

Supporting Livelihoods through Employment: The Chaubas-Bhumlu Community Sawmill, Nepal

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ITTO, Forest Trends, RECOFTC, Rights and Resources

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Abbreviations

APP	Agriculture Perspective Plan
Cu ft	Cubic feet
DFO	District Forest Office
DoF	Department of Forests
FECOFUN	Federation of Community Forest Users-Nepal
FUG	Forest User Group
Ha	Hectare
HH	Households
HMGN	His Majesty's Government of Nepal
HP	Horsepower
MFSC	Ministry of Forest and Soil Conservation
MPFS	Master Plan for the Forestry Sector
NACFP	Nepal Australia Community Forestry Project
NACRMLP	Nepal Australia Community Resource Management and Livelihoods Project
NGO	Non-governmental Organization
NTFP	Non-timber Forest Product
NR	Nepali Rupee (US\$ 1 = 70 NRs)
OP	Operational Plan
PRSP	Poverty Reduction Strategy Paper
VAT	Value Added Tax
VDC	Village Development Committee

Summary

During the 1970s, the Department of Forest (DoF) and the Nepal Australia Community Forestry Project (NACFP) carried out an extensive tree plantation program covering degraded hillsides in Kavre District, Nepal. Subsequently, 297 ha of this planted pine forest were handed over to several community forest user groups (FUGs) by the District Forest Office.

As the plantations grew dense and became overstocked, the FUGs started to discuss better utilization of their forest resources and how this might generate employment and income for their communities. In 1996, four neighboring FUGs jointly established and registered a community-based sawmill under the name of Chaubas-Bhumlu Sawmill Enterprise at the District Cottage Industry Office. Funds were provided (as a loan) by the NACFP. Since then, a joint sawmill management committee, with representatives from each of the four FUGs, oversees the saw milling operations. The management committee acts as a bridge between the sawmill and the four FUG executive committees, which, in turn receive a mandate from their respective user group assemblies to make major decisions.

The sawmill produces pine lumber and has an estimated maximum processing capacity of 1,060 m³ of roundwood per year using a 36-inch bandsaw. The timber is marketed mainly in the nearby capital city of Kathmandu but there is also a small-scale local market. Waste products are also sold locally.

Over eight years, the sawmill has provided significant employment and income generation opportunities for local forest-dependent people, and has also contributed to local development. Villagers are employed for a wide range of activities that support harvesting and processing of timber including tree marking, logging, transporting logs, timber stacking and loading. Local people (especially dalits and the poor) are also involved in carrying logs to the roadheads from where they are sent as timber to the markets. The FUGs use the sawmill income for demand-driven community development work such as construction of school buildings and playground, and salaries of teachers.

This is the first example of a community-based sawmill in Nepal. However, a number of issues related to local capacity to maintain an efficient and profitable operation have been raised. The sawmill has been running at a loss for most years of its operation, and issues such as costs and profits, market competition and product quality remain major challenges for the sawmill and the management committee.

Although the provisions of the policy and legal framework nominally support this type of community-based enterprise, local and somewhat *ad hoc* interpretation of such framework affects the administrative procedures for timber harvesting, processing, transport and marketing, and constrains the operation and management of this community-based timber enterprise.

1. Introduction

Nepal's achievements in participatory forestry over the past two decades are well known and have received considerable acclaim. There are now more than 13,000 community forest user groups (FUGs) in the country, responsible for managing about 15% of the 1.1 million ha forest area (HMGN, 2005). Hillsides that were once bare and treeless are now covered with regenerating forests, creating a very visible impact. Unfortunately, despite this widespread expansion of community forestry, its impact on poor people's livelihoods appears to have been limited. The transfer of forest resource use-rights to FUGs has led to improvements in forest condition but few of the poorest and most forest-dependent people living below the poverty line appeared to have benefited economically from this. A number of factors seem to be involved:

- (i) An over-emphasis on forest protection rather than productive utilization;
- (ii) Limited participation of the poor and marginalized groups in FUG-level decision-making; and
- (iii) A lack of enterprise-related innovations that tap the growing market for commercial forest products and that can contribute to incomes for the poorest people.

Tackling these constraints is particularly important in Nepal because the country is at present driven by a violent internal conflict. Trying to ensure that marginalized groups are brought closer into mainstream society and addressing chronic rural poverty are considered to be crucial contributions to peace building, social stability and environmental sustainability. One way of doing this may be by building on the successes of the community forestry program to generate forest-related economic benefits for poor people through small-scale enterprises linked with community forests.

In July 2005, a case study to increase the understanding of the effectiveness of such a community-based forest enterprise in achieving its objectives was carried out. A community-based sawmill in the Chaubas area of Kavre District was selected for the case study, which relied on a three-part methodology to gather information:

- (i) A review of available secondary information
- (ii) Interactions with different stakeholders
- (iii) Reflections from the field

Information primarily available through the documentation center of Nepal Australia Community Resource Management and Livelihoods Project (NACRMLP) was particularly important for the review. Staff from NACRMLP and the Kavre District Forest Office (DFO), former chairpersons of the sawmill and various Kathmandu-based buyers were consulted for the second part of the study. Finally, field visits to the Chaubas area were conducted to meet local users and to allow them to reflect on and give their own perspectives on the sawmill enterprise. Individual and small group interviews were held, and informants included men, women, the poor and dalits (disadvantaged castes). We also held a meeting with the executive committee of the sawmill, which provided us with important insights into the impacts of the sawmill in the Chaubas area.

2. Community forestry and forest enterprises in Nepal

Community-based forest management has a long history in Nepal. Although legal ownership of forest lands now belongs to the state, use-rights have traditionally been with the community and forests have been maintained under various different common property management regimes. Since the 1970s, the government has pro-actively implemented a policy of community-based forest management. Out of

this, local forest management institutions called Forest User Groups (FUGs) evolved and have now become institutionalized across the country.

Ecologically, Nepal can be divided into three regions – high hills, mid-hills and terai (plains) with forest being an important natural resource in all these regions, although its composition and type varies. Whilst the high hills have rich temperate, sub-alpine and alpine forests with many medicinal plants and valued non-timber forest products (NTFPs), the terai region contains tropical and sub-tropical species including valuable timbers such as sal (*Shorea robusta*). The mid-hills has a mix of sub-temperate and sub-tropical types with both timber and non-timber species (Bhattarai, 2002). It is in these mid-hills that community forestry first began in Nepal and it is also here that many plantations (most are now under community management) are located.

The importance of forests for rural communities in Nepal cannot be overemphasized. They supply 90% of total fuel consumption, more than 50% of livestock fodder as well as the building materials and many other products used on a daily basis by rural people. Until recently, the community forestry program in Nepal tended to focus on forest protection and meeting subsistence forest product needs. However, in a country that is amongst the poorest in the world, its forest policy and practices have now started to recognize that forest-based enterprises have real potential to improve forest management and provide essential employment and income opportunities for the rural poor. A number of factors have contributed to this development including the highly visible successful regeneration of forest areas, the willingness of local people and FUGs to innovate and learn, and policies that now promote local autonomy for rural people to generate income from forest products (Subedi *et al.*, 2002).

