

Community forestry can be a viable strategy for reducing permanent emissions from deforestation.



Forest user group members patrol and inspect an area in the Kafle community forest
(Kamal Banskota)

Case Study of a Community-managed Forest in Lamatar, Nepal

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Background

Community forests play a prominent role in the daily livelihoods of people in the hills of Nepal where agriculture, livestock rearing, and forests are strongly interlinked. Based on the 1976 National Forestry Plan, the Government of Nepal (GoN) has made it its policy to involve local communities in forest management, with a view to tackle deforestation and the deteriorating state of forests all over the country. By 2004, about 25% of all national forests, or around 1.1 million ha of Nepal's forests, were being managed by community forest user groups (CFUGs). There are more than 13,000 CFUGs in Nepal involving 1.4 million households, or more than one-third of the population (Kanel 2004), mostly in the hilly regions. The Federation of Community Forest Users Nepal (FECOFUN) has grown over the years to become the single largest organisation in the country, a social movement on community forestry.

The impact of the policy in the forestry sector has been positive. Where communities are managing their forests the degradation trend in large tracts of accessible forests in the hills has been checked. This has not only contributed to overall improvement in forest conditions, but has also resulted in positive impacts on biodiversity conservation. In many places, communities now have easier access to firewood, timber, fodder, forest litter, and grass. Other additional environmental services provided by maintaining and protecting forests have been reduced soil erosion, and increased water supply from forest springs. All these benefits may be attributed to decentralised and participatory development strategies that have been adopted in this sector.

As a general rule, members of the CFUGs pay a nominal fee for the various forest products they consume, and they are restricted from commercial harvesting of forest products. Timber harvesting in particular is heavily regulated and only conducted under Forest User Committee (FUC) supervision; selling is done through an open bidding process. All income from such sale is retained by the CFUG. Revenues collected by the CFUG from the members and through selling products are mostly invested in social infrastructure requested by the community. About 28% of revenues generated from the community forest are expended on forest protection and management.

This case study looks at one example, the community forest in Lamatar, to demonstrate that in addition to the global benefits of carbon sequestration, community-managed forests are contributing significantly in raising livelihoods in rural villages.

Brief History of Kafle Community Forest

Lalitpur district has 15,253 ha of forest of which 9,993 ha are managed by 162 CFUGs. Within the Lamatar Village Development Committee (VDC) there are nine community-managed forests covering 525 ha and involving 670 households. The Kafle Community Forest (KCF), on which this case study is based, is one such CFUG. KCF manages a block of 96 ha involving 60 households of the VDC. This forest lies at an elevation of between 1830 and 1930 metres and is dominated by lower temperate broad-leaved species, particularly *Schima-Castanopsis* (katus-chilaune).

The tradition of community-managed forests is not new here. What is new is formalising this traditional management practice in modern terms. Villagers, recalling the history of their forest management, explain that the forest area in Kafle historically belonged to the Ghimire family who were Brahmins living to the south of the main valley. They had agricultural lands in the fertile valley below the hills; the hills themselves were unsuitable for agriculture and were covered with forests. They were granted this forest as a 'Birta' (land or forest grants by the state) for services rendered. It is told that the forest then was rich in biodiversity, as it was well managed and population pressure on the forest was far less than it is today. In 1957, however, this forest, like all forests in Nepal, was nationalised. After that, as narrated by the locals, the forest gradually decreased, both by outright deforestation (loss of forest area), and in terms of degradation (loss of biomass within the forest). Noticing this change, the Department of Forestry carried out



Figure 6.1. Satellite image of Kafle CFUG and Lamatar VDC

Source: Google Earth

a reforestation programme in 1978 by developing a sallo plantation (*Pinus roxburghii*) and putting forest guards in place to protect the plantation. But deforestation and forest degradation continued unabated, converting this entire hill to almost barren land by the early 1980s. Unregulated livestock grazing and fodder collection were the major causes of forest degradation as they prevented natural regeneration, while unrestricted fuelwood and timber collection were the major causes of deforestation. This was a classic case of the tragedy of open access: anyone and everyone had unlimited access because the state owned the resource and it was managed by state staff, to whom the local people did not feel answerable.

