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Participation in Forestry in Tibetan Southwest China

A Strategy to Resolve Resource Use Conflicts

On 1 September 1998, the Central Government of China initiated the first phase of the Natural Forest Conservation Program (NFCP) in the catchment areas of the Upper Yangtze River. The NFCP prohibits commercial logging, provides substantial funding for reforestation, and offers a great opportunity to transform the region's state-controlled forest industry—previously geared toward maximum timber extraction—into sustainable forestry. However, livestock grazing and nonintegration of local communities could undermine the success of this massive initiative. Communities are interested in and capable of contributing to reforestation and forest protection. Transforming the forestry industry, which relies on an outside workforce, into a sustainable operation that integrates local communities and provides reliable income opportunities might prove to be the key to resolving omnipresent conflicts over grazing rights.

The forestry industry

Since the mid-1950s the state-run forestry industry has developed into a key economic sector in the Tibetan administrations of southwest China. The timber industry provided substantial financing for governments at the local and prefecture levels. Forest resources in the Tibetan areas of southwest China are estimated at 2.3 billion m^3, whereas the figure for the whole of China is an estimated 11.6 billion m^3. So far, no conclusive figures are available regarding the full extent of deforestation before the logging ban. Chinese research indicates a reduction of 50% of forest cover between the mid-1950s and the mid-1980s. Before the early 1990s, reforestation after logging was an exception. In the 1990s reforestation efforts and seedling production, primarily native spruce, were increased because resource exhaustion plagued several counties.

All forest resources in the Tibetan areas of Sichuan are under the control of government agencies, such as County Forestry Bureaus (CFBs) or provincial forestry units. There is conflicting information regarding the actual extent of community forests (*jitilin*). For example, for Litang County, a Ganzi Prefecture Forest Bureau report calcu-

FIGURE 1 Tibetan woman planting spruce seedlings. Villagers are hired for forestry work—including fence building paid for by projects—as part of an agreement to prevent livestock from invading reforestation plots. Junba Valley, Litang County, Ganzi TAP, 3950 m. (Photo by Daniel Winkler, 24 April 2002)

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lates *jitilin* forest areas at 18% and county forests (*xianguoyoulin*) at 82% of the forest area. Another prefecture publication reports that 35.2% of Litang's forests are *jitilin*, and 64.8% are county forests. This contradictory information reflects the fact that, although local communities might have forestland assigned as community forests, currently this does not entitle them to any forest management, a situation that contrasts with nonminority areas in China. However, communities are entitled to extract firewood and timber for household needs. Subsistence logging requires an application and a small payment to the CFB. Logging without permits results in serious fines.

Forest ecosystems

Forests are located along the valleys of the Yangtze, Yalong, Mekong, Salween and Tsangpo rivers and their tributaries. The summer monsoon brings in over 80% of the annual precipitation. In contrast, winters are very dry and cold. Forest ecosystems receive between 500 and 1500 mm annual precipitation. The rugged terrain fosters a wide range of temperatures, precipitation, and evaporation, contributing to high biodiversity, especially along the outer fringe. The tree line reaches 4650 m, the highest in the world. The forests consist mainly of fir and spruce, but a strong broadleaved element is admixed. Degraded south slope sites are frequently covered by evergreen oak or, in more continental sites, by juniper forests.

Traditional land use patterns

Forests were traditionally regarded as a common asset by Tibetan communities and used primarily for construction timber and firewood, in addition to providing many nontimber forest products (NTFPs) such as medicinal plants and mushrooms. Human impact has dramatically reduced forest ecosystems on the Tibetan Plateau through the millennia. Valley grounds, wide ridges, plateaus, rolling hills, and south-facing slopes have been cleared for pastureland. Pastoralism constitutes the core activity of a traditional subsistence economy and has been developed and maintained over centuries, conserving and continually extending the fragile pastureland resource. Pastoralism is based on seasonal movement of livestock (yak, sheep, and goats) between high-altitude summer pastures (above 4000 m) and lower winter pastures. Traditionally, cash income has been generated through the collection and sale of medicinal plants (ie, caterpillar fungus, *Cordyceps sinensis*). Traditional Chinese medicine (TCM) has been the most important market for these products. This activity greatly expanded following economic reforms in China after 1981. Additionally, international market demand has increased due to the growing use of TCM, Tibetan medicine, and alternative herbal remedies.

In areas with evergreen oak or pine forests, *matsutake* mushrooms (*Tricholoma matsutake*) are collected for export to Japan. "Everybody that can walk," as I was told in Litang County, collects *matsutake* in July and August. This resource, which was discovered in 1988, already faces a serious threat owing to unsustainable harvesting practices. Japanese customers prefer very young mushrooms. Thus collectors dig for small buds, which consequently hurts the mycelium. NTFPs offer great potential for income generation in the Tibetan areas. However, sustainability issues need to be addressed or harvests will be adversely affected. Also, more value needs to be added to these products in the region.