Policy and regulatory framework

The community forestry sector is guided by a supportive policy and regulatory framework that has developed over the past two decades and includes:

- Master Plan for the Forestry Sector (MPFS) (1989)
- Forest Act (1993) and Forest Rules (1995)
- Decentralization Act (1982)
- Local Governance Act (1998)
- The 9th Five-year Plan (1997-2002)
- The 10th Five-year Plan (2002-2007) and Poverty Reduction Strategy Paper (PRSP)
- The Agriculture Perspective Plan (APP) (1995)
- Non-timber Forest Products (NTFP) Policy (2004)

The MPFS gives priority to community forestry over other types of forest management. It identifies multiple objectives for community forestry: (i) meeting the basic needs of forest users; (ii) sustainable use of forest resources; (iii) participation of forest users in decision making and benefit sharing; and (iv) economic and social progress. It further recommends that all accessible forests should be handed over to FUGs and that all revenue generated from the sale of forest products should go to these local groups. Furthermore, the Agriculture Perspective Plan listed forestry as one of the priority output areas, with community forestry being given the top priority as a means for the poor and marginalized people to gain benefits through inter-cropping with medicinal herbs and cash crops. The recent policy on NTFPs also encourages conservation and sustainable utilization of these forest products by supporting their production, management and cultivation in leasehold, community and private forests. The policy supports the establishment of networks of producers, collectors and traders and encourages adding value to NTFPs through their safe storage, processing and packaging.

This forest policy framework was significantly strengthened by the Forest Act (1993) and the subsequent Community Forestry Guidelines (1995) that recognize FUGs as legally established and autonomous institutions for managing and using the forests. By law, FUGs can now sell their forest products freely and fix the prices themselves, thus forming the basis for the establishment of FUG-managed forest-based enterprises. The legal autonomy of FUGs is further strengthened by the

Decentralization Act (1982) that also envisages control of forests by local people, thus reinforcing the concept of community-based forest management. More recently, the Local Self Governance Act of 1998 has framed rules for the decentralization process whereby mobilization of resources from both government and non-government sectors can be through established user groups giving further legitimacy to such groups.

The 9th Five-year Plan (1997-2002) envisaged a strengthening of participatory forest management and highlighted the need to abandon the state's protectionist bias towards community forests, stressing that the active management of these rich productive resources was a potential means of poverty alleviation (Bhattarai *et al.*, 2002). The 10th Five-year Plan (2002-2007) emphasizes the proper management and use of forest resources for environmental protection and for socio-economic development. It also stresses the need to transform the forestry sector to become more employment-oriented and towards greater private sector participation and modernization of the sector.

As a result, Nepal's policy and regulatory framework are now highly conducive towards the local management of forest resources with poverty reduction as a common objective. Establishment of community-based forest enterprises is being seen as appropriate means for achieving this objective.

Forest based enterprise production systems

Nepal earns about US\$ 2.6 million annually from the production and sale of timber from its forests (HMGN, 1999). This amounts to only a small contribution (0.08%) of total annual revenue. Timber produced is almost entirely for domestic consumption and there is no strategy in place to promote timber exports although considerable unrecorded illegal timber trade is taking place across the border with India.

Since 1995 when the Forest Regulations first permitted FUGs to operate forest-based industries outside the actual community forest areas, increasing numbers of community forest-based enterprises have been established. Although recent data are scarce, Subedi *et al.* (2002) identified some 66 community-based forest enterprises in the country (see Figure 1), of which only seven were timber-based. These enterprises reflect a diverse list of plants and plant product lines including timber (e.g. sawn timber, furniture, logs and poles), other wood products (e.g. handicrafts, wood carvings, tools and implements), fuelwood and charcoal, plant fiber (e.g. traditional lokta paper, rope and cloth from *Daphne* spp, *Girardinia diversifolia*, *Cannabis sativa*, *Grewia optima*, *Bauhinia vahlii*, *Edgeworthia gardneri* and Sabai grass), medicinal plant products, traditional medicines, essential oils, food and spices, brooms, bamboo and rattan products, fodder and grass, leaf products (e.g. plates, handicrafts), pine resin and others (e.g. soap nuts, incense, natural dyes).

Community-based forest enterprises can be categorized into five types based on their ownership structure (Subedi *et al.*, 2002):

- (i) Sole enterprises: Enterprises primarily owned and managed, with or without formal registration, by an individual or household.
- (ii) Forest User Group (FUG) enterprises: Individual FUGs, leasehold forest groups or other community groups managing forests as a common property resource and producing, selling or distributing forest products.
- (iii) Consortia of FUGs: Two or more FUGs working together for the collective production and marketing of forest products.
- (iv) Cooperatives: Formal or informal networks of individuals and groups collecting, processing and trading forest products.
- (v) Private limited companies: Corporate entities registered as per prevailing company legislation in Nepal.

Of these, consortia of FUGs (type iii) are still quite unusual. The Chaubas-Bhumlu Sawmill falls into this category.

3. The Chaubas-Bhumlu Community Sawmill

Immediately southeast of the Kathmandu Valley lies Kavre District. At an altitude of about 2,000 m in its remote northeast corner lies Chaubas. It can be reached after a 5-6 hour walk climbing up from Dolalghat – a major settlement on the Arniko Highway, a road that connects Kathmandu and Tibet. Alternatively, a seasonal local bus takes three hours to negotiate the rough road to Chaubas – a route which is still disconnected from the main highway by a missing vehicle bridge over the Sunkoshi River.

The 2,000 or so people of the Chaubas area are mostly subsistence farmers struggling to make a living on the steep hill slopes. Many supplement their farming by seasonal or longer-term migration to earn cash income elsewhere. Although some residents operate small businesses such as shops and tea stalls, local employment opportunities are few. Ethnically, almost 50% of the households are from the Tamang group, a further 20% are Brahmin and Chhetri castes whilst the remaining 30% belong to the most disadvantaged castes of Kami, Damai, Sarki and Pahari (Eijnatten *et al.*, 2001).

History

Until 1978, the Chaubas area was severely deforested. Forests were heavily overgrazed and forest products were in short supply. At that time, the Department of Forest (DoF) and local communities with the assistance of the Nepal Australia Community Forestry Project (NACFP) started an afforestation program. Nearly 400 ha of degraded land were brought under plantations (Eijnatten *et al.*, 2001) – mainly with pines (*Pinus patula*, *P. roxburghii* and *P. wallichiana*) since these species have the ability to tolerate drought and moisture stress, and because they were most suitable for the degraded soil conditions of the area. Over time, the 293 households of the Chaubas area formed and registered themselves into four FUGs: Chapani Kuwa FUG, Fagar Khola FUG, Dharapani Hile FUG and Rachhama FUG in order to take control over the protection and management of these newly planted areas.

