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Chapter 20 – "Integrating Conservation with Development - Tibet, China"

"It all depends on one's point of view" should be an axiom of development. Circumstances viewed as progress for some can be definitions of catastrophe for others. What constitutes positive direction differs from group to group. A major question is, whose definition is right? One of the most intriguing examples of such contrasting values has been (and remains) Tibet, which today is an autonomous region of China. For centuries, Tibet defined social progress in terms of the pursuit of spiritual values. Today, spiritual objectives are repressed and the people and leaders there seek material ends. Against that profile, though, their objective is a sustainable balance between economic prosperity and natural resources. We have followed the Tibetan case closely since 1984, setting up programs under two international nongovernmental organizations: UNICEF and, most recently, a fully local nongovernmental organization.

Until the middle of the twentieth century, the Tibetan people had no voice in shaping their own direction. Tibet's agricultural, economic, and human potentials were almost totally channeled to support thousands of highly developed monasteries, some housing more than 5,000 monks. Many families traditionally gave up one of their children to serve in a monastery. Few societies have been so focused on spiritual purposes. Paralleling this dominant religious structure was a feudal system of local lords that also levied heavy taxes and held people in servitude. Taxes by monasteries and lords often took one-third of the average farmer's crops in what is a difficult, barren land.

In 1950 the Chinese army entered Tibet, and in 1959 China took over direct control, asserting that Tibet had agreed more than two centuries earlier to a suzerainty relationship. The

new rulers deplored the absence of schools and health services, an agricultural system that used serfs, and a theocratic system of government. The new rulers ruthlessly destroyed what had gone before and imposed a new order, recasting the polity as the Tibet Autonomous Region. Thousands of religious monuments were torn down, and compulsory communal experiments resulted in famine and vast social dislocation. The Cultural Revolution that followed in the 1960s and 1970s added further to the destruction wreaked by the initial "liberation."

A new order has now begun forming from this collision of values, one that includes a different approach to preserving the environment. This approach had its genesis in the Qomolangma (Mount Everest) Nature Preserve, arguably the world's first major community-based nature preserve. Today that project, through example and training, has become a model for wider community-based development and conservation across Tibet, leading to the formation of twenty-four major preserves. The result shows the potential for people to simultaneously address economic, social, and conservation needs.[1]

In most of the world, conservation programs remove people from the places to be preserved. Development is viewed as incompatible with conservation. In Tibet, people still live on the land and use it, but the conservation effort is redefining how that land is used. This effort is directed toward ensuring the long-term well-being of people, while simultaneously protecting large ecosystems. Of equal interest, conservation is also stimulating social empowerment. Tibet has become a milieu of local entrepreneurs racing to make money, outsiders by the thousands moving in to do the same, and a continuing debate between those who seek to exploit the environment and those who advocate protection--but as this economic progress surges forward, so does conservation. Tibet is no longer a land apart from the world, but a place that mirrors the challenges of a hunger for development and the imperative for conservation. What is instructive

about this case is how, by utilizing a community-based management approach each year, an independent assessment suggests that the environment is better protected and biological species are becoming more numerous.[2]

The harsh environment determines all actions in Tibet. Its climate is one of the most extreme on the planet: the air has one-third less oxygen than is available at sea level; the average temperature is 30ºF (17ºC), lower than that at an equivalent latitude at sea level; and annual precipitation is frequently less than ten inches (twenty-five centimeters). In such conditions, only the hardiest trees, bushes, grasses, animals, and people can survive.

Historically, people damaged the environment as they sought to live here. Our comparisons of populated areas and protected pockets of habitat reveal that several hundred years ago, the ecology of Tibet was very different. There were forests--proven by the vestigial ones still found around ancient monasteries, such as Samye, south of Lhasa, or Reting, in central Tibet--and in sacred valleys such as Tsari, in southern Tibet. Today, though, the land is barren across Tibet, not because of climatic change, but because the land was overutilized in the centuries of earlier feudal and monastic Tibet. Pollen studies also show that before that era, trees grew beside rivers, along valley bottoms, and on the slightly moist, north-facing slopes below 12,000 feet (3,600 meters) in elevation.[3] Comparisons of grass species and their variety on inaccessible cliffs also give evidence that Tibet was formerly more richly vegetated.

