



Revenue and employment opportunities from timber management in Nepal's community forests

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KEY MESSAGES

- Timber from community forests (CF) can generate income of approximately NRs 27 billion and 21,710 jobs annually; timber trade substantially contributes to government revenue.
- Current levels of timber harvesting are way below the optimum harvestable amount; it can be increased under sustainable forest management.
- There is a serious challenge in the management and accessibility of databases on CF that could form the basis of decision making and planning.
- There are several methodological challenges in estimating the economic potential of CF; these need to be addressed to promote evidence-based policy making.

Introduction

It is widely acknowledged that the economic potential of Nepal's community forests (CF) has not been fully realized. Timber, non-timber forest products, ecotourism, payments for ecosystem services, and carbon trading form the major resources. Among these, timber contributes to over 80% of CF income and government revenue. However, what is not adequately explored is the amount of sustainably harvestable timber in Nepal's CFs, its market value and potential in creating employment.

In this context, ForestAction Nepal recently conducted a study entitled, 'Analysis of Economic Value and Employment Opportunities of Timber Management in Nepal's CF. This Policy Brief summarizes the findings of the study and makes some policy recommendations for enhancing CF contribution to income and employment. In addition, issues on quality and availability of CF related data and the methodological challenges in estimating economic potentials of timber in CF are also highlighted.

Methodology

We reviewed operational plans (OPs) of 2955 Community Forest User Groups (CFUGs) from 14 districts across the country and the findings were extrapolated to draw the national figure. Stratified random sampling method was used to identify the

sample districts from four different ecological strata. The OPs of all CFUGs in the sample districts were reviewed for their forest inventory data. The growing stock, annual increment and annual allowable harvest (AAH) for the sample districts were calculated. The calculation was based on nine major timber species according to their relative share in the timber market (*Shorea robusta* - Sal, *Dalbergia sissoo* - Sissoo, *Terminalia alata* - Asna, *Adina cardifolia* - Karma, *Syzygium spp.* - Jamun, *Schima wallichii* - Chilaune, *Pinus roxburghii* - Khote Salla, *Alnus nepalensis* - Utis and *Pinus wallichiana* - Gobre Salla).

These figures were then extrapolated to the four ecological strata and finally, to national level. The findings were compared and contrasted with those of similar previous studies.

Key findings

Community forests can generate approximately NRs.27 billion annually. The Department of Forest (DoF) in its annual reports (1998 to 2010) show that timber makes up over 80% of the government revenue. Case studies on CFs show similar findings. As Figure 1 shows, timber dominated the share of forest sector revenue during the last decade (1999 to 2010).

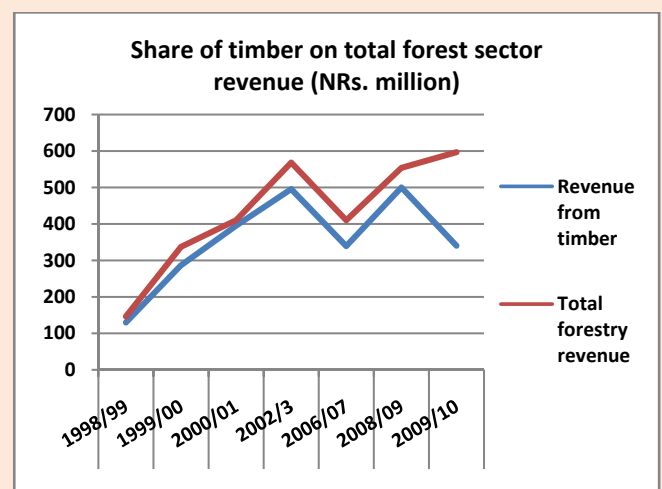


Figure 1 Share of timber in forest sector revenue (NRs. million)

(Adopted from Banjade et al. 2011¹)

1 Banjade, M., Paudel, N., Karki, R., Sunam, R. and Paudyal, B. 2011. Putting Timber in the Hot Seat: Discourse, Policy and Contestations over Timber in Nepal. Discussion Paper series 11.2. Kathmandu: ForestAction Nepal

The growing stock of key marketable timber species in CF was estimated to be 67.37 million m³ (also see Figure 2). Similarly, the aggregate AAH of nine timber species (based on the growing stock and annual increment as per the standard formula) was found to be 11.63 million cft (Figure 3). The total market value of this volume of timber was computed by multiplying with their respective market price and was summed up. The estimated revenue was around NRs. 27 billion.