By the mid-1980s, the plantations had started to become overstocked and required some thinning but it took several years before any action could be taken, partly because a strong mindset of strict forest protection had been built up amongst both local people and government foresters. By the end of the 1980s, the four concerned FUGs had begun to discuss in earnest how their forest resources could be better utilized to generate more income and employment for their community. This led (in 1992-1993) to a feasibility study and discussions with DoF (supported by NACFP) about the possibility of establishing their own community timber processing plant in the area. At the same time, the DoF and NACFP assisted these four FUGs to revise their operational plans to make provision for them to undertake the necessary thinning operations and for the establishment of a sawmill.

By May 1996, the four neighboring FUGs had jointly established a sawmill and registered it as the Chaubas-Bhumlu Sawmill Enterprise at the District Cottage Industries Office, in Dhulikhel, Kavre District. NACFP provided funds (as an interest-free loan) for the construction of the sawmill buildings and for the purchase of a 24-inch bandsaw powered by a 12 HP diesel motor. In 1997, the FUGs upgraded their sawmill with the purchase of 36-inch bandsaw with a 24 HP motor, as the former was found to be rather inefficient with the *Pinus* sawlogs that were becoming available from thinning. This time, the FUGs themselves raised the money to procure the new equipment from sale of timber and logs to buyers in Kathmandu. In 1997, the executive committee registered the sawmill enterprise at the tax office at Surya Binayak, Bhaktapur (adjacent to Kathmandu). Shortly afterwards, a fifth FUG, Lankuri Rukh (all members of which are also members of Fagar Khola or Chapani FUGs) also joined the consortium – but only for the provision of raw materials (round timber) to the sawmill. At the time of its establishment, Chaubas-Bhumlu Community Sawmill was the first in Nepal to be run entirely by FUGs.

Activities

The sawmill processes pine logs from community forests and other sources into sawn timber and planks. Before bringing roundwood timber to the sawmill, a number of activities are carried out by the FUGs as stipulated in their individual operational plans (approved by the DFO) including thinning and silvicultural treatment of different blocks of community forest. Forest management activities are highly labor intensive and include marking (of trees to be cut), pruning, felling, removing twigs and branches, splitting into pieces, hauling, stacking and loading. For these activities, FUG members are recruited and paid individually. Trees are manually harvested using bow saws and debranched in the forest. Depending on the season, they are then carried to a nearby roadhead or portered (again manually) to the sawmill. The products of the sawmill are transported by lorry via Dolalghat to Kathmandu.

A market survey of the sawn products from Chaubas-Bhumlu Community Sawmill was conducted to identify the products that were in most demand and the extent of their markets. This enabled a number of potential pine timber buyers to be identified. Only a few of these indicated that they were interested in possible future collaboration with the sawmill and only Bira Furniture and Pashupati Furniture (both located in Kathmandu) are actual buyers of sawn and round timber (Kayastha *et al.*, 2002).

Benefits

Given the shortage of employment and income generation opportunities in the area, the consortium of FUGs developed a written constitution stating that the goals and objectives of the enterprise will be:

“to collect and distribute forest products equitably according to the operational plan approved by the DFO; to encourage the users to be active participants in the enterprise and to enhance their capacity; to create employment for FUG members and to ensure and promote sustainable development”
(Acharya, 2001)

Since its establishment, the sawmill has broadly achieved these goals, although with varying success and not without some difficulties. This has led to a number of positive outcomes for local communities.

There has been an increase in the availability of tree products and processing services in the Chaubas locality. Local people can now add value to the round timber available from community forests and their own private trees by sawing it. For a small charge, the sawmill will convert roundwood for private owners (FUG members only) and the sawn timber produced can then be sold or used by the owner. In addition, FUG members collect the by-products of tree harvesting (branches and leaf-litter), free of cost, for use as fuelwood and animal bedding. A number of people have also bought sawmill off-cuts to use for their housing, e.g. as room dividers, roofing materials and as raw material for furniture.

The sawmill provides a market for timber sales from community forests, enabling the four member FUGs to raise considerable sums of cash. During the seven-year period from 1996-2004, the sawmill purchased US\$ 44,800 (or about US\$ 6,400 per year) worth of timber from the concerned FUGs – this amounts to about 95% of their income with the remainder coming mainly from membership fees.

The sawmill has also generated substantial local employment. During the period from 1997-2004, it provided employment equivalent to 13,338 person days for both skilled and unskilled labor worth approximately US\$ 15,243 in wages, and both men and women have been engaged as laborers at the sawmill. Further employment has been generated by the FUGs themselves, through their harvesting and transportation activities. People of disadvantaged caste from adjoining areas have also been employed to carry logs at Dolalghat since vehicles cannot yet cross the Sunkoshi River.

When questioned, most local people, from sawmill management committee members to individual FUG members, the poor, and marginalized groups, all expressed their view that the sawmill has been

able to achieve its goals and objectives. Poor and marginalized groups commented specifically that the sawmill has generated employment for them in their local areas thus reducing the number of days that they need to migrate to seek employment elsewhere. Committee members commented that they felt that the funds generated by the sawmill have enabled a number of other local development activities to be carried out.

4. Enterprise organization, management and governance

Organizational structure

The sawmill is constituted as a joint venture of four FUGs under the immediate control of a sawmill management committee and with a variable number of general members. The sawmill management committee initially consisted of the four chairpersons of the member FUGs, but later was expanded to include 21 members comprising the four FUG chairpersons plus four other members from each of the FUGs, in addition to the sawmill manager. At first, FUGs were represented only by their own committee members, but later this was altered so that FUGs could send other representatives (other than committee members) if they so wished.

Initially, most committee members were inactive resulting in the chairperson and treasurer taking on most of the workload. In 2004, the procedures were changed again when the number of representatives from each FUG was reduced from four to two. To redress the absence of women representation in the committee, in 1997 the FUGs incorporated a new rule to facilitate proper representation of men and women. As a result, during the annual general assembly, each FUG now nominates one man and one woman to represent their FUGs (in addition to the FUG chairperson who is automatically selected). With the addition of the sawmill manager, this has reduced the size of the management committee from 21 to 13. Evolving over time, the organizational structure of the enterprise and the management committee have changed to improve the representation of gender, wealth and ethnic groups within the organization and to make the enterprise more effective and efficient.

General members of the sawmill committee consist of all the committee members of the four participating FUGs. This means that the exact number of general members varies depending on the number of people in the separate FUG committees (nine on average giving an average number of 36 general members).

Table 1 summarizes the changes in committee size, gender and wealth breakdown and ethnic representation.

Table 1: Changes in gender and ethnic group composition of the sawmill committee

Year	Committee members by gender		Committee members by wealth and ethnic group representatives	
	Women	Men	Wealth group	Ethnic group
1996	0	21	0	0
1997	2	11	2 poor	1
1999	4	17	2 poor	1
2000	6	15	3 poor	1
2002	8	13	3 poor	0
2004	4	9	1 poor	0

Source: Sawmill records

Management and governance

The chairperson, vice chairperson and the treasurer of the sawmill are elected from amongst the member representatives of the four FUGs. The management committee meets regularly. The executive members of the sawmill committee are held accountable to their own FUG committee and the FUG committees have power to withdraw their member representatives from the committee if they wish to do so. The sawmill management committee is changed every two years with 50% of new members

being selected whilst retaining the remaining experienced members in position. The chairperson is limited to a term of only two years.