This scenario at Lamatar was occurring all over the country, which meant that Nepal was losing forests at a rapid rate, especially in areas adjacent to settlements. In the late 1970s, however, a paradigm shift occurred, when foresters realised that forest protection and management was not possible without involving local people. Between 1975 to 1993, the community forestry policy, as widely practiced in Nepal today, brought about a series of milestone decisions. Handing over large tracts of forests to the local communities took place in the 1990s. In Lamatar, this took place in 1994, a year after the formation of the Kafle Community Forest User Group. Since then the forest has been managed effectively, with strict restrictions and user guidelines and norms. Forest degradation and deforestation have been checked, and forest regeneration, mainly natural regeneration, is taking place after stringent protective measures enforced by local people through the CFUG. Today, the forest is recuperating ecologically and already has a rich diversity in tree species. One of the most important resources from this forest is water. The forest has several springs which are carefully protected and used by the villagers for drinking purposes, at no charge to the users. The flow of water has increased markedly with the rejuvenation of forest biomass.

Forest Management Based on an Operational Plan

Generally, villagers become members of the user group to ensure the fulfilment of their forest product needs. The Kafle CFUG has a Constitution and a Five-Year Operation Plan that indicates how and for what purposes the forest will be managed. The Operational Plan is formulated by the members of the CFUG and approved by the District Forest Office. The process of formulating an Operational Plan is highlighted below.

- First, a CFUG meeting is called.
- Then, the group is divided into smaller groups by 'tole' or small settlements.
- Small group meetings and selection of one representative take place.
- Discussions focus on drafting an Operational Plan.
- Drafting the Plan evolves in small groups.
- Small group representatives meet and discuss the groups' outputs.
- Small group recommendations are compiled and synthesised.
- The draft Operational Plan is presented to the CFUG members and approval of the general assembly is sought.

The members of the CFUG also form a Forest User Committee (FUC), consisting of 11 elected executive committee members known as the Forest User Committee, which makes

day-to-day decisions based on the Operational Plan. The primary mission of the Kafle CFUG is to increase the harvesting capacity for fuelwood, timber, and fodder through better management of Kafle's forest resources for the benefit of local CFUG members, and to make the CFUG a self-sustaining institution. The Operational Plan guides the Committee in moving towards this goal. In addition, the CFUG aims to conserve Kafle's spring water sources, soil and biodiversity, promote environmental stability in the village area, assist in raising livelihood conditions from the use and access forest resources, generate income, and try to develop the area for recreation and tourism.

Community management of the forest entails numerous tasks that the locals have to perform, including technical tasks with support from the government forest rangers. The community management practices witnessed in the Lamatar area can be broadly classified into forest protection, administration, harvesting, and silviculture.

Forest Protection

Protection is a major task and often also the most expensive. In Lamatar, the community divided itself into several groups to patrol their forests on a rotation basis. While working at home or in the field members vigilantly watch over their forests for irregular movements such as illegal logging, animal grazing, or forest fires. This approach has helped the community to control fire outbreaks in the past. It is mandatory for all members of the CFUG to participate in putting out fires, and non-participants are penalised. Penalties are also levied on members found adopting unsustainable forest resource extraction practices. The CFUG meeting decides when community members can harvest different types of resources and the quantities they can harvest. Those who do not abide are penalised based on monetary fines decided by the CFUG. The penalty rates vary for illegal fodder and litter collection; collecting sand, gravel and stones; timber and fuelwood extraction; and bamboo collection. Hunting, grazing livestock, and charcoal making activities are permanently banned. Fencing as a protective measure is not practiced. The rules and regulations, and effective enforcement, have been strong reasons for avoided forest degradation and deforestation in this forest patch.

The willingness of the community to implement forest protection measures that they themselves decide on is dependent on the payback they perceive and actually derive. It is clear to the people of Lamatar that without strict conservation measures, it is next to impossible to maximise natural regeneration or harvest forest resources in greater quantities. The community is realising tangible incentives for conservation. Across Nepal, such examples of success abound.

CFUG Administrative Work

Community forestry also entails administrative tasks such as calling and organising meetings, conducting elections, recording meeting decisions, maintaining accounts, getting accounts audited, amongst others, as well as tasks directly connected with forest activities such as setting dates for extracting resources, circulating the information, and developing a management and a Five-Year Operational Plan with the assistance of a

ranger. The CFUGs of Lamatar are doing these administrative exercises professionally. Such professionalism cannot be expected among most CFUGs in Nepal, however, The CFUG maintains an inventory of estimated forest resources, as reflected in Table 6.1, which shows the cash flow of Kafle CFUG over the last four years. Cash flows are reflecting increases annually.