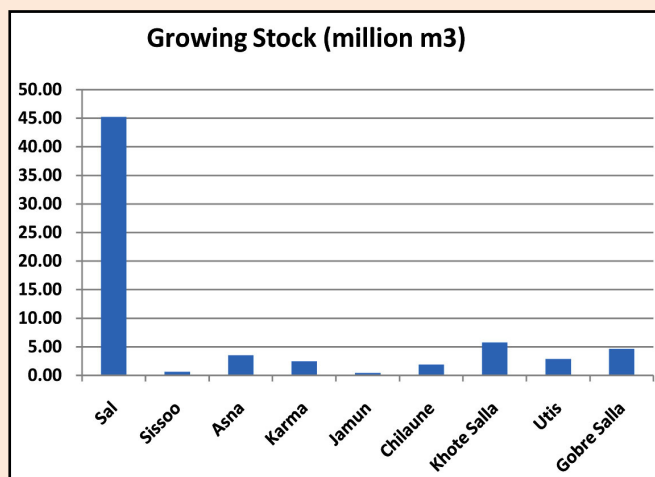


Figure 2 Growing Stock in CF

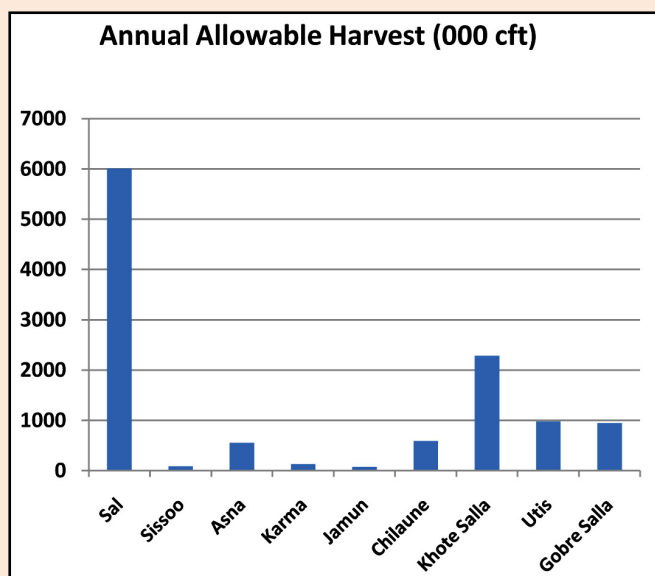


Figure 3 AAH estimation in CF

The above amount is based on the assumption that all the AAH is harvested as per the OP and that all the timber is sold at the market rate. The total revenue from the sale of all AAH at the government rate would be over NRs 4 billion. It is to be noted that the current government revenue from timber is below NRs. 500 million, i.e. eight times lower than what could be generated from optimal harvest.

Table 1 Potential market value of timber from Nepal's CF

Major Species	AAH (cft)	Royalty (mil. NRs)	Market Value (mil. NRs)
<i>Shorea robusta</i> (Sal)	6007838.67	3202.18	21027.44
<i>Dalbergia sissoo</i> (Sissoo)	86951.95	26.09	217.38
<i>Terminalia alata</i> (Asna)	552679.99	138.17	1492.24
<i>Adina cardifolia</i> (Karma)	128763.16	32.19	347.66
<i>Syzygium spp</i> (Jamun)	74775.47	18.69	149.55
<i>Schima wallichii</i> (Chilaune)	584703.14	116.94	409.29
<i>Pinus roxburghii</i> (Khotesalla)	2285603.66	399.98	2285.60
<i>Alnus nepalensis</i> (Utis)	972836.66	97.28	340.49
<i>Pinus wallichiana</i> (Gobre Salla)	941715.71	94.17	941.72
Total		4125.69	27211.37

Similarly, the amount of jobs that could be created from this level of timber harvesting and sale was also calculated on two bases: i) interview with timber entrepreneurs; and ii) previous similar studies on forest-based employment generation. Based on the amount of harvestable timber and potential level of labour demand along the value chain of timber harvest and sale, we came to a figure where timber harvesting and processing can generate 7,924,026 person days or 21,710 full time jobs annually. Assuming NRs. 500 wage per day, the monetary equivalent of this employment would be about NRs. 4 billion. In one of the previous studies, total employment from Nepal's timber management was estimated at 100,727 full time jobs annually (ERI, 2012)². Compared to this figure, the CF could generate roughly around 21% of total timber induced employment in Nepal.