According to the constitution of the enterprise, a general assembly is held annually, at which at least 50% of general members need to be present to constitute a quorum. The general assembly is held after completion of the fiscal year and during the assembly an annual progress review (including the financial aspects) is made. The committee also produces an annual audit report which is sent to various stakeholders (DFO, NACRMLP, local tax office and District Cottage Industries Office). The general assembly appoints a sawmill manager, who serves as the secretary for the executive committee and receives a regular salary. The sawmill manager coordinates all sawmill-related activities. Initially, rangers from outside the area were recruited as managers, but a few years later the policy was changed to recruit a manager who has a School Leaving Certificate from within the four member FUGs. The manager is responsible for day-to-day activities such as record and account keeping; sawmill operation, collection of the logs, payments to the respective FUGs, marketing coordination and maintaining links with the DFO and other stakeholders.

The sawmill has a management plan with formal sale and purchase agreements between the sawmill and each of the four member FUGs. Each FUG has been contracted by the sawmill to provide a minimum of 4,000 cu ft of timber annually, an amount of harvesting being provided for in the respective operational plans for the community forests. The raw material for the sawmill therefore consists of 16,000 cu ft of timber from community forests and approximately a further 9,000 cu ft from other FUGs and private landowners in the area. Private owners are charged at a rate of US\$ 0.21 per cu ft for sawmilling services by the sawmill.

Since each FUG nominates its own member representatives on the sawmill management committee, the majority of forest users have no direct access to the day-to-day decision-making process in the sawmill's activities. However, the respective FUGs provide detailed guidelines for the operation of the sawmill and the executive committee is directly accountable to each of these four FUGs. Hence the general users do have a limited and indirect involvement in decision-making. Most general members of the committee interviewed appeared to be aware of the financial status of the sawmill. However, general users, particularly those working as laborers, have only limited understanding about the financial aspects of the enterprise. Sarki (disadvantaged caste) laborers working for the sawmill admitted that they knew little about its income and expenditure. Financial transactions are made public by putting reports on a notice board at the sawmill (although many members are not literate) – to date there has been no suggestion of any misuse of funds.

Organizational effectiveness

The sawmill and FUGs have diverse goals to be addressed through the enterprise. These include fulfilling the subsistence needs of local people, promoting local development, creating employment and income opportunities for the local people and empowering the poor and marginalized forest users through social inclusion. Majority of respondents appeared to be satisfied that these goals were being addressed to some extent. A number of social groups, particularly the poor and marginalized, have been involved in the decision making process, although they have yet to realize more tangible benefits. FUG representatives work together intensively in the sawmill management committee to better coordinate issues between the sawmill and member FUGs, and FUGs consult each other if they are unable to resolve issues independently, indicating that an effective decision making and conflict resolution system is in place.

5. Economics of the enterprise

Products

The main product of the sawmill is sawn timber. The sawmill processes roundwood (pine only) and produces sawn timber as well as a number of other valuable by-products including:

- Off-cuts and waste timber

- Bark planks
- Inner planks
- Sawdust

Sawn timber has limited use in the local market (for chairs, tables, beds, shelving, post beams and timber for house construction) and is primarily sold in Kathmandu. However, the sawmill's by-products are utilized mainly in the local market, as domestic fuel or for the construction of temporary houses, toilets, and poultry and animal yards. Sawdust has no significant value in the villages and has, so far, been considered a waste product.

During 1996-2004, the sawmill bought a total 62,720 cu ft round timber mostly from member FUGs for which they were paid approximately US\$ 44,800. Table 2 shows the annual volume of roundwood processed and the volume of sawn timber produced from this. Over this period, the sawmill has continuously been operating at less than its estimated maximum capacity of about 35,000 cu ft per year. The value of the planks and sawn timber produced over the same period is estimated to be US\$ 93,800. This is more than double the raw material costs. In addition, the sawmill has produced a number of by-products and residues that have satisfied the subsistence need of the local users with an approximate value of US\$ 5,143 for the same period 1997-2004 (Sawmill Records, 2005).

Both the sawn timber and by-products are sold at subsidized rates within the Chaubas area, covering 17 Village Development Committees (VDCs). Sawn timber is sold at US\$ 2.71 per cu ft for the use of villagers and at US\$ 3.14 for outsiders. Most of the by-products are consumed in the villages and are sold at US\$ 0.007 (NR 0.50) per kg.

Table 2: Volume of roundwood collected and processed from 1996-2004 (cu ft)

Year	Round timber collected	Sawn timber produced
1996/97	1,863	
1997/98	16,908	8,195
1998/99	13,981	6,840
1999/00	4,745	1,990
2000/01	10,685	5,827
2001/02	2,177	895
2002/03	9,539	4,588
2003/04	2,862	1,470
Total	62,760	29,805

Source: Record of Chaubas-Bhumlu Sawmill

The timber produced has wide growth rings indicating rapid early growth, but its overall appearance is good. Knots are not significant and other flaws are limited (Jackson *et al.*, 1995). However, compared with timber available in the Kathmandu market, the timber from Chaubas-Bhumlu Sawmill is considered to be of low quality because of their smaller sizes and young age of the trees (personal communication with sawmill manager, 2005).

Markets

The local market for sawn timber appears to be insignificant. Sales records for 1996-2004 show that only 4% of the total sales of sawn timber were local (sales records of Chaubas-Bhumlu Sawmill, 1996-2004), although most other by-products were utilized in the Chaubas area.

Kathmandu is the major market for the sale of sawn timber from the sawmill with furniture manufacturers and house builders (for frameworks) being the major consumers. In Kathmandu, two furniture factories have purchased most of the sawn timber from Chaubas sawmill. Bira Furniture was the first to start buying pine timber products and continued until 2002. From 2002, Pashupati Furniture House began to buy sawn timber and appeared to be the sole buyer by 2004-2005. More recently, Bira Furniture has again started to buy round timber from the FUGs. Kayastha *et al.*, (2002) identified a number of other potential pine timber buyers (all furniture manufacturers) in Kathmandu and

Bhaktapur (also in the Kathmandu Valley) who had indicated that they are interested in future collaboration with the FUGs for pine timber.

FUG harvesters bring logs from their respective community forests to local collection points in the Chaubas area. Sawmill collectors then gather the logs from these points and transport them to the sawmill. After sawing, the products are transported to Dolalghat across the river and then on to Kathmandu (Figure 2).

The FUGs are also allowed (according to their operational plans) to sell roundwood directly to buyers in Dolalghat and Kathmandu if the volume available exceeds the 4,000 cu ft specified in the annual agreement with the sawmill. This is to avoid a build up of stocks of raw material at the sawmill, and also to make use of other types of timber that may become available from community forests (the sawmill can only process pine). The sawmill also sells roundwood directly to buyers if the volume collected is beyond its processing capacity. In 2005, Fagar Khola FUG sold some roundwood directly to wholesalers in Kathmandu for US\$ 1.01 per cu ft (at Dolalghat). The costs of harvesting and transport incurred by the FUG were US\$ 0.34 per cu ft, giving a net income of US\$ 0.67 per cu ft. This shows that direct roundwood sales can also be beneficial for FUGs.