This vegetation disappeared with the blossoming of Tibetan civilization in the seventeenth and eighteenth centuries. Human pressures on the land increased and changed the balance of flora and fauna. Monasteries with their thousands of monks and nuns demanded fuel for cooking and for warmth. Consolidation of control by the monasteries and feudal lords seemed to have brought stability, so the human population increased. As a result, trees that once

grew by the rivers were cut for the many monasteries and tens of thousands of homes. Flatter lands that had better soil and richer grasses were plowed to make fields. Herds of domestic animals became more numerous, and the types of grasses decreased.

The pace of human-initiated environmental change accelerated with the construction of roads. These were gravel tracks during the 1960s and into the early 1980s, but by 2015, they had become major paved highways. Entire forests started to disappear with start of organized timber and mining operations in the 1980s. The influx of guns, which was limited to muzzleloaders until the 1960s, was augmented by the advent of the Chinese military, and then swelled by the US and Indian governments' support of Tibetan revolutionaries in the 1960s and 1970s. Large-scale killings of wild animals followed, and some species--such as snow leopards, Tibetan antelope, musk deer, and Asiatic black bears--once approaching extirpation now have their populations recovering.

Exploitation of the environment in Tibet parallels trends in all parts of the world. What is different in Tibet is how quickly and determinedly conservation efforts began. One reason may be sensitivity, because of their tradition of innate spiritual values; another may be that Tibetans are learning from other societies; and a third may be a strong government that can make its policies shift as it takes a longer view. For these reasons, as well as because a conservation approach was introduced that was compatible with economic advancement, the environment has benefited:

- In 1985, less than 1% of Tibet's land area was protected. By 2000, fourteen nature preserves protected 31% of the land, and by 2014, with additional preserves, over 44% of the Tibet Autonomous Region is under protected management.
- In addition to formal preserves, in the mid-1980s, reforestation started around major

urban areas, then took place along the rivers, and now has extended to more than 250,000 acres of reforested land. The impact has been substantial: in the Lhasa Valley, the local government claims that these reforestation efforts have decreased the average wind speed on the ground by one kilometer (0.5 miles) per hour.

- In 1994, a Tibet-wide ban on the commercial sale of wild animal skins, horns, and body parts was followed by dramatic arrests of poachers and sellers. Since 2001, wild animals throughout much of Tibet are noticeably less fearful of humans, and population counts suggest that animal numbers have doubled. By 2014, populations of all species of wild animals were expanding, with dramatic increases for some, such as snow leopards, wild yaks, and Tibetan antelope.
- A commitment to solar energy began in 1984. By the turn of the millennium, solar cookers had penetrated to approximately one-quarter of the villages, and photovoltaic solar lighting appeared in essentially every nomad camp and monastery reading room.
- By 1990, high-wattage electricity had reached virtually all towns and many large villages, with over 90% of this electrical generation coming from hydroelectric or geothermal sources.
- Since the 1980s, simple conservation technologies (window glass, small greenhouses, outside latrines that create compost, and energy-efficient metal stoves with chimneys) have become common in nearly all homes across Tibet.

The cumulative impact of protected areas (with coverage approaching half the land in Tibet), the environment being restored on the remaining half of the land, and renewable energy technologies is that in one of the planet's most isolated and socially disrupted societies, where severe hardships are the norm and humans depend on a stark environment, conservation has now

become a basis for development.

The four principles of SEED-SCALE can be seen in this context. In particular, three-way partnerships formed among communities, leaders, and experts. In the formative 1980s and 1990s, a few dedicated officials consistently worked in cooperation with an outstanding Chinese American expert, Chun-Wuei Su Chien, to set up the initial conservation design. Throughout this period, other experts gathered data, especially Chinese scientists, who could work unencumbered. Their cumulative evidence led to actions that allocated new roles for people, matching human needs with economic resources. In this extension of SEED-SCALE, the Qomolangma National Nature Preserve served as the key SCALE Squared center--it was a dramatic success in four of the poorest counties in China--that showed how behavior changes could protect the country's natural heritage and promote the quality of human life.

