

Can Lease Hold Forestry in Nepal Benefit People and the Environment?

In Nepal an innovative form of forestry management, known as the Leasehold Forestry (LHF) Programme, is being introduced to protect forest land and help it regenerate. A new SANDEE study analyzes the role of this programme in improving household welfare in Nepal. The study was undertaken to see whether degraded forest land, a resource available to a greater or lesser extent in all low-income countries, can be managed to both improve the environment and enhance socio-economic wellbeing.

The study is the work of Bishnu Prasad Sharma from Tribhuvan University, Nepal. It assesses whether the LHF programme helps households save time collecting forest resources and whether it helps increase household income. It finds that a household participating in the LHF programs saves 33 workdays in the collection of forest resources and that LHF plots provide resources worth approximately 5 percent of household income. The study recommends ways in which the LHF regime could be restructured to increase efficiency and so further improve social welfare.

The Leasehold Forestry Programme

LHF is an innovative kind of property rights regime. It was introduced in 1993 by the Government of Nepal with the twin objectives of regenerating degraded forest land and alleviating rural poverty. There are presently around 4,000 LHF groups in the country. Together these have 36,000 household members and operate in 26 out of 75 districts. The Government of Nepal considers LHF a high priority and the programme has, according to a series of previous studies, succeeded in improving forest cover in previously degraded land.

Under a LHF regime, the Government hands over state-owned, virtually open access, degraded forest land to a group of poor households. These groups are generally less than ten in number and each household receives around one hectare of land in the form of a lease contract. The duration of a LHF lease is 40 years, although this can normally be extended by another 40 years.

The state requires households involved in the LHF programme to protect their forest lands against degradation from open grazing, forest fires, soil erosion, and other threats. They are also expected to replace open grazing on their LHF land by stall feeding of livestock. LHF rules ban the cultivation of cereals on leasehold land and the programme expects households to enhance their income in a sustainable manner from livestock, timber and non-timber forest products. The basic idea is that

LHF will enhance forest regeneration while also making it possible for LHF land to meet basic livelihood needs. (To find out more about LHF programmes see the side bar).

Looking at Two Pioneer Districts

This study was conducted in the districts of Makwanpur and Kavrepalanchok (Kavre, for short). These were the first two districts to implement the LHF program in 1993. These districts were selected for two reasons: (a) they would have mature LHF regimes and (b) due to their location in the lower and upper parts of the mid-hill belts, they would be representative of the topographical diversity that exists in the LHF program.

In 2007, Makwanpur and Kavre had 288 and 243 LHF groups, respectively. Since the LHF program is based on the principle of the natural regeneration of forests, only groups that had completed five years of tenure were chosen for the study. These groups would have had time to get their programmes up and running and to have made a difference to their land. Accordingly, the study assessed 245 and 194 LHF groups in the two districts.

Primary data was collected through a questionnaire survey. This was used to collect information on issues such as

Past Experience of LHF-type Programmes

The practice of leasing agricultural land to tenants has existed since time immemorial. The leasing of publicly-owned forest lands to private agents for forest-based enterprises is quite common in countries such as Malaysia, Indonesia and the Philippines. However, the practice of leasing government land to individual households for the purpose of forest regeneration and poverty reduction is relatively new.

India is one country that has experimented with a form of leasehold management regime. Among the most successful of the projects run, was that organized by the National Tree-Growers' Cooperative Federation (NTGCF). The NTGCF set up a village-level tree-growers cooperative society (TGCS) with the active participation of villagers and other stakeholders. All village households were eligible for membership of the society. The NTGCF provided grants to cover the costs of planting trees and of fencing, protecting and watering plantations. The TGCSs, managed the operations in a democratic manner and rights over the resulting forest were vested with villagers. The societies paid wages to the villagers who provided labor for the planting and watering activities and this created new employment opportunities for the poor.

This kind of leasehold seemed to require both land leases and investment contributions from the government and was actually managed by the government rather than by the communities. Nepal's leasehold experience is different because the government assigns full responsibility for land management, including capital investment, if any, to the lease recipients.

In general, forest management regimes in developing countries aim at livelihood improvements rather than seeing forests as engines of economic growth. Livelihood improvements occur in a number of ways - such as increased availability of biomass, reduced drudgery, savings in collection time, supplementary incomes, etc. But in non-monetized economies, these benefits are difficult to measure. Some of the literature on the LHF practice in Nepal has concluded that households have been able to save a considerable amount of the time spent in collecting forest products as a result of LHF being present in their communities. This study is the first detailed economic evaluation of this approach.

household demographics, forest product extraction and socio-economic factors. Community-level information was also collected. Secondary information on the distribution of LHF groups by Village Development Committees (VDCs) was obtained from the Leasehold Forestry Division in Kathmandu and the relevant District Forest Offices.

How Does LHF Improve Livelihoods?

The participating LHF households were expected to experience improved welfare in at least two ways: Firstly, it was thought that they would be able to save time collecting forest resources (biomass), as the LHF programme had provided them with forest land to manage at a relatively short distance from their homes. Secondly, it was thought that the LHF programme would lead to improved forest regeneration (through initiatives such as control over open grazing) and that this would result in an increased availability and harvesting of forest products.

The number of hours saved in forest resource collection was estimated from the difference between the time it would take a household to collect a load from open access forest and the time it would take for them to collect loads from their LHF plots.

When it came to estimating the value of this time, the study found that the usual approach - using the market wage rate - could not be employed. This was because in the study area labor is rarely hired on a cash basis. Instead, the value of the number of hours households saved collecting forest products from their LHF plots was calculated using an adjusted wage rate. This was estimated by averaging the calorific wage rate (the monetary value of the calories required to do collection work rather than being at rest), calculated as NRs 0.98 per hour and the average local wage rate in agriculture (NRs 13.4 per hour). This adjusted wage rate came to NRs 7.2 per hour on average for male and female labor.