Costs and benefits

Total income and expenditure of the sawmill for 1996-2004 are shown in Table 3. The expenditure includes costs of repayment of establishment and capital equipment loans.

Table 3: Income and expenditure of Chaubas-Bhumlu Sawmill, 1996-2004 (US\$)

Year	Income	Expenditure	Balance
1996/97	2,735	5,518	-2,783
1997/98	21,474	23,354	-1,880
1998/99	25,541	21,734	3,807
1999/00	6,407	9,796	-3,389
2000/01	17,245	16,459	786
2001/02	1,102	4,648	-3,546
2002/03	11,292	14,952	-3,660
2003/04	11,797	7,420	4,377
Total	97,593	103,881	-6,288

Source: Audit reports and other records of Chaubas Sawmill, 1996-2004

Table 3 shows that on the whole, the sawmill has operated at a loss for a number of reasons.

- (i) In the first two years of establishment, many additional costs were incurred as management was evolving through a learning process.
- (ii) In 1999-2000, the Department of Forests imposed a green tree felling ban. FUGs did not fell trees during 2000 and the sawmill remained mostly inactive. During this period a manager continued to be employed. The effect of this ban can also be seen in Table 2.
- (iii) In 2002-2003, the imposition of a 40% sales tax by the government plus an additional VAT by the DFO also caused a negative balance for the sawmill.

Table 3 also shows that profits have been achieved during the years in which the sawmill operated without the government and DFO impositions.

To start the sawmill enterprise, NACFP provided an interest-free capital loan of US\$ 5,520 for the purchase of the bandsaw and to construct the shed and office. The agreement with NACFP was that the sawmill would repay the loan on installment within two years of the sawmill being run at its full capacity with US\$ 1,380 to be paid in each 6-month period (Singh, 2005). To date, approximately

US\$ 2,214 has been repaid. With the expected phasing out of the project in 2006, it is expected that the remaining amount will be converted into a grant (personal communication with project staff, 2005). In addition to this loan, the FUGs themselves contributed US\$ 3,568 for purchase of the new bandsaw in 1998 – raising funds to do this through round timber sales directly to Kathmandu and through their labor contributions for construction work.

Distribution of dividends

FUGs sell their roundwood to the sawmill and receive an agreed price. The price is negotiated between the FUGs and sawmill, and has been fixed at US\$ 0.71 per cu ft. If cash is available at the sawmill, payment is made immediately to the FUGs, which will then pay their members who harvested and transported the timber. Due to cash flow problems, however, the sawmill often pays the FUGs only after it has sold the sawn timber in the Kathmandu market, resulting in payment delays.

The benefits of the sawmill enterprise are distributed to the respective FUGs in proportion to the volume of logs supplied by each group. The sawmill retains 20% of any profits for maintenance and other expenditure, with the remaining 80% being allocated to the FUGs. According to their operational plans, the FUGs are required to reinvest 25% of their income back into forest management operations – the remainder can be used for other development activities.

External support

The sawmill enterprise has undoubtedly benefited from the considerable support provided by NACFP and NACRMLP since its establishment. This has taken the form of the interest-free capital loan (which would not have been available on such favorable terms from banks), technical support for developing management and business plans for the sawmill and for quality control and record keeping, and a variety of capacity-building support activities such as training and exposure visits for sawmill staff and FUG members. The project also supplied market information and facilitated development of linkages to the national markets for the sawmill products, particularly in Kathmandu.

DFO staff were supportive of the enterprise and allowed the concept of a community-based sawmill enterprise to develop. However, this level of support has fluctuated depending on individuals, and subsequently bureaucratic constraints that have impeded progress have been imposed (e.g. issuing permits for timber sales and movement resulting in losses to the enterprise). Questions have also been raised by the DFO regarding the role of NACRMLP and whether this level of support is actually contributing to the sustainability of the enterprise.

6. Impacts of the enterprise

Environment and natural capital

The plantation program from the late 1970s onwards in the Chaubas area has successfully regenerated forest on the degraded lands.

“The land in the Chaubas area was naked and we could see the cattle roaming around the lands from a far distance. After a few years of plantation, we did have forest stock with greenery. We saw a substantial number of broadleaf species, especially in the form of regeneration” (Teeka Bahadir Kunwar, Chairperson of Fagar Khola FUG).

Regeneration of broadleaf tree species in the pine plantations is prolific and if thinning operations are undertaken in plantations, the infiltration of light to the forest floor also results in increased ground grass production (for fodder). As a result, FUGs have opted to promote regeneration of broadleaf trees by removing pines from around them, aiming eventually to convert a large part of their community forests to natural broadleaf forest. The operation of the sawmill therefore encourages FUGs to manage their community forests and carry out the thinning more effectively in the knowledge that the pine roundwood produced will have a ready market if it is converted at the sawmill.

Social and political capital

The network created by the consortium of four FUGs to establish a common enterprise has been an innovative model of community-based timber enterprises. The establishment and operation of the sawmill was instrumental in promoting cooperation and networking among the member FUGs. Because of this sawmill, the FUGs from 17 VDCs in the Chaubas areas are linked to each other through the distribution of its services and benefits, such as sawn timber and other by-products at subsidized rates. The innovation of Chaubas sawmill quickly attracted other FUGs from the district and from outside, often in the form of study tours organized by the project (Eijnatten *et al.*, 2001). Several other community-based forest enterprises including wood processing and herbal processing (from NTFPs) have subsequently been established in neighboring Sindhupalchok District using similar models as the Chaubas-Bhumlu Sawmill.

The four FUG committees and the sawmill management committee are composed of representatives from the diverse ethnic and caste groups in the area. Representation is specifically designed to promote social equity by ensuring that there is space to voice concerns during the decision-making process. Similarly, women's and other marginalized groups' voice has improved as the enterprise sought to democratize its governance through better representation within the organization.

Physical capital

The residual profits after paying the laborers' wages and salaries have been used by the respective FUGs for community development rooted in local needs. The income from the sawmill enterprise constitutes the major source of income for these FUGs. A considerable amount of this has been spent on infrastructure development, such as the construction of new school buildings, community halls and a playground at the school as well as for schoolteachers' salaries. Rachhama FUG now has a plan to develop an electricity project for the years 2005-2006.

Table 4: Community development by the four FUGs during 1997-2004

FUG	Activity	Cash contributions (US\$)
Rachhama	Community hall (FUG members contributed in kind and labor)	215
	School construction	115
	Electricity scheme (planned)	4,857
Chapanai	School ground	2,472
	Salary for school teacher	5,500
Fagar Khola	na	na
Dharapani	Salary for school teacher	na
Lakhuri Rukh	Deposit for secondary and higher secondary school	2,300
Total		15,459

Source: Sawmill records

The four FUGs also undertook non-cash community activities including providing labor for local development activities such as construction of school buildings, electricity-generating facilities, new roads, trails, drinking water systems, and working in the nursery and plantations and for controlling soil erosion. Table 4 shows that at least US\$ 15,459 has been spent (or is planned) for community development activities, a sum that would not have been otherwise available except for the sawmill enterprise.

