy dean of Inner Mongolia Agricultural University, told chinadialogue that the genuine Mongolian horse comprises just four breeds – the Wuzhumuqin white horse, the Wushen, the Abaga black horse and the Baicha. In 1975, there were well over 2 million horses in Inner Mongolia. Now, just half a million remain and the population is shrinking by 5% to 6% each year. And, of the survivors, only 100,000 are genuine Mongolian horses. “The Baicha is the rarest of the four types, with only several dozen left,” says Manglai. “If we don’t protect them they’ll be extinct in no time.”

Manglai, now 50, was born into a grassland herding family. As a child, he rode horses and took them out to pasture – and so he well understands what the plummeting horse population means. He says that increased mechanisation and better transport have lessened people’s need for the animals. Economic reforms in the 1980s also led villages to parcel out livestock: “Our village had over 2,000 horses then, so

say everyone got three or four, a family of three would get nine horses. But raising horses on the grasslands needs to be done in large herds and managing those herds is a really specialised job. Not everyone could look after the horses, so they sold them and numbers fell.”

At the same time, land was allocated to households and fenced off. Mongolian horses are semi-wild and need huge areas of land to graze on freely. Many families didn’t have enough land and, again, had to sell off the animals.

Hai Shan, a professor at Inner Mongolia Normal University’s School of Geography, says that the five types of livestock on the Mongolian grasslands – the Mongolian horse, camels, cows, goats and sheep – have existed here for a million years and are closely bound up with the grassland system as a whole.

Of these five animals, the horse is the spirit of the local ecology. In nomadic times, it was the horse that drove the way of life: in the search for freshwater and the newest grass, horses would never stay in one place for long, and so the herders and other livestock also moved on regularly, allowing the grasslands to recover. The damage to the grasslands seen today is not caused by livestock eating the grass, but by fenced-in animals repeatedly walking over the same areas. As the old herders say, you can’t eat the grass up, but you can trample it to death. The Mongolian grasslands are an extremely vulnerable ecosystem, but it was nomadism that sustained it for thousands of years. Modern ecology has set the livestock and the grasslands up in opposition to one other, mistaking nomadism for a damaging practice.

The horse is highly respected by herders for its intelligence and loyalty. Baoyin Dalai describes the animal as the carrier of Mongolian culture and community. Catching, taming and shearing the horses are both work and a form of community activity and entertainment. A horse-racing meet is the topic of animated discussion for the following year. Horses are often the subject of poetry and song. Alateng says that Mongolian herders might not have much modern knowledge, but they can identify a breed of horse at a glance and tell you how to raise it. “Many people have motorbikes now, and a lot of the young don’t know so much about horses – saddles, bridles, bits, they don’t know how to make them. I’m always trying to teach them,” he says.

Last year Alateng and Baoyin Dalai funded a Naadam horse festival and founded the Khaskatun Horse Culture Association. Sixty-year old Alateng says quietly: “I want to save this type of horse, so I can leave something for my descendants.”

In the last few years, the China Horse Industry Association has started working to protect the Mongolian horse. Professor Manglai says that the three other breeds of Mongolian horse are protected by the Mongolian Horse Breed Protection Fund. The association is now identifying the characteristics of the Baicha so that it can also be included in this programme.

With help from Beijing-based NGOs Beijing Brooks and Green Beagle, the herders have written to the local government to argue their case: “Rapid deterioration of the grasslands has been happening for two to three decades. But large herds of horses have been living here for a million years. Blaming the damage on the Mongolian horse is unfair,” they wrote, adding: “Grassland damage today is not happening because there are too many horses. Horse herds protect and improve the grassland ecosystem. If the grasslands are to be restored, we have no choice but to protect horses and implement a modern nomadic system.”

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Photo by Zhou Wei

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Bashang's tourist trail

Zhou Wei June 17, 2011

A holidaymaking boom on Beijing's nearest grassland has lined the pockets of some – but worsened life for others. Zhou Wei went to the vacation town of Datan to see the impacts.

Beijing residents may remember seeing adverts for the Bashang Grassland: visit the nearest grassland to the city, get away from the noise, enjoy the cool evening air, roast a whole sheep. Every year, Bashang – in Hubei province – attracts visitors from the capital and further afield and, until recently, was one of the region's hottest tourist destinations.

But lately this tourist boom has started to tail off – and you don't see the adverts anymore. Some people have already forgotten about the place, while others complain it's no longer any "fun".

Why is it no fun anymore? What impact has tourism had? On a windy spring day, accompanied by a colleague, I followed in the footsteps of these tourists and visited the once-fashionable Bashang Grasslands.

Head north from Beijing, pass the Great Wall's Badaling, cross the Yan Mountains and you will reach Bashang, on the southern edge of the Mongolian Grasslands. The Bashang plains cover 350 square kilometres, but the tourism hub is the town of Datan, in the county of Fengning. Known for being Beijing's closest grassland, it lies less than 300 kilometres from the capital, at an average height of 1,486 metres.

Our car wound through the grasslands, past holiday resorts and farm guesthouses, with their sales pitches painted onto whitewashed walls. However, in contrast to the tourist businesses, the rest of Datan and its surrounding villages are run down. Follow the village's two short paved roads and you soon find small village courtyards and dirt tracks. Horses used for tourist rides are tied up by the road or quietly eating grass in the yards. The clean and stylish roadside buildings are often signposted as farmhouse restaurants. With the tourist season not yet started, Datan seems empty and quiet. It's hard to believe that the town has been relying on tourism for over a decade.