"Grain for green"

The NFCP has a subprogram known as "grain for green" (*tuigeng huanlin*), which has promoted revegetation of sloped agricultural areas by local farmers since 2000, to reduce erosion. Planting of fruit trees (apple, pear, peach, etc), nut trees (walnut, chestnut), Sichuan pepper (*Zanthoxylum bungei*), the hardy rubber tree (*Eucommia ulmoides*), and the sea buckthorn (*Hippophae rhamnoides*) is very popular. Local farmers are enthusiastic about this program, which they hope will improve their income base while reducing their agricultural workload. In the Yangtze catchment, farmers are entitled to 150 kg of grain per revegetated *mu* (= 1/15 hectare) over the next 5 years and an additional 30 RMB per *mu* (US$55 per hectare) in cash for planting. When conifers are planted, grain is guaranteed for 7 years. The program's long-term benefits cannot yet be assessed. It is unclear how conifers will offer an income after only 7 years. Also, many revegetation areas are to be found in prime nonsloped agricultural areas. Fruit overproduction may lead to loss in product value. Fruit processing facilities, which add value and create jobs, need to be established.

Reforestation and seedling protection

Thanks to the NFCP, reforestation receives more attention and substantial funding from the central government, which is a very positive development. However, local Tibetan communities and grazing issues continue to be overlooked. Seedling survival cannot be guaranteed unless grazing pressure on plantations is kept in check. Lack of participation by local people in forestry is based on 2 factors:

Logging operations have been managed and carried out primarily by Han Chinese technicians and workers from outside the region.

The logging ban has eliminated the economic base of these state-run logging units. Reforestation work is now a key activity to keep

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government logging units employed. Forestry officials admit that the current program is tailored to providing income to these units.

Fencing reforestation areas is very uncommon in Tibetan areas despite the large number of livestock. Although the government is subsidizing extensive controversial fencing programs in grassland areas, CFB officials state that costs are prohibitive. However, fencing is not carried out due to lack of communication between local herders and the CFB. CFB officials are aware that fencing is ineffective without the consent of herders. Compensation to herders for lost grazing land is not considered by the CFB. The situation is complex because local herders have grazing rights for localities. Once the forest is clear-cut, they are glad to exercise their land-use rights and clear-cut areas are quickly turned into grazing grounds. Community grazing rights typically apply to an entire valley and not just to existing pastures. However, the CFB still regards clear-cut areas as forest area. To accommodate conflicting interests, some CFBs insert wooden battens around seedlings to protect them from being trampled or chewed by livestock. This method improves seedling survival but requires maintenance and is of limited value if grazing pressure is too great.

In many discussions local people have expressed a positive attitude toward reforestation. There is awareness that excessive logging can cause serious erosion. Households close to impacted sites fully support reforestation. However, current forestry practices provide very few incentives to local participation. While discussing a reforestation project in Sertar County (Ganzi TAP), a local forest guard told me, "we like planting seedlings, but we are worried that they will grow into trees and reduce our grazing area." This view is very pragmatic because state-sector logging produced negligible direct benefits for local people, whereas herding has secured survival for Tibetan communities for centuries.

Possible solutions

Currently there is an opportunity to use funding from the central government to train and employ local communities, which hold grazing rights to reforestation areas, in planting and maintenance work as well as in forest guarding. Such forms of income generation can also be offered in exchange for not grazing reforestation plots. Herders will only become stewards of the forests if forestry income constitutes a reliable part of their livelihood, which in the long run would also reduce the dependency of local economies on herding.

Additionally, policy changes are required to ensure successful reforestation and conservation. Community forestry and participation beyond simple manual labor are currently neither practiced nor seriously considered by state agencies in the region, although community involvement is already much more advanced elsewhere in China. There is a need to move away from employing a costly outside workforce toward integrating local communities.

Local people are very interested in forestry work and capable of carrying out labor under the guidance of state foresters. This has been proven in cooperation schemes between local communities, CFBs and The Bridge Fund (TBF) in Litang, Nyarong (Xinlong) and Sertar counties (all Ganzi TAP), and Nangchen (Yushu TAP). Tibetan men and women have planted a total of 1 million seedlings since 2000 (Figure 1). In 2001 Lendo village agreed to support fencing of a 1500 *mu* (100 hectare) reforestation plot, where Lendo's yaks seriously endangered seedling survival. TBF provided funding for the fencing. All the work was carried out by the villagers. Litang CFB is assisting. In addition, the village will receive compensation over a period of 5 years for guarding and not exercising its grazing right. Fencing and compensation amount annually to 14 RMB/*mu* ($26/hectare), whereas the CFB would be entitled to a maintenance fee of 18 RMB/*mu*. In comparison, reforestation costs 120–220 RMB/*mu* ($220–$400/hectare) including site preparation, planting, seedlings, etc.

More programs are needed to provide alternatives to the old system, which is averse to integration of local people and fencing of endangered plantations. In Litang and at other program sites, TBF is supporting environmental, planting, and maintenance training for local men and women, so that they are better prepared to participate and benefit from the forestry sector. Additionally, income generation programs based on sustainable use of NTFPs are a very efficient way to advance forest protection. The region's wealth in marketable plants makes it very conducive to such initiatives. Local people will treat forests differently when forests become an important asset to their local economy. Empowerment of local people through actual participation in the restoration of local forests, and their consecutive integration in the forestry sector, which will return to timber production at some point in the future, could prove to be the prerequisites for long-term success.

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