Employment and income

The most significant impact of the Chaubas-Bhumlu Sawmill is the employment opportunities created for poorer sections of the local communities. At the start of the enterprise, felling and transportation of the timber was considered to be the responsibility of the sawmill, thus opening up opportunities for outsiders to work as laborers and effectively replacing the local labor market. Later, it was decided that the FUGs would be responsible for felling and transporting timber, enabling forest users themselves to be engaged for this work. As a result, about 100 local households have been employed for 2-3 months per year on pre-harvest tree marking, harvesting, logging, transporting logs, timber

stacking, loading, and sawmilling. An average of 6,000 person days per year has been created by the enterprise. This has included women who, although not employed in timber harvesting and transport now, gained employment in tree marking, pollarding and cleaning inside the plantations. This enables people from poorer sections of the community (about 15-25 households in each FUG) to earn between US\$ 43 and 71 annually. Eijnatten and Shrestha (2001) found that the sawmill was directly reducing out-migration from the Chaubas area. Table 5 shows the number of person days employed directly by the sawmill (this does not include labor for harvesting and logging carried out by member FUGs). Most of the work was taken up by the poorer Pahari, Sarki and other groups.

Table 5: Skilled and unskilled laborers employed by the sawmill (person days)

Year	Unskilled	Skilled	Total
1996/97	1,438	-	1,438
1997/98	1,732	340	2,072
1998/99	3,497	280	3,777
1999/00	634	100	734
2000/01	1,902	220	2,122
2001/02	271	50	321
2002/03	1,577	200	1,777
2003/04	1,037	60	1,097
Total	12,088	1,250	13,338

Source: Chaubas Sawmill records

A group of Sarki people from Chapani FUG working in transporting the logs from the production area to the sawmill pointed out:

"We are happy to be employed in logging and transporting the logs. It is good in a sense that we have been engaged in our own village. If this opportunity had not opened in our village, we would have to go to the district headquarters or Kathmandu for a work. The living cost in the city is more expensive than here and we can stay here with our family and also work on our small pieces of our land in our spare time".

Human capital

Approximately 300 individuals from the FUGs and sawmill committee have attended a diverse range of training, workshops and study tours on subjects including: silvicultural management, accounts and administration, gender and equity, participatory monitoring and evaluation, and pine and mixed forest management. More recently, FUG members and sawmill management committee members have attended business plan training and applied their skills in their respective FUGs and the sawmill. There are also now a number of skilled laborers (sawmill operators) who are familiar with sawmilling techniques.

7. Intersection with government regulations, policies and enabling conditions

The Chaubas-Bhumlu Community Sawmill was established within the policies and legislative framework of the Government of Nepal as a test model for a community-based timber enterprise. Although established within a favorable enabling environment, there have been several ups and downs in terms of the enterprises intersection with the government regulations and policies – particularly with the frequently issued governmental orders and circulars relating to community forest management.

Enabling conditions

The MPFS is an important policy document that recognizes community rights over the use and management of natural resources (HMG, 1989) and which gives priority to community forests over other type of forests. The MPFS also recommends handing over of accessible forests to FUGs and proposes that all revenue generated from the sale of the forest products should go to these FUGs.

The sawmill itself was established under the Forest Act (1993) and Regulation No. 32 (4), which gives forest users the right to establish a forest product-based enterprise (Bhattarai and Khanal, 2005). The same legislation legally recognizes FUGs as autonomous institutions and empowers them to manage and use their community forest resources and to sell the forest products at prices fixed by themselves.

The 9th Five-year Plan (1997-2002) emphasized the need to strengthen participatory forest management and called on the abandonment of the protection bias by the state in community forests, stressing the productive management of these rich resources as a contribution to poverty alleviation (Bhattarai, *et al.*, 2002). Following on from this, the 10th Five-year Plan (2002-2007) places more emphasis on the proper management and use of forests for harmonizing environmental protection with socio-economic development and has tried to move the forestry sector towards becoming more employment-oriented and by promoting private sector participation in forest sector management.

Other sectoral policies and acts such as Decentralization Act, (1982) and its Rules (1984), and the newer Local Self Governance Act (1998) and Rules (1999) have also reinforced and strengthened the concept of community forest management and community-based forest enterprises by promoting the transfer of control over forests to the local people as both managers and beneficiaries with the support of the state and NGOs.

Constraining conditions

In 1999, as the Chaubas-Bhumlu Sawmill was about to complete two full years of operation, the government imposed a national ban on green tree felling in community forests (MFSC decision on 1 November 1999). On the occasion of Environment Day on 15 June, the then Prime Minister had delivered a speech encouraging people not to fell green trees in the forests. Although the Prime Minister did not intend to prevent FUGs from using their community forests, the forest bureaucracy used this as an opportunity to regain control over the forests and issue a complete ban. This affected the operation of sawmill, as the FUGs were not able to harvest timber (see Tables 2 and 3).

In 2002, the government issued guidelines for carrying out inventories in community forests pointing out that without them, timber harvesting could not take place. Since many FUGs already had approved operational plans, and since the guidelines were themselves unclear, the government appeared to be attempting to regain control over, rather than facilitating, community forests, resulting in confusion amongst FUGs in relation to timber harvesting from their forests.

Attempts at undermining the effective management responsibilities of FUGs continued in 2003 when the government, through an order issued by the Ministry of Finance (effective from 1 July 2003), started to levy a 40% tax on the sale FUGs forest products. In addition, DFOs imposed a VAT of 10% on the sale of timber from both the FUGs and sawmill, severely affecting the potential profitability of the sawmill enterprise. This also encouraged powerful Maoist groups in the Chaubas area to impose a 10% tax on sawmill and FUG incomes (an attempt to ban tree felling), although later, the sawmill manager managed to convince them that the sawmill was showing a loss and should therefore pay no tax! As a result of these constraints the sawmill was idle for about 7-8 months resulting in financial losses. FUGs found that they could not even pay the wages of their laborers.

"We had a dilemma. Why fell trees if it results in a loss? As a result we did not fell trees until the end of 2003 by which time the price of the logs was only NR 50 per cu ft from which FUGs themselves have to cover the cost of felling and transport of about NR 24 per cu ft. This means that the net income from the timber was only NR 26 per cu ft – not even enough to pay laborers" (Gokul Tamang, Chairperson of Rachhama FUG).

Unfortunately, the DFO still attempted to impose control over the products and operation of the sawmill, for example, by enquiring about the disbursement of money by the FUGs and the sawmill. One member of the executive committee of the sawmill complained,

"The DFO has no right to inquire how the benefits of the sawmill are used. The inquiry aimed to control the income of the sawmill and the FUGs. Moreover, DFO asks the sawmill to deposit money into the bank before delivery of the timber to market whilst the furniture companies make transactions on an invoice basis. They only pay after receiving the timber in their depot at Kathmandu".