Qomolangma (Mt Everest) National Nature Preserve

On March 18, 1989, the government of the Tibet Autonomous Region launched an experiment across four counties around Qomolangma (the Tibetan name for Mount Everest) in setting up a nature preserve that had no wardens, but instead had the environment protected through county-based actions by the people. At the time, this preserve was the largest nature preserve in Asia, equal in size to the country of Denmark (or, in a comparison the Chinese preferred, equal in size to Taiwan). This new preserve was the world's first community-based nature preserve; the communities themselves assumed management actions. As its successes mounted, in 1994 the Chinese government elevated the park's status to a "national treasure," and it became the Qomolangma National Nature Preserve (QNNP).

The preserve is mostly high plateau, averaging 14,000 feet (4,500 meters) above sea

level. Descending from that height are five deep, forested valleys, with high amounts of rainfall and a diversity of plants and animals. Now 90,000 people live in the area (in the beginning there were 65,000), at elevations from 7,000 to 17,000 feet (2,100 to 5,100 meters). In the beginning, half the people lived below the national poverty line, and 98% were illiterate. When the preserve started, the area had one bank; now there are five. There were five schools; now there are thirty-eight. None of the water supplies for the area's 320 villages was protected; today the water supplies of 88 villages are.

One day when the preserve was just starting, a meeting was underway with villagers in the eastern part of the new park. "It's fine for you outsiders to talk about integrating conservation and development," said an elderly community representative. "Everyone wants to preserve the juniper bushes. But my family needs fuel to cook with and a fire to keep us warm, and cutting juniper is our only option." "But if you cut juniper this year, you won't have it next year," replied one of the officials. Daniel sat on the other side of the room, watching this standoff. It was not the first. We had been going from village to village, explaining the new preserve and how it would help people and protect the environment. In another village, residents had asked, why should the people stop killing snow leopards that killed their domestic sheep? Why stop killing wild asses that invaded their crops? Why should these villagers, the poorest people in China, stop cutting trees to sell to merchants from the cities who paid them hard cash?

Then an old man, dressed in simple homespun, stood up in the back of the meeting room and quietly spoke: "Perhaps we should first take care of our needs. But as we start with our needs, we should also ask, 'One hundred years from now, what will be the consequences of each action that we take today?' Thereafter, the challenges of implementing both development and conservation were resolved by what became known as the Qomolangma question: "One hundred

years from now, what will be the consequences of each action that we take today?" In extending the time horizon of development, this question engages the interdependencies of real life, in which every action has consequences. This question links the environment and soci-economic progress in a way people can understand.

In 1989, when the park was established, both the people's needs and the environmental threats seemed impossibly great. The forests around the base of Qomolangma, the Goddess Mother of All Mountains, were being ravaged, her slopes were littered with garbage from climbers who sought her conquest, and visitors were shooting the wildlife in the surrounding valleys. On our way to one early village meeting, we saw a Tibetan gazelle beside the dirt track. The Tibetan driver turned the jeep off the road and went after the animal. At first we thought he was chasing it for fun, or even to enable Daniel to photograph it; then, before we could stop him, he pulled a pistol from under his seat and blazed away at it a couple of times out of the jeep's window.

In creating the QNNP, its planners knew that they could not afford to pay wardens from outside to control violators; nor would outsider wardens be effective in this harsh, isolated place. But local villagers were onsite, and so was the county administrative structure. So a pragmatic decision was taken: put protection into the hands of the local people. Communities would be educated and, through that, prompted to change their behaviors. The people would not be asked to leave the land (the usual approach to protection), so the land could return to a wild state; instead, they would restore the land by learning new ways of using it.

