

Naga Community Landscape Restoration and Conservation Project Senapati District, Manipur, NE India

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Since 2002, Community Forestry International (CFI) has been assisting an indigenous Naga community in Manipur to adapt their traditional resource management system to better address growing pressures on their community forest. The project attempts to determine if “performance-based” payments to communities can create the right mix of financial incentives, technical support, and partnering that will accelerate improvements in long-term natural resource conservation in northeast India, while enhancing rural livelihoods.

Environmental Challenges – Collapsing *Jhum* Systems and Watershed Destruction

This project involves four forest-dependent villages located in the northern part of the Indo-Myanmar range (IMR) in Senapati District of Manipur. The state’s forests are experiencing an extensive process of forest fragmentation, degradation, and outright deforestation and forest conversion. The management of the forest has suffered due to the expansion and intensification of shifting cultivation as Manipur’s population increased more than eight-fold over the past century. Per capita forestland available in Manipur as part of the ‘*Jhum* pool’ shrank from 1.26 ha. in 1981 to 0.83 ha. in 1995, with 66% of the forests classified as “open” or degraded.

While swidden or *Jhum* agricultural practices were quite sustainable and productive under a smaller population that allowed fallow periods of 15 years or more, forests are now commonly opened for farming after a two to five years fallow period. Both *Jhum* and wild fires further reduce watershed vegetation. Forest clearing and burning releases massive amounts of CO₂, accelerates erosion causing declines in soil fertility, while exacerbating downstream flooding and sedimentation. *Jhum* driven forest degradation has also lead to rapid erosion of unique biodiversity found in this region. About 450,000 families in northeastern region annually cultivate 10,000 km² forests with the total area affected by ‘*Jhumming*’ believed to exceed 44,000 km². Degraded secondary forests, bamboo thickets and weeds or simply barren land dominate today’s ‘*Jhum* scapes’.

Many indigenous communities recognise that *Jhumming* is creating serious environmental and economic problems, while farm productivity is declining. 68% of Manipur’s forests are owned by communities, meaning that indigenous communities have the legal authority to adjust their management practices. With 80 percent of families primarily dependent on swidden farming for their livelihoods, technical and financial support is required to undertake such transitions. The Naga chief is the chairman of the Village Authority (VA), whose elected members are responsible for overall governance issues and decide all matters regarding land, water, and forests.

Traditional VA controls, however, have weakened in recent decades while land use intensity has increased.

The Landscape Restoration Project and Agricultural Transition

CFI and the villagers (under the auspices of the Local Working Committee and the Village Authority) entered into a three-year contract (2007-2009) to formalise and strictly protect their Community Conservation Area of 350 hectares on the ridge top, and to restore the degraded forest landscape in the middle of the watershed.

A joint team comprised of CFI, NGOs, and community members framed the guidelines for the contract, identifying monitoring indicators and agreeing to offset opportunity costs (see Box 1). The agreement required CFI and Makhan families to adopt a resolution describing specific conservation and forest restoration activities to be undertaken. Correspondingly, CFI and its partners agreed to provide technical support, training, and PES for silvicultural activities, forest protection, micro-finance, as well as agricultural transitions. The community requested the renovation of a small run-off river irrigation canal to bring water to rainfed fields. This allowed 60 of the poorest households in the village to secure two crops per year and intensify production by 100 percent.

Project support also involves agricultural intensification through supporting community development of lift and canal irrigation (small hill systems), livelihood generation through self-help groups (SHGs), transitions to stall-fed pigs and chickens from goats and low-grade cattle, and small enterprise activities. All project activities are contracted through community institutions. Community forestry groups control fire through fire line construction and maintenance, enhanced forest protection, and low cost silvicultural operations leading to accelerated natural regeneration of critical watersheds and abandoned swiddens. Pressure on degraded upland swidden forests has been reduced by more than 50% since the start of the project, with the fallow period extended to at least 10 years from the current 3-5 years.

CFI and its partners, including the Manipur Forest Department and a local NGO, the Weaker Sections Development Society (WSDS), are also working with the Makhan community to demarcate forest boundaries, and register community forests and Community Conservation Areas (CCA) with the Senapati Autonomous District Council. The project assisted the community to develop a long-term natural resource management plan for the watershed.