Government policy for the sale of forest products does not differentiate between those produced from community forests and those from national forests, treating all sales outside the district of origin with the same regulatory frameworks. These regulations were developed in the context of national forests as a strict check and balance to control the illegal export of the forest products and where private companies and individuals are involved in the forest product business. In community forests where the community themselves are involved in export (out of the district) and marketing of forest products, these regulations prove to be excessive and cumbersome constraining the efficiency of the enterprise. Whilst the sawmill originally used to sell its timber with its own stamp (a certification process for moving timber between districts), the DFO later insisted that the sawmill needed to get approval from the local forestry office for this thus taking about a year to get approval to sell the timber outside the district. Members of the sawmill management committee expressed their frustrations with this,

"How can a community-based service-oriented enterprise be possible within such restrictive attitudes and practices? The mentality and behavior of the government authority is not in a position to favor such community based timber enterprises."

In another way of imposing unnecessary control, the DFO has asked the sawmill committee to sell their products only by inviting tenders from competent wholesalers. Although the aim of this may be well intentioned, to encourage professional marketing of timbers, the order does not fit with the local realities where small buyers do not like to go through the tender process as they have alternative means of buying the timber in small quantities directly from contractors. Moreover, wholesalers in Kathmandu prefer to go to private suppliers rather than passing through various complex bidding processes.

"The new bidding process has affected the sale of small volumes in the local market at Dolalghat as the local buyers come only for small volume such as 50-200 cu ft" said the manager of the sawmill.

The present macro-political context involving the Maoist movement in Nepal has also affected the operation of the sawmill. Maoists have their own informal ways of enforcing their rules and collecting taxes from such enterprises. However, they may be persuaded by the arguments of the FUGs. One FUG member commented,

"...it is easier to convince Maoists than the DFOs for effective management of the sawmill. The latter are more abstract and always try to control the enterprise by using their rights given by the Forest Act 1993. However we are sandwiched between the two regimes".

8. Opportunities and ways forward

Changes needed in policy environment

Though the policy and legal framework are conducive to the operation of such community-based forest product enterprises, in practice, the real benefits have yet to be realized. Since the power of interpretation of forest laws lies with the DFO and the interpretation also varies between different DFOs, any changes in the DFO will affect the rules and regulations for tree harvesting, processing and marketing. The attitude and behavior of the DFO determines the degree to which the environment is facilitated or controlled. A conducive policy framework is therefore not a sufficient condition for the unconstrained operation of community-based forest enterprises when the attitude and behavior of the

bureaucracy are still unpredictable and inconsistent. The lack of differentiation between the restrictive policies required for the utilization of forest products from national forest and the facilitation required to foster the development of community-based enterprises relying on community forests also remains a significant constraining factor.

Legislation changes are needed to ensure that the DFO's role is limited only to technical support in sustainable forest management (operational planning for community forests) rather than continuing to control processing, transport and marketing by FUGs once timber has been harvested from community forests. This role could be transferred to the District Cottage Industry Office or other government agencies that are more concerned with promotion of small-scale business and local employment. Clear lines of authority are also needed for forest product certification and for movement and sales of the products: who should certify and who should not? Similarly, community-based enterprises that generate employment and contribute to poverty reduction should be treated fairly in terms of imposition of taxes and VAT, and the authority to impose such local taxes needs to be clarified.

Future challenges

The experiences with the Chaubas-Bhumlu Sawmill and the results of field investigations have pointed to a number of challenges that remain to be addressed:

- (i) Many FUG members appeared to be unaware of the activities of the sawmill, viewing themselves as laborers earning wages and not as owners of the enterprise. A more inclusive, accountable and transparent mechanism would help to boost the feeling of ownership by the local people, especially the poor and women. Promoting the representation and participation of women and disadvantaged groups in the sawmill management structure and in FUG committees still remains a challenge.
- (ii) Increasing the sawmill-related labor opportunities and wages for women and disadvantaged groups is another issue. Although poorer households have been engaged in wage labor, additional equity considerations could help in targeting the poorest and most disadvantaged amongst and within these households, perhaps through a positive discrimination process.
- (iii) The cost effectiveness and market competitiveness of the sawmill enterprise is a major challenge. Community management in the form of a cooperative is itself a complex mechanism for business management and it is possible that private sawmills and entrepreneurs may provide a more effective service for clients than the community management, as the former pursues a single goal of profit whilst the latter is more concerned with services and equity. Co-management of the enterprise through a private-community partnership may help to overcome this challenge, since private entrepreneurs can bring business knowledge, skills and financial capital to the enterprise.
- (iv) Considering that NACRMLP is soon to end, immediate hands-on support and feedback mechanisms to develop and strengthen the capacity of the Chaubas committees to address equity issues are urgently needed. Whilst the support provided by the project has been instrumental in getting the enterprise started, it is now important to ensure that it can stand alone without this level of support.
- (v) Economics of scale (size, type, volume and quality of products) is still a challenge for the sawmill. At present, the sawmill produces single-size sawn timber of a single species and greater diversification and improved quality will be important dimensions for its future operation.
- (vi) To replicate the experiences with the Chaubas-Bhumlu Sawmill elsewhere, groups can be invited to visit and share experiences. Moreover, the lessons from the enterprise can be widely disseminated through print and electronic media to encourage other groups to take on a similar

- challenge. Similarly, the extensive skills and human resources that have been developed at Chaubas can be utilized to train or advise FUG members in other areas of the country.
- (vii) Finally, it is possible that the dual sets of rules and regulations (sometimes contradictory and usually excessive) that both government and Maoists impose may jeopardize the operation of the enterprise. A political solution to the current crisis in Nepal appears to be distant and it is perhaps significant that the enterprise has managed to survive this far despite the less than ideal circumstances. It remains to be seen for how long this is possible.

Conclusions

The Chaubas-Bhumlu experience has shown that this type of community-based forest enterprise can have real impacts by creating opportunities for local employment and income generation. Since timber processing is labor intensive, it engages a significant number of local people in harvesting, transporting and processing.

Within what appears to be a favorable policy and legal framework, it seems that Chaubas-Bhumlu Sawmill has managed to survive despite the attention and involvement of outside agencies (particularly the government Forestry Department) rather than because of them. Its operation has almost always been constrained by excessive and inconsistent regulation that has reduced its efficiency and hence profitability. This attitude of controlling, rather than facilitating, within government bodies needs to be changed in order to provide real support to such enterprises.

Community management, particularly through a consortium of FUGs, promotes a sense of communal ownership of the enterprise, although this needs to be actively stimulated. Since the enterprise is meant to provide services for local people, there is a high possibility of achieving a fair and inclusive management process. The experience has shown that such a community-based enterprise does generate equity impacts.

Community-based enterprises like this do appear to be a means of providing employment opportunities that address rural poverty alleviation. Further encouragement of such initiatives would therefore contribute to achieving the objectives of Nepal's PRSP and Millennium Development Goals

Proper business planning and orientation for Chaubas Sawmill still need to be developed. Its plans and decisions appear to be *ad hoc* and somewhat tentative. If the sawmill is to flourish, then diversification and identification of available new business opportunities are crucial. Since community management appears to imply a complex and lengthy decision-making process, this hinders its competitiveness and business orientation. There is also a lack of necessary knowledge and skills of both the production and marketing elements of the business.