Timber from CF is seriously under harvested

Harvesting decisions are made in six different stages when CF members harvest timber (Figure 4). Calculations involve a series of scientific formulas, established norms and discretionary decision making by authorities and CFUG leadership. While the whole process is designed to ensure that timber is harvested within the annual increment of the forests, in practice it has seriously undermined the potential of CF to support local livelihoods and the national economy.

² ERI. 2012. 'Employment in forestry sector'. Environmental Resources Institute, Lalitpur, Nepal

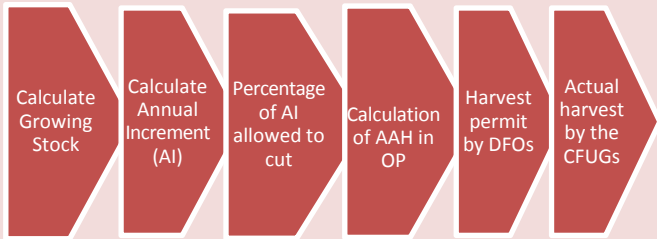


Figure 4 Stages in scientific calculation and deciding timber harvesting

The annual increment is estimated to be between 1.37% for Sal to 2.64% for Pine forest. About 40-60% of this annual increment is allowed to be harvested in the CF. However, we found that during the preparation of the OPs, the forest technicians use a factor below the lower range given by the Forest Inventory Guidelines (2005). The average AAH estimated among the 2955 OPs examined, allow only 37% of the increment. When the CFUGs apply to the District Forest Office (DFO), the harvest permits are usually lower than what is mentioned in the OPs. What is surprising is that the actual harvest of most of the CFUGs is even below the permitted harvestable limits. The DoF data on actual timber harvest also shows that these figures are far below than those mentioned in the OPs. The figure below shows the gap between AAH mentioned in the OP and actual harvest in six districts, and average of all sample districts³.

What reduces timber harvesting in CF?

Five factors were identified that result in under-harvesting of timber. First, the conservative approach that is deeply rooted among the forestry professionals which are then reflected in the policies, legal and institutional framework that limits harvesting practice. Second, the complexities of forestry science which involves a number of assumptions, variations in calculations, uncertainty and therefore requires precautionary practice to ensure forests are not over-harvested. Third, there is no systematic and reliable data on forest condition, stock, and regeneration which can provide a firm basis for evidence based policy making. Fourth, increasing risks of corruption and resulting mistrust within the forest bureaucracy and community institutions tend to limit the harvest. Fifth, lack of active forest management and absence of enhancement interventions pose a risk of depletion of forests where harvesting is the sole focus.

Forgone loss

Under-harvesting of timber from CF has seriously undermined local income and employment opportunities and government revenue. Apart from losing the prospects of NRs. 27 billion in economic transaction and 21,710 full time jobs annually, the limited supply of timber in the market has induced importation of timber and its substitutes (e.g. aluminum products) of over NRs. 2 billion annually. This means our forest management policies, and legal and institutional frameworks are neither sensitive to the local poverty context nor to the growing import-export gap.