The QNNP planners also realized that because the ecology of each valley was not the same, the management of each valley must also differ. Research teams crisscrossed the four counties, collecting data on their wildlife and plants, their rates and ways of changing, how

people were changing, and the imminent dangers. The preserve that was created, based on the facts that were discovered, is distinctive in its approach:

- Management uses existing systems; no separate park structure and warden force were created. Utilizing the administrations of the four counties allowed new directions in their land usage without creating a new bureaucracy. Conservation management followed existing political boundaries, and biological science fitted inside political lines. This shift reduced the costs of conservation by approximately two-thirds.
- Management followed the biosphere-reserve concept, creating a zone-based mosaic of land use. How land and wildlife are treated depends now on each locale. Eight core areas strictly preserve key habitat. In surrounding buffer zones, people can use the land, as long as natural balances are not disrupted. Towns and villages are zones of intensive human use--called development zones--where disruptive activities are permitted, so long as they do no harm to the larger environment.
- Nature conservation and development are understood as interdependent, equal priorities. Funds that would have gone to conservation administration are used to improve peoples' health, education, housing, fuel supplies, animal fodder, and the like. Park ownership of lodges provides a second stream of income. These economy-promoting policies collectively caused people to implement conservation policies.

The *pendeba* project illustrates the dual introduction of new services for the people and the means to influence conservation actions. Surveys in 1988 showed that villagers had three priorities: reliable energy sources, acute health care, and transportation services. (Outsiders had projected that their priorities would be food security and poverty alleviation--neither of which

was correct.) Of these identified local priorities, primary health care offers fast results and is relatively inexpensive, so action occurred on this first. A village survey showed the needs to be treatments for diarrhea, pneumonia, cuts, and broken bones, and childbirth assistance.[4] Each of these offers a self-care opportunity; clinics, while nice, are not essential to address these conditions. So a new type of worker was created and given a name coined specifically for this new function: *pendeba* (the worker who benefits the village). Twenty-four villagers were selected to go to Shegar, the central town in the nature preserve, for three weeks of training in primary health care. They returned from Shegar to their villages with a basic drug supply, knowledge of how to use these medicines, and an understanding of preventive medicine. To pay for the care these individuals would provide, their villages established payment plans.

The *pendebas*' skills grew incrementally. Initially, they provided little more than first aid, vaccinations, and oral rehydration for diarrhea (using a homemade solution of roasted barley flour and salt). With supervision and more training, they were able to meet two-thirds of the villages' health needs. Villages where the more-competent *pendebas* worked and where a modicum of support was present (a school, a cooperative, or a government administrator) were designated as teaching villages. *Pendeba* numbers grew, from 24 in 1994, to 87 in 1997, to 234 in 1999.[5] The report from which these figures were taken estimated that by 2010, 450 *pendebas* should have been trained, with 300 serving the preserve's 320 villages. Beyond its health impact, this project had a larger result: it visibly showed people that they could improve their lives through their actions. *Pendebas* branched out to start family hotels for tourists, open shops, extend tree planting to altitudes over 14,000 feet (4,200 meters)--previously, it had been assumed that trees would not grow above 13,500 feet (4,100 meters). Often, *pendebas* represented a village voice in dealings with the government. In 1998, the United Nations selected the *pendeba*

project as one of its fifty success stories for that year. In 2014, this project received the Equator Prize, awarded by the United Nations, as "one of the twenty most successful sustainable development projects in the world."

The approach was uncomfortable to some. One venture pushed by an international agency demonstrated how the QNNP's orientation differed from conventional donor-designed development. In 1996, this major UN donor became enthusiastic and offered support, on the condition that the *pendebas* be paid salaries. The donor reasoned that since these were the poorest villages in China, it was impossible to expand to scale with the villages paying their workers. QNNP leaders resisted the idea of UN monies going to pay *pendebas* in villages where there were already established rules and workers, but they worked out a compromise: the donor would set up a parallel project in non-*pendeba* villages. The UN could pay their workers (called *mangshabas*), and the UN would set the direction for what they should do. Two years later, the number of *mangshabas* had not increased beyond the original fourteen. Each was doing what he or she was being paid to do. The donor was not in a position to increase the funding, and the villagers, who saw the services as gifts from the UN, had no incentive to figure out how to pay for the hoped-for expansion of *mangshabas*.