Partnerships with the private sector appear to have potential for improving the management of the enterprise. Private sector enterprises are usually more market-conscious, have simple management structures and tend to be more efficient. Such partnerships would also bring the initial capital investment required and help to maintain quality and standards. It may be that contracting the timber marketing to a private company would best serve the objectives of the enterprise in terms of engaging people, and creating employment and income opportunities, whilst also ensuring sustainable forest management and a healthy balance sheet.

9. Supporting charts and graphs

Figure 2: Marketing channels for pine forest products from Chaubas-Bhumlu

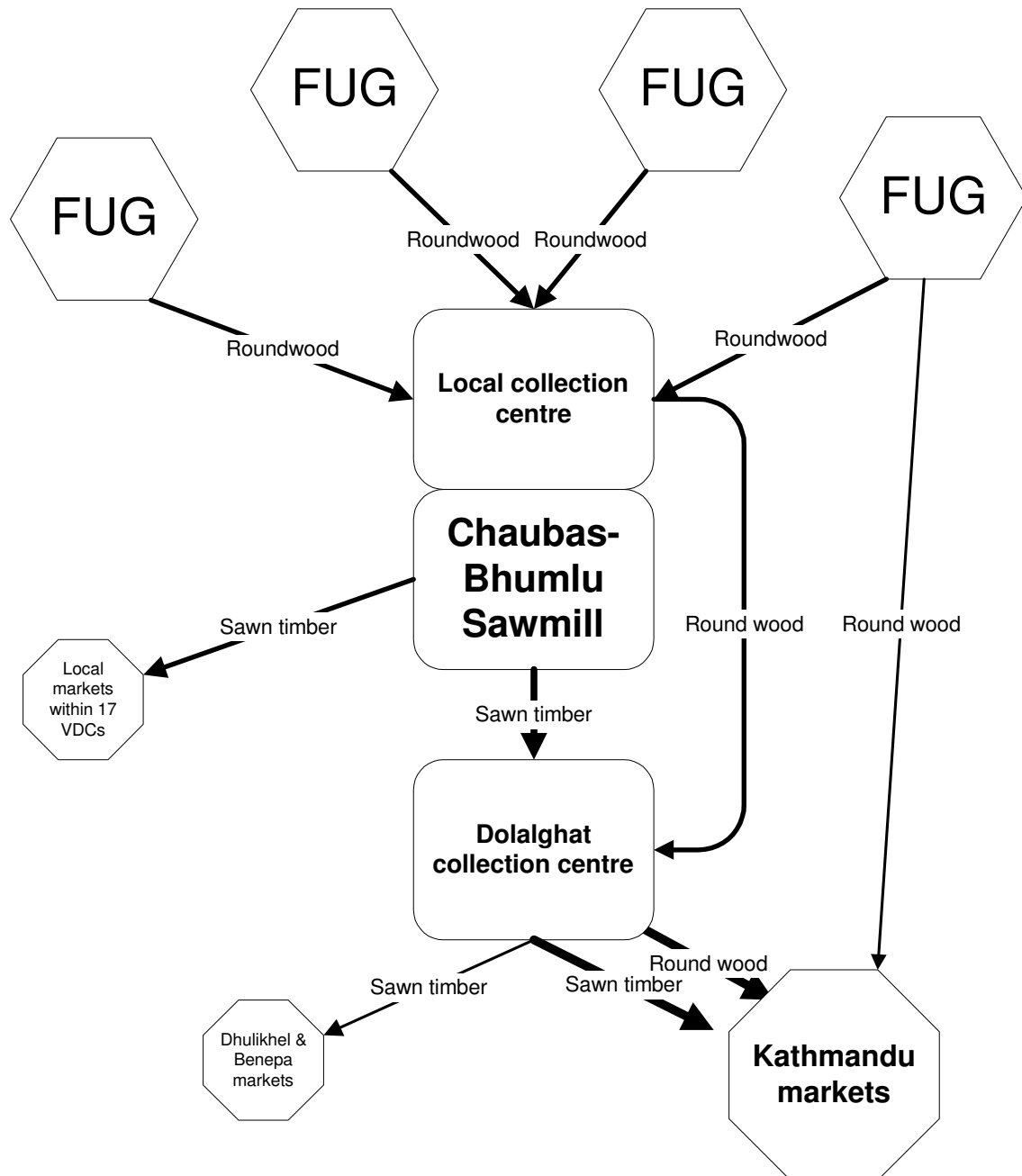
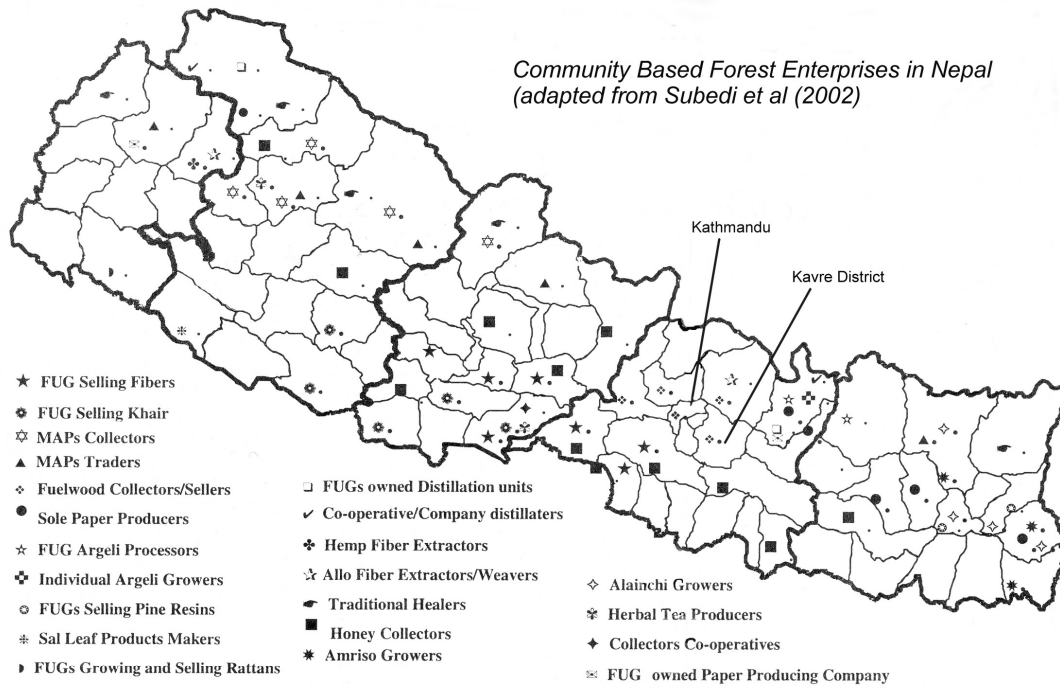


Figure 1: Location of community-based forest enterprises in Nepal



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