Annual Allowable Cut, harvest permit, actual cut (cft) per CFUG

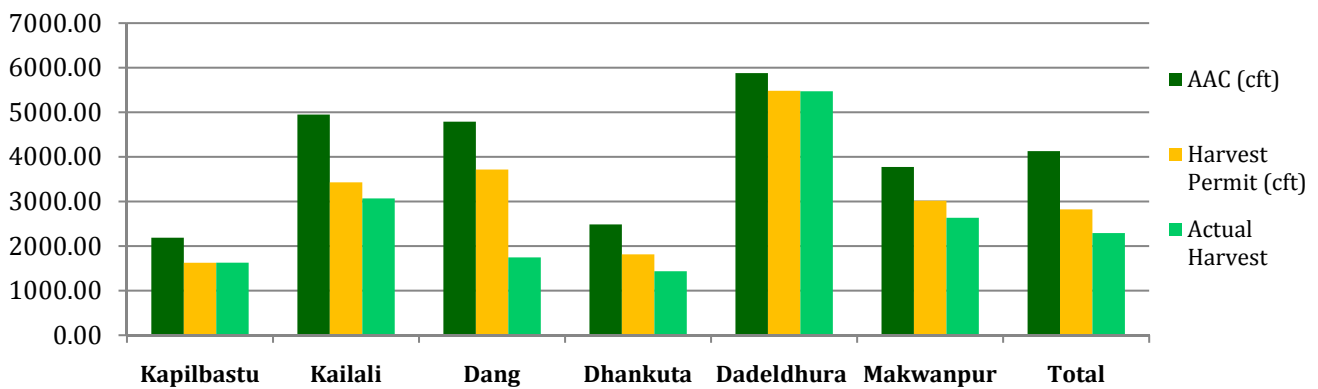


Figure 5 Gaps between AAH and actual harvest

Source: DoF. 2010. Description on harvest and export of log/sawn timber in community forests. Department of Forest, Government of Nepal.

³ Figures are not the total of all CFUGs in the districts. Rather they are the average of CFUGs sampled in each districts.

Although mentioned in the periodic plans on utilizing forest resources as means of alleviating poverty, this is not evident in practice. Besides, the inability to produce timber through legal and sustainable means has resulted in illegal logging, corruption and other social crime.

Methodological challenges

While a fairly sound methodology during the research design, sampling, valuation, and extrapolation to arrive at certain figures have been adopted, several methodological challenges emerged in making conclusive statements. The key ones are discussed below.

Data availability: There is no proper system for data management (recording and maintenance). For example, while some OPs are very detailed and comprehensive, many do not have even the basic information such as species-wise growing stock and annual increment. The database at the community forestry division under the Department of Forest does not provide any basis for meaningful analysis. Over 50% of the OPs are expired and are more than five years old. These are not updated to reflect to the current changes in demographic, socio-economic and forest conditions.

Data accessibility: The second important issue is the reluctance to share information. Initially the plan was to collect actual OPs based data without going for sampling and extrapolation. However, given the reluctance in sharing the data, the design was changed to sampling technique. Part of the reluctance was associated with the risk of exposure of the discrepancy between AAH and actual harvest in the district or in particular CFUG.

Extrapolation: As the country is highly diverse in terms of forest type, ecological condition, topography and differential access to the market, it is difficult to extrapolate the findings at the national level. There are huge variations in the annual increment, the cost of collection, transportation and processing, and the market price of the timber in various parts of the country. When certain scientific tools and formulas are used to calculate and arrive at a certain figures, these are subject to change given the multiple variables influencing those figures.

Recommendations

1. Policy and regulatory framework should be revisited and revised to create an environment conducive to promoting and institutionalizing sustainable forest management that help realize the full economic potentials of CF. A constant

flow of economic benefits from forests should be recognized as a pre-condition for the sustainability of forest ecosystem itself.

2. The technically sound and economically costly human resources within the Ministry of Forest and Soil Conservation should not be limited to administrative and policing roles. The technical knowledge of foresters should be fully utilized to support scientific/sustainable forests management and developing forest based enterprises. Technical and administrative support should be oriented to promote forest management. This would help realize the economic potential of CF towards achieving national development goals.
3. The CF database should be properly maintained, and should be publicly available for research and analysis, which can inform forest policies and programmes. Besides, it would help strengthen and institutionalize an evidence based policy process.
4. Forest sector policy should be mainstreamed within the broader national development and poverty reduction goals. As forests are one of the crucial natural resource bases for Nepal's national development, its potential in creating income, job and other benefits should be fully materialized.
5. The scientific practice of forest management including the estimation of growing stock, annual increment and annual allowable cut should be reformed to accommodate the diversity of forests types and other ecological and management variation. Moreover, the science should be made more transparent and accessible to local forest managers, especially the CFUGs.

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