Elsewhere, villages with *pendebas* were expanding services, as well as their overall numbers of *pendebas*. Tree nurseries had been started in the QNNP in 1992. By 1998, they were producing thousands of seedlings. *Pendebas* now started distributing these and trained families in tree care, in the hope that households would have fast-growing willows and poplars, with leaves that would provide fodder for animals and branches that would supply fuel for human use. That year, a few *pendebas* had opened shops to sell solar cookers and metal stoves with chimneys, both of which consume less fuel than open fires on floors, and some small shops were

selling window glass, to hold heat inside homes. By 2014, over 200 villages had stores. Along the roads, at many places where there were once only crossroads, an influx of shops were opened by Chinese entrepreneurs, who had greater merchandising skills and better financing. These put pressure on Tibetan merchants. But a respite during winter, when many of the Chinese close their shops to return to warmer climes, has allowed the Tibetans to regain a footing, learning lessons from the competitive market. This jostling of the Chinese economy with the local one mirrors what is underway in the global economy.

To relieve pressure on ecologically fragile valleys, a multilevel resettlement program was launched. One approach had local people and the government joining forces to dig irrigation canals and build access roads. Whole valleys were thus opened to settlement. With that now-accessible land, families were offered the chance to relocate from ecologically fragile or overcrowded areas where conservation priorities sought to reestablish biological diversity.

The innovations that self-assembled to support the *pendebas* are striking. For example, one village could not afford to pay a salary to its *pendeba*, nor did the villagers have the equivalent of US$0.20 per person per year to create the insurance scheme proposed by an outside expert. So the local administrator taxed the owners of larger sheep flocks one sheep each, arguing that they could easily lose that sheep to a snow leopard. The sale of wool and offspring from this new flock supported the *pendeba*. Another administrator noticed unused land outside the village, had access to a tractor, and offered fields to the landless and use of the tractor to plow that land. When the families successfully grew crops for two years, the land became theirs. Another organized a revolving drug fund for his *pendebas*, since the drugs they were given were depleted as the *pendebas* gave them away to the most needy. Another midlevel administrator started cooperatives, as pooling resources in a co-op increased their leverage. The co-ops now

sell machine-made clothes, drugs, candy, plastic jugs, and other items from the outside world. In 1997, there were four cooperatives; two years later, there were twenty; and the year after that, fifty. In a recent conversation, one *pendeba* said, "It's not the money we get that's important, but the strength we build from putting our resources together."

Successes such as these have raised expectations from the government and outside donors that village *pendebas* cannot possibly meet. They remain simple villagers who have not gone to school, but now they are asked to help with village administration and participate in making complex decisions on health, agriculture, conservation, income generation, and public policy. Requests come to *pendebas*, who usually have only a few weeks of training (primarily in health), to build a retaining wall to stop flooding, to start a village school, to stop wild animals from invading crops, to engineer a bridge, or to solve complex health crises the *pendebas* are not trained to handle.

But what other alternatives to growing local services are there in a fast-moving society such as once-isolated Tibet? This is a world with few alternatives beyond help from the people one has. Is it not better to take the resources at hand, use them, and then start a continually growing process? Western tourists who get sick on their way to Mount Everest increasingly stop for treatment from the person the villagers call "doctor." Thrust into leadership, in some cases the *pendebas* themselves overestimate their competence and take on tasks they should let pass them by; at other times, they assume inappropriate leadership roles. There is a danger that *pendebas* may come to be seen as failures--which is very likely what Western tourists would think--because they cannot do all that is asked of them.