We spoke to a Beijinger named Mr Zhao, who owned a stake in a farm guesthouse here from 1998 to 2007 and witnessed firsthand the changes over those 10 years.



In 1998, Zhao, a keen photographer, visited Bashang and fell in love with the local scenery and culture. And so, with friends, he decided to open a guesthouse for tourists. He recalled that Fengning's tourist trade first got going in June of 1997. The first time Zhao visited, there was only one proper holiday resort. When he started his business, the first round of tourism development was drawing to a close: in just one year, more than 20 resorts had opened up.

“ We saw large rubbish dumps outside all of the villages we visited, heaving with sodden trash and strewn with plastic bags. ”

Around 2002 or 2003, taking full weekends off work and owning private cars became more common in Beijing – and two-day excursions and self-drive holidays got going. Bashang was the obvious choice for those looking for a spring break or to dodge the summer heat and it became as fashionable as well-known seaside resort Beidaihe. Coach drivers often found themselves rushing between Beidaihe, Beijing and Bashang.

Between 2002 and 2006, the summer and autumn tourist seasons would see Bashang packed to capacity. Zhao said that the villagers could tell how well their neighbours' businesses were doing by where their horses were: if the horses were off giving rides and the yard full of vehicles, business was good; if they were tied up and nobody was parked in the yard, business was slow.

The number of horses in the village reached as many as 600 or 700, and even that wasn't enough at busy times. Spit-roasting whole sheep was another major draw: tourist websites featured images of a sheep cooking over an open fire. All the guesthouses had an iron spit, and sheep traders would gather at the gates with

trailers full of live animals to sell. On the busiest nights, a village might get through 200 sheep.

In the early days, it only took two years to make back your investment. Figures Zhao obtained from the town hall show that average local income in 1996 was 1,000 yuan (US\$155). By 2005, it had climbed to 5,000 yuan (US\$773). The owner of another farm guesthouse, Ms Wang, explained that tourism is much more profitable than farming – farming only feeds the family, but tourism actually makes money. And so more and more locals and external investors piled into the tourism trade and heated competition led to a price war.

But while the idea that this was a way to make easy money caused many to jump on the bandwagon, those who invested late had to wait years to see a return. Several years of fierce competition saw most incoming investors leave and partnerships with Beijing travel agencies come to an end. It is now rare to see adverts for Bashang in Beijing. But the locals are still suffering the consequences of the tourism boom.

Locals say the grasslands are “no good” anymore – that they have been harmed by too much horse-riding. And it isn’t just the locals who complain: even visitors say the plains have lost some of their beauty. A type of grass known for only growing when the grasslands are unhealthy is now visible everywhere.

We saw large rubbish dumps outside all of the villages we visited, heaving with sodden trash and strewn with plastic bags. Zhao explained that a large farm guesthouse could host over 200 guests a week in peak season, producing three large barrels-worth of waste every day. And their village alone has 50 or 60 guesthouses and resorts of varying sizes.

Almost all rural areas have an annual fair, where local news is swapped and goods exchanged. Datan’s event is in July – tourist season. Zhao said that, in the past, goods on sale in the market were limited, but that once Beijingers started visiting the area, locals wanted to widen their offering, and so the Datan market is now home to fake products and low-quality goods. Worse, the market has grown bigger every year and when it’s over, the site is left covered with rubbish.

The pressure of the extra tourist population has also created hidden environmental problems. Villagers living downstream of Datan complain that the taste of their

groundwater has changed – in the past, the water from six-metre to eight-metre deep wells was delicious. Now, it is undrinkable. A local shopkeeper, Mr Zhang, said that seepage pits under village homes used to filter waste-water can’t handle the extra load, and the groundwater has become badly polluted. His village lies downstream of Datan, and he has been affected by the problems.

Tourism also spurred construction – Zhalaying village, where Zhao lives, doubled in size during the 10-year tourist boom. Many buildings lie empty in winter, but are full to bursting in summer. Public roads and facilities have not been upgraded, and there’s a serious lack of overall planning and management, although the tourism bureau makes sure to get every penny of its “management fee” from the locals’ horse-riding income.

The village has expanded and an influx of wealthy people has pushed up house prices and living costs. “It’s the poor who suffer from tourism growth,” said Zhao, sighing. Zhang said that tourism lets some people get rich – but a greater number of poor people don’t see any benefit, and end up having to cope with a higher cost of living and the environmental costs. “If this place isn’t fun any more, Beijingers will simply travel further afield – but the locals are stuck here,” he said.

Grasslands expert Liu Shurun told us that Fengning is the source of Beijing’s Luan River, one of the major sources of sandstorms for Beijing and an extremely important environmental buffer for the city. This was once high-quality grassland, and while degradation is partly due to migration and farming, the changes inflicted on an environmentally vulnerable region by a decade or more of tourism cannot be ignored.

In October last year, the resurfacing of the Beijing to Fengning road was completed. Locals say that better roads will mean more visitors: is a new grasslands tourist rush about to start?

Zhou Wei is associate editor in chinadialogue’s Beijing office. Meng Si, managing editor, also contributed to this article.

Photo by Zhou Wei shows some of the impacts on the land of Bashang’s tourism industry.