Forest Resources from LHF Plots

The study also estimated the value of the main forest resources collected from all sources including LHF plots. This was done using market and non-market valuation techniques. Construction timber was valued at the price paid to the Community Forest Committee during extraction. Local market prices were used to value thatching grass, grass seeds, broom grass, wild fruits and vegetables. Standing timber in the LHF plots was valued depending on the tree species, their years of maturity and market access.



SANDEE grantee conducting survey interview

Firewood, fodder grass and leaf litter were more difficult to value as there was no local market for these products. Nor was it possible to use the values of firewood substitutes such as kerosene or marketed liquefied petroleum gas (LPG) cylinders, as these did not exist, except in a few exceptional cases. Because of this, these key forest products were valued based on the time taken to collect them from open access sources.

The study also assessed how the welfare gains delivered by forest resources from LHF plots were determined by institutional factors. These factors included group or individual management, the gender of the LHF members, the distance traveled to LHF plots and household characteristics.

The Time Saved Collecting Forest Resources

The average time that households saved per load in the collection of firewood, fodder-grass and leaf-litter from their LHF plots was 0.78, 0.90 and 0.49 hours respectively. Therefore the annual amount of time saved on these collection trips was 23 hours, 145 hours and 579 hours respectively. When these times were compared to the average number of working hours for the study area, it was found that the LHF produced an average time saving of 39 workdays per year.

The average annual value of time saved was highest for fodder-grass collection (at NRs 1,140) followed by leaf-litter (at NRs 438) and firewood (at NRs 176). The

Table 1: Socio-economic and Forestry Indicators of the Study Districts

S.No	Indicators	Nepal	Makwanpur	Kavre
1.	Life expectancy at birth	60.98	55.75	69.33
2.	Adult literacy	48.6	58.0	56.1
3.	Female adult literacy	39.4	32.2	41.7
4.	Mean years of schooling	2.75	2.33	2.60
5.	GDP per capita in PPP	1,310	1,836	1,572
6.	Human Development Index (HDI)	0.471	0.479	0.543
7.	Human Poverty Index	39.6	35.3	33.5
8.	Land under forest cover	29	59.1	32.1
	Shrub land (degraded forest)	10.6	2.0	20.4

Source: Nepal Human Development Report, 2004 (UNDP, 2004), CBS, 2006

overall monetary value of time saved collecting forest resources from LHF plots was thus, on average, NRs 1,755 per household.

Although households saved time collecting forest products from their LHF plots, they had to spend some time on LHF business. For example, households took part in forestry management activities such as cleaning the forest floor for nuisance species, pruning, thinning, etc. In addition, the LHF households assembled periodically to discuss LHF issues and to collect their monthly savings. The average annual value of this work (LHF caretaking, LHF meetings, DFO visits and travel costs) was NRs 253.

Thus, the net value of time saved by the households due to their involvement in the LHF programme was NRs 1,337. In relative terms, this worked out at around 33 workdays or 1.5 percent of the average annual household income.

The Value of Biomass from LHF Plots

The income from forest resource collection was calculated for: (a) forest resources from all sources; (b) resources from non-private sources (community forest, LHF, government forest and open access) only; and (c) resources from LHF sources only. Communities extracted 37 percent of their forest resource requirements from non-private sources. LHF contributed about 18 percent or less than one-fifth of the total annual value of forest resources.

Income from forest resources extracted from different sources made up around 16 percent of householders' total income. About 56 percent of the forest resource income came from non-private land sources, while 44 percent came from private land sources. LHF forest resources (or the flow and annualized return from timber) made up around five percent of household income.

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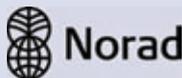
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Table 2: Average Value of Forest Products Obtained by Households in the Study Area (in NRs)

Biomass Sources	Main Forest Products	Other Forest Products	Annualized Value of Standing Timber	Total Value
All Biomass Sources (Public and Private)	11269.5 (81.5)	596.1 (4.3)	1970.6 (14.2)	13836.2 (100.0)
Non-Private Forest Sources Only	5361.9 (69.7)	363.4 (4.7)	1970.6 (25.6)	7695.9 (100.0)
LHF Sources Only	1928.1 (47.0)	205.4 (5.0)	1970.6 (48.0)	4104.1 (100.0)

Note: Figures in parantheses are row percentages.

Source: Field Survey

How to Improve the Performance of LHF

The study shows that the benefits that households receive from the LHF programme (including biomass from LHF plots and expected income from future timber harvest) outweigh the costs of being involved. However the study revealed a number of institutional issues that reduced the benefits. These included: a) the distance that households have to travel to LHF plots; b) a lack of exclusive rights to manage LHF plots as individual household parcels; and c) the quality of the LHF plots.

These factors probably led to the following sub-optimal utilization of LHF lands that the study observed: (i) LHF plot owners spent very little time (that is, around 5 work days per year) managing their plots; (ii) 26% of households did not extract anything from their LHF plots; and (iii) less than 5 % of LHF products were in the form of cash income.

The study therefore indicates that it is necessary to restructure the LHF program in order to enhance LHF land utilization and reduce the costs of LHF management. It is also necessary to act to increase the benefits that the LHF programme brings to low-income LHF participants.

The study recommends that policy should be changed to re-allocate LHF plots now held on a group basis to individual household parcels. This would provide greater economic incentives for those involved in the LHF Program. The gains from the LHF program could be further improved by providing participating households with LHF plots at a shorter distance from their homestead and by compensating them for very poor quality soil by providing other inputs.

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