Yet, driven by the engaged local communities and informed by modest levels of education, the QNNP's successes have been breathtaking. Local records kept by the QNNP (and

confirmed by outside spot checking) indicate that all wild animal populations have trebled (with the exception of the musk deer and black bear populations, which are slowly rising), and unlicensed deforestation--the most pressing environmental problem when the preserve was established--has been reduced to almost nil. Community capacity continues to build as village councils take on more-complex projects and mobilize internal resources.

The American Museum of Natural History in New York City selected this demonstration of what the QNNP has done as a permanent exhibit in its Hall of Biodiversity. Chinese television, international journals, and local and foreign newspapers all consistently give coverage to the hard-working *pendebas*. The awards given to the QNNP by the UN in 1996 and 2014 have been mentioned worldwide. Descriptions of progress mount, covering activities from garbage cleanup on Mount Everest to schools, health clinics, libraries, and even archaeological excavations. In the early months of the QNNP, a cynic quipped, "It will be a sensational conservation achievement if the fox can guard the henhouse." Today, villagers are succeeding because they have been enabled by a partnership: the government partner has been strong, and the experts focused on educational roles. With continuing support, villagers can expand these activities. The greatest success of the QNNP is not that the fox is indeed guarding the henhouse, but that a three-way partnership is building a new house, one that works there and is a demonstration for all of Tibet.

Conservation Extension across Tibet

Protecting Mount Everest set a conservation example in place for Tibet. *Conservation* implies a different way of responding to and with the world than *economic development*.

Ultimately, all life on Earth must adopt a conservation approach if economic progress is to be maintained. The highest place on Earth was the beginning of Tibet's conservation saga, and perhaps its sustainable development.

1. While the QNNP was being launched, across those same years laws were enacted to protect wild animals throughout the Tibet Autonomous Region. Unlike the traditional approach, which bans any killing of endangered animals, the Tibetan solution to protect its wild animals was that prosecution would occur only when the pelts, horns, or parts of a wild species were offered for sale. People were not prosecuted if they killed a snow leopard that had slaughtered domestic sheep, or a wild ass that had invaded their fields, but they were prosecuted whenever they tried to sell products from wild animals. As a result, by 2007, the population numbers of every species of wild animal across Tibet were increasing.[6] Species in this region of China may still be endangered, but their populations are rising.</NP>

2. In addition to Mount Everest, other areas also needed protection. The most critical was the heavily forested region along Tibet's southern and eastern borders, where an ecosystem collapse was under way in the 1990s.[7] The upper drainages of the Yangtze, Mekong, Salween, and Brahmaputra Rivers contain one-seventh of China's timber reserves. Valley after valley has spectacular pristine forests, with trees regularly being four to five feet (1.5 meters) in diameter. Timber harvesting had begun in the 1960s, when roads were built into this area from China, and it ratcheted up in 1990s, as China's economic growth accelerated. By the mid-1990s, whole mountainsides of trees were being removed, with the clearcutting at times extending 6,500 vertical feet (2,000 meters). On days when the fragile roads were not closed by landslides or winter weather,

our records show that an average of 200 truckloads of cut timber left for Sichuan and Yunnan to the east, and on some days another 100 trucks, starting from the western edge of the area, embarked on a circuitous northern journey.

Whole valleys were being cleared, and continued tree cutting would lead to massive soil losses during the rains, as well as landslides. With the flora being disrupted, the megadiversity of the fauna would decline. This biodiversity is the second greatest in mainland Asia, with 8,000 species of vascular plants, 600 species of birds, and 150 species of mammals. Destroying the watershed would immediately affect the livelihoods of the 800,000 people living there, one-quarter of Tibet's population. But damage was also showing up downstream of these four watersheds, inhabited by 1.2 billion people in eight countries, totaling 16% of the world's population. Fluctuating water levels would impact irrigation to the paddies supporting their rice-based diet, as well as disrupt river transport, fisheries, and hydroelectric generation. Flooding is an age-old scourge in China, which would increase, along with siltation. Of particular concern was the effect on China's largest development project, the Three Gorges Dam on the Yangtze River.