Project Benefits

The following activities were initiated in 2006 to generate social and economic benefits:

- Formation of eight micro-finance groups with accounts opened at local banks
- Training provided in financial management and bookkeeping
- Training in agriculture, horticulture, health, veterinary practices

- Rehabilitation of minor irrigation system, creating 60 hectares of terraced fields
- Establishment of commercial bamboo plantation
- Employment for firewatchers and fire-break cutters from the village

Biodiversity Benefits

Oaks, alders, chestnut, and cinnamon are a few of the trees that comprise the forests scattered across the hilltops and stream banks of Makhan Village. These forests are regenerating after three years of protection from fires, grazing, and hacking. A community conducted biodiversity inventory recorded 128 species of trees, shrubs, herbs, bamboos, canes, climbers, epiphytes, and grasses, of which 25 percent were rare or very rare. Many endangered animals listed in India's Wildlife Protection Act are still found in the area, especially in the old growth, dense forest which are now protected from hunting and monitored by village youth. These include the Hoolock Gibbon, goral, pangolin, leopards, and hornbills.

Hydrological Benefits

Declining and uneven spring and stream flow has motivated Makhan to improve watershed hydrology through regeneration of degraded forests. Forest protection, fires control, and enrichment planting, especially along stream banks and above springs, have been instigated to improve water flow. Makhan villagers report improvements after 3 years of protection. Total degraded forest in the project area of the watershed include 2103 ha.

Carbon Benefits

The Makhan Project estimates an annual carbon additionality of approximately 0.5 metric tons (mt) C per hectare per year during the first three years for the Forest Restoration Areas. Under this scenario the 2,454 hectare restoration area should capture 1227 mt C annually.

Payments for Environmental Services

As Table 1 illustrates, the project has spent approximately Rs. 3.4 million (US\$ 75,000) over the past four years in Makhan village on a) community-based forest restoration and planning activities (Rs. 1.5 million), b) PES awards and small grants to SHG-microfinance groups (Rs 0.55 million), and to NGO and youth groups for training (Rs. 1.3 million). Funds provided to the SHGs have received co-financing from the Government of India's rural banking program, increasing their project savings by 400%. These activities have reversed forest degradation, facilitating rapid regeneration and improving environmental services on 2454 hectares of forest. The annual per hectare cost of the project is \$7.60.

Table: 1 PES Payments made to Makhan Community: 2006-2009

| Activity | 2006 | 2007 | 2008 | 2009 | Total |
|-----------|-------------|-------------|-------------|-------------|---------------|
| Community | Rs. 250,000 | Rs. 585,000 | Rs. 276,000 | Rs. 454,000 | Rs. 1,565,000 |

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|--|-------------|---------------|-------------|-------------|---------------|
| Landscape Restoration | | | | | |
| PES Awards and Small Grants to SHGs | Rs.100,000 | Rs. 150,000 | Rs. 150,000 | Rs. 150,000 | Rs. 550,000 |
| Community Consultants and Youth Groups | Rs.400,000 | Rs. 300,000 | Rs.300,000 | Rs. 300,000 | Rs. 1,300,000 |
| Total | Rs. 750,000 | Rs. 1,035,000 | Rs. 726,000 | Rs. 904,000 | Rs. 3,415,000 |

Box 1: Contract for Payments for Environmental Services

The Liangmei Naga Community of Makhan Village, Senapati District Manipur agree to protect and restore their forests by taking the following measures:

1. Strict enforcement of customary rules and regulations concerning conservation of forests.
2. Collection of only dead, fallen trees/twigs for use as firewood within the village.
3. Ban on logging for timber, both for sale and local use.
4. Ban on *Jhum* and tree felling upstream of water sources, stream banks and steep hill slopes.
5. Ban on sale of firewood and the leasing of forest land for cattle raring.
6. Ban on fire setting, smoking, and grazing inside forest areas.
7. Ban on hunting in the forest.
8. Villagers agree to collectively fight forest fire in case of any incidence of wild forest fire.
9. Reduce dependence on *Jhum* by augmenting agricultural production through irrigation.
10. Increase fallow periods of *Jhum* lands.

CFI agrees to contract with the Local Working Committee of Makhan for a period of three years, effective January 2007, to restore degraded community forests. CFI will work with the community to develop monitoring indicators and will provide funds to the villagers based on the opportunity cost of the forest areas to be protected with payment on June 30, 2008 and December 31, 2009. The PES Contract includes support for:

1. PES to the Lower Working Management Committee and Micro-Finance Groups.
2. Construct 15 kms. of fire breaks.
3. Hiring 3 firewatchers in during the dry season of 2007 and 2008
4. Posting sign boards banning smoking, fire setting, grazing, and logging in the forest.
5. Providing support for bio-briquettes, fuel-efficient smokeless stoves, and cooking gas.
6. Rehabilitating and expanding irrigation facilities.
7. Provide technical training in bookkeeping and financial management, agriculture, animal husbandry, resource management planning and monitoring.