The financial book of Kafle CFUG reflects that 13% of the CFUG’s cash income from 2004/05 was spent on establishing a school and financing village Red Cross activities. The year before that, 16% of CFUG income was spent on school building repairs. Such investments benefit not only immediate CFUG members but also others who live in the vicinity of the Kafle community forest.

Table 6.1: CFUG cash flow in Kafle, Nepal

Year	Income	Expenditure	Savings
2004/05	41,854	18,694	22,699
2003/04	40,537	33,627	6,910
2002/03	27,521	8,190	19,285
2001/02	9,896	6,975	3,081

The Forest User Committee consists of 11 members (six women and five men) and have each a two-year tenure. They are elected by CFUG members during the annual General Assembly. The voting system allots two votes per household, one for each gender. The Forest User Committee can be dissolved by the CFUG General Assembly.

Illustrated below are the latest decisions recorded in the meetings file of the Lamatar Forest User Committee. The Minutes reflect the administration system in managing Lamatar’s forest resources.

Decision 1 - 2063/06/04 (August 2006)

This decision illustrates division of work among CFUG members to protect their forest. As forest protection is a major task and often also the most expensive, the CFUG cannot afford paid guards and CFUG members themselves carry out the task of patrolling the forest. Both women and men take up the responsibility and a roster is prepared in which the daily routine of the patroller is agreed upon. The group is responsible for patrolling the forest until a new group is formed by the CFUG.

Decision 2 -2063/06/04 (August 2006)

The CFUG and forest patrol groups were unable to control continuing illegal activities. Hence, the members formed a committee which consists of five members to monitor forest protection and curb the high rate of deforestation taking place.

Decision 3 - 2063/05/19 (July 2006)

As per the decision of the general meeting of the CFUG, this decision was taken to make available books and pencils free of cost to school children until they reach 3rd Grade.

Decision 4 - 2063/05/19 (July 2006)

The Range Post Coordinator position became vacant, so a new female member was nominated to coordinate between the CFUG and the Range post.

Decision 5 - 2063/04/14 (June 2006)

As suggested in the Operational Plan, dried trees are to be sold through auction. However, after securing the tender, the party changed its mind and did not claim the timber. So a decision was taken by the Forest User Committee (FUC) not to refund the bond deposit amounting to 10% of the total value of the timber extracted and to call for a re-auction.

Harvesting

Harvesting is done by the members. The main products from Lamatar's forests include timber, dried and green fuelwood, fodder, litter, nigalo (small bamboos: *Drepanostachyum intermedium*, *Drepanostachyum falcatum*, and *Sinarundinaria falcata*), and NTFPs. Of these, timber is the most heavily regulated. A decision to harvest is taken by the FUC together with the Range Post via an official process, and the timber is sold through a bidding process to anyone, including people from outside the village. On the other hand, fuelwood, fodder, litter, nigalo, and NTFPs can be collected by CFUG members when the forest is opened for collection activities. The FUC decides on the days and dates during the various seasons in which harvesting of these products is allowed and, accordingly, informs all CFUG members. Members pay a small fee for firewood and bamboo, but fodder and litter are free of cost. From records held by the CFUG, it appears that each household derives about 1000 kg of green fuelwood, 500 kg of dry fuelwood, 500 kg of grass fodder, 1000 kg of leaf litter, and 500 kg of nigalo every year. On special occasions such as during marriages, religious ceremonies, and funerals, CFUG members can harvest 350 kg of fuelwood for the same price.

Products extracted collectively after a thinning or clearing operation are distributed equally amongst users. CFUG members may sell their personal excess of these products to non-members within the village, but the products may not be sold commercially outside the village. While the financial returns from the sale of timber is the largest source of income for the CFUG, fuelwood, although financially lower in terms of volume, is the main resource extracted. With the increase in global oil prices, CFUG members rely more on fuelwood from their forests to meet their cooking and energy requirements.

Weeding, cleaning, pruning/branch cutting, singling, thinning, clearing, and regeneration management are the other activities CFUGs conduct on a regular basis. The CFUG has maintained demonstration plots using modern techniques to propagate a number of species such as Chilaune (*Schima wallichii*) and Jhingane (*Eurya acuminata*), as well as several additional varieties of NTFPs (such as cardamom and fodder grass). In the future, the Kafle CFUG intends to develop a forest nursery and increase the number of medicinal plants in the forest. Most of the people in Lamatar understand silviculture practices and are able to identify most of the tree species in their forests.