Because the four valley systems span two prefectures in Tibet, conservation solutions would have to cross prefecture lines; the county-by-county model of the QNNP would not directly transfer to this situation. Travel between prefecture centers took five days then, a problem now simplified by new roads, shorting the time to two days. But creating these roads has been an engineering challenge, because no place on Earth has land that is so fractured. These four valleys are among the deepest, steepest, and geologically most unstable on the planet. And building roads is just the beginning, as the yearly monsoons cause landslides, which regularly break up the roads in dozens of

places. The area is also politically sensitive, forming international borders between China, Myanmar, and India.

The resulting plan created a mosaic of eleven protected areas within an overall land-management plan. The QNNP experience had shown that local administrators resisted plans designed by outsiders, as these local personnel resented being told what they must do. So a six-year training program was launched for them, as well as training being provided for local foresters and scientists, so they could learn skills and see examples of community-based conservation at sites around the world. As the locals were being trained, expert teams gathered data for the master plan, conducting valley-by-valley surveys. The *pendeba* project provided a model for community-based services.

Forest management was key to the project. Given China's need for timber and the huge revenues being garnered, harvesting had to continue, but the clearcutting of slopes had to be replaced by sustained forest management. Major floods along the Yangtze River during the summer of 1998 provided the opportunity to influence forest-management policies. The flooding took thousands of lives and threatened millions more.[8] The floods washed out roads and towns and heightened awareness of threats to the Three Gorges Dam downstream. Compromises on timber cutting had been planned, but the threat to China's premier development project minimized the amount of compromise needed (accentuated by some carefully targeted, anonymous media reports) and stimulated political action to stop all timber cutting in the Four Great Rivers region. In November 2000, after five years of planning, data gathering, and widespread community dialogue, a master plan was presented to the government. Intensive polishing followed through early 2001, and the final plan was submitted to the government that May. That

was followed by China's fifth five-year plan, which allocated US$70 million to implement the proposals.

3. Four years after the QNNP started, another nature preserve took form in northern Tibet, the 120,000-square-mile Changtang Nature Preserve. Vast herds of gazelles, antelope, wild asses, wild yaks, and other animals roam across an area the size of West Germany, made up of rolling grasslands at altitudes averaging 17,000 feet (5,100 meters). The high altitude and low amounts of precipitation create a very fragile habitat. Despite the region's isolation, poaching had increased during the 1980s, which particularly threatened Tibetan antelope. Well-armed, mobile hunters were killing thousands of these fleet-footed animals, whose fine *shatoosh* (belly fur) was woven into shawls selling for US$5,000 each.

As the nature preserve was being formed, checkpoints encircling the region were established to catch the outflow of *shatoosh* fur; at the same time, a worldwide educational effort cautioned people against purchasing shawls made from this fur. Using wardens in vehicles to police this vast area and find poachers was excessively expensive. So, drawing on the community-based approach from the QNNP, local nomads were mobilized through an offer of health and economic services, which opened a means to identify the poachers, who were then caught at the checkpoints.</NP>

4. A different application of community-based conservation was taking shape in Tibet's rapidly growing capital city, Lhasa. There, a large wetland was being encroached on by the expanding city. Half of the wetland area had disappeared in the period from 1975,

when urban growth had started up, to 1995, when the threat of wetland loss was identified. But 1,500 acres (625 hectares) of wetlands still remained. In arid Tibet, such green space is a stunning ornament. Discussions with the government began as commercial interests were viewing this "empty" land for the city's expansion. But in 1999 the government--building on the momentum of a Tibet-wide conservation consciousness being fostered by intentional international action during the same period, as well as on the deep-seated values in Tibetan culture toward the protection of nature--set aside this wetland remnant, creating Asia's largest urban park on land immediately adjacent to the Potala Palace of the Dalai Lama. Draining water from the wetlands was stopped. Grazing animals were prohibited, and the vegetable-growing squatters were expelled. But forceful action was not a long-term solution.