Environmental Services

Forests provide numerous environmental services, many of which often go unpaid. In Lamatar, the Kafle CFUG has realised increased flow of environmental services as a result of improved forest management. Not only have the users benefited directly from the increased flow, adjacent communities and downstream people have also benefited. The most visible service of improved forest management is increased water supply to the villages and downstream populations.

According to the locals, there has been a constant flow of good quality water throughout the year as a result of improved forest management and increased forest cover. Forest cover and the steep terrain have protected the streams from pollution, as people have no easy access to the springs. In the dry months, a six-inch deep stream flows constantly, a source of drinking and irrigation water for Lamatar and Lubhoo VDCs and other settlements in the vicinity. About 150 households use the water for drinking and domestic household uses. Another 200 households derive their irrigation needs from the increased water discharge. The CFUG has the potential to earn about NRs. 3000 per day by selling excess water to private water suppliers in the Valley. But this is not allowed in Kafle as the people using the water for irrigation further down Lubhoo VDC would oppose the sale of water to water suppliers.

Lakuri Bhanjyang, at 1930 masl, is at the highest point of the Kafle Community Forest. This hilltop provides a spectacular view of the entire Kathmandu Valley and a large segment of the Himalayan range. It is popular to view the sun rise from this vantage point during the winter months, when the Valley below is covered by thick fog. Tourism activities include overnight stay at a resort, day picnicking, hiking in the forest, and mountain biking. A few years ago, some monks tried to build a monastery by offering to lease a small patch of the forest, but the CFUG members declined the offer.

Despite being rich in stones and sand, for which there is high demand for construction materials, the local community has declined offers made by private parties to develop quarrying enterprises in the area. The locals are aware of the possible adverse impacts of quarrying, such as landslides, drying up of water sources, deforestation, and pollution, and have turned down attractive offers by private parties promising short-term labour and quick cash.

In the methodology Chapter, it was shown that Lamatar CFUG has a mean carbon sequestration rate of $1.41 \text{ tCha}^{-1}\text{yr}^{-1}$ ($5.17 \text{ tCO}_2\text{ha}^{-1}\text{yr}^{-1}$), with an average pool size of 52.5 tCha^{-1} ($192.52 \text{ tCO}_2\text{ha}^{-1}$), excluding carbon stored in the soil. This indicates the C pool as an important additional environmental benefit service rendered by this community forest, but for which the community is not paid. Assuming the value for a tonne of CO_2 is US\$ 12, Lamatar CFUG can earn US\$ $62.04 \text{ ha}^{-1}\text{yr}^{-1}$ (NRs $4343 \text{ ha}^{-1}\text{yr}^{-1}$); the same carbon pool at US\$ 5 would earn US\$ $25.85 \text{ ha}^{-1}\text{yr}^{-1}$ (NRs $1810 \text{ ha}^{-1}\text{yr}^{-1}$). Even at a low price of \$5/tonne per year the increment for Lamatar CFUG would still be substantial compared to the present financial income the community is realising from its community-managed forest.

Conclusion

Since community forest management has been promulgated for many years in Nepal, with about a quarter of all national forests now managed this way, it would be difficult to argue that the forest management activities of villages like Lamatar are truly 'additional' in Kyoto terms. On the other hand, it is clear that there is very little leakage since all the forests in the area are managed by other CFUGs under more or less the same terms.

Forests such as the one in Lamatar are managed by the locals in a sound way following operational plans which have been formulated by the villagers themselves in an inclusive manner. Apart from fuelwood and fodder benefits shared between CFUG members, the CFUG also has a steady cash flow, albeit small compared to the potential financial return from carbon trading. This forest provides numerous environmental services such as supply of drinking and irrigation water to a wide range of households beyond the CFUG. Other services like tourism do not benefit the locals, while quarrying and selling of water are not practiced. Carbon sequestration is another environmental service which community-managed forests like Lamatar extend globally as a byproduct of protecting and maintaining the forest.

Should Kafle CFUG be permitted to sell carbon credits in the global carbon market the financial revenue it could generate would be more than double its current financial income. Such potential revenue could serve as an incentive for them to better manage their forest by investing more in protection measures, thus generating more environmental and social gains for the community and beyond.

Unfortunately their contribution to reduce GHG emissions is not recognised or rewarded. In the future even if their efforts are recognised, the issue is: should they be rewarded for carbon that is being sequestered, and/or carbon that is being retained rather than lost through deforestation? Or should they be rewarded only for increases over and above what have been achieved in the past? These are issues that can be discussed further and options explored.