A change in mindset was needed, but it had to be one that engaged the community. Thus parts of the wetlands were developed as places where community members could have picnics. Trees were planted for shade, and picnic and party pavilions were constructed. Citizens could retreat from elsewhere in the city and be inside these protected natural areas. A parallel project created educational exhibits in the preserve, with walkways citizens could follow among the marshlands. A special focus set up programs for schoolchildren, with the thought that by educating them, learning would flow back to their families.

As part of the process in mobilizing political support to establish the preserve and prevent commercial development there, a decision was made to construct roads along the outermost limits of the wetland. The roads were a type of economic development, but they also formed a barrier--with the city on one side, and the preserve on the other. This

also allowed people to look at the wetland area as they traveled past and, as they did so, to monitor activity there, since at first, many former herders were slipping their cows back onto the land. The road formed a fence for the preserve, a fence that, rather than extending up and blocking sightlines, was horizontal to the ground, affording both visual enjoyment and protection.

Today, twenty-four nature preserves exist across the Tibet Autonomous Region, and 42% of the land area is protected. By and large, all these preserves are managed by local communities, and wardens perform only in a few special tasks. A key factor underlies the change in perspective for all this: people are seen as allies and actors, not invaders and exploiters. Perhaps they had been destroying wildlife and forests, but, to turn their actions, policies and education focused on bringing them beneficial services, coupled with restrictive consequences.

As a result, Tibet presents a dramatic example of affordable, very large-scale, community-based conservation. It differs from traditional approaches that assume people should not live inside the protected area and focus policies on law enforcement. In the Tibetan efforts to address peoples' needs, a diversity of factors converged: values in their culture that respected the environment; recognition of accelerating environmental destruction, established with evidence; a political structure that could foster action and control; and timing, since the administration in the Tibet Autonomous Region was open to progressive ideas in the 1980s and 1990s. This approach has an analog in that used in the Adirondack State Park (chapter 9).

[1] A parallel presentation, one that emphasizes the role of using partnerships to scale up the Tibet-wide impact, is presented in our parallel volume: Daniel C. Taylor, Carl E. Taylor, and Jesse O. Taylor, *Empowerment on an Unstable Planet* (New York: Oxford University Press, 2012) Chapter 7.

1. Robert L. Fleming Jr., Dorje Tsering, and Liu Wulin, *Across the Tibetan Plateau: Ecosystems, Wildlife, and Conservation* (New York: W. W. Norton, 2007).

2. Daniel Winkler, "Deforestation in Eastern Tibet: Human Impact--Past and Present," pp. 79-96 in Graham E. Clarke (Ed.), *Development, Society, and Environment in Tibet*, vol. 5 in *Proceedings of the Seventh Seminar of the International Association of Tibetan Studies, Graz 1995* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1998).

3. Carl E. Taylor et al., "Health Survey of Tibetan Villages North of Mount Everest," *National Geographic Research and Exploration* 8 (3): 372-377 (1992).

4. PuChong, "*Pendeba* Action in the Qomolangma (Mt. Everest) National Nature Preserve," *Sustainable Development International* , International Growth Centre, London, September, 1999). <please insert the volume number, issue number/season (if applicable), and page numbers for this article> (1999).

5. Fleming, Tsering, and Wulin, *Across the Tibetan Plateau*, p. 5.

6. Robert L. Fleming Jr., "Natural History Notes on the Po Tsangpo and Rong Chu Confluence, Linzhi Prefecture, SE Tibet, May 2006. http://www.future.org/publications/natural-history-notes-po-tsangpo-and-rong-chu-confluence-linzhi-prefecture-se-tibet"

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THE EARLIER CITED REPORT BELOW WAS SUBSEQUENTLY UPDATED INTO THE ABOVE TWO REPORTS

A Summary of Biodiversity: The Great River Ecosystems of Asia Trust Region," Technical Report (Franklin, WV: Future Generations, 1998)<this report no longer seems to be available on

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7. National Oceanic and Atmospheric Administration, "Flooding in China Summer 1998," November 20, 1998, <the URL has changed; please double check the current URL>www.ncdc.noaa.gov/extremeevents/specialreports/China-Flooding-1998.pdf.