

NEPAL AUSTRALIA COMMUNITY  
RESOURCE MANAGEMENT AND  
LIVELIHOODS PROJECT

Milestone 5: Facilitating Timber Management and  
Enterprise Development to Generate Income for  
Poor Communities in Nepal



*Prepared for*

**AusAID**

62 Northbourne Avenue  
CANBERRA ACT 2601

3 February 2006

42443859

*Prepared by*

URS Sustainable Development  
Project Managers and Consultants  
Adelaide Australia

## DONOR AGENCY

### **AusAID (Australian Agency for International Development)**

62 Northbourne Avenue  
Canberra ACT Australia 2601  
Ph: +61 2 6206 4589

## LEAD COUNTERPART AGENCY

### **Ministry of Forests and Soil Conservation**

Singh Durbar  
Kathmandu, Nepal  
Ph: +977 1 4224892/4258381/4244703

## NACRMLP LIAISON OFFICE

BIWMP Complex  
Babar Mahal  
Kathmandu, Nepal  
Ph: +977 1 424 8885

## NACRMLP KATHMANDU OFFICE

Satdobato (near swimming pool complex)  
Lalitpur  
G.P.O. Box 208, Kathmandu, Nepal  
Ph: +977 1 5524725/5528493/5535542

## NACMRLP KABHRE FIELD OFFICE

Banepa, Dhulikhel  
Ph: +977 011 663375/664714

## NACMRLP CHAUTARA FIELD OFFICE

Chautara, Sindhu Palchok  
Ph: +977 011 620343

## AUSTRALIAN MANAGING CONTRACTOR

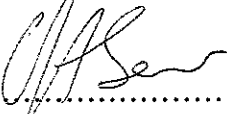

### **URS Sustainable Development**

25 North Terrace  
Hackney, SA 5069 Australia  
Ph: +61 8 8366 1000

Document Authorisation

Project Manager: .....   
Dee Hartvigsen  
International Projects Manager

URS Australia Pty Ltd  
25 North Terrace  
Hackney SA 5069 Australia  
Tel: 61 8 8366 1000  
Fax: 61 8 8366 1001

Project Director: .....   
 Phil Montgomery  
Project Director

Date: 3 February 2006  
Reference: 42443859  
Status: Final

## CONTENTS

<b>Acronyms</b>	<b>iii</b>
<b>Background and Summary of Recommendations</b>	<b>iv</b>
<b>1 Introduction</b>	<b>1</b>
<b>2 Project Approaches</b>	<b>3</b>
2.1 Community Owned Sawmills .....	3
2.1.1 Sawmilling Review .....	4
2.2 Options for the Future of the Sawmills.....	6
2.2.1 Value Chain Analysis .....	6
2.2.2 Economic Analysis of Options.....	7
2.3 Conclusions and Approaches .....	9
<b>3 Lessons from Enterprise Development Activities</b>	<b>11</b>
3.1 Options Development through Interaction Workshops .....	11
3.2 Entrepreneurial Skills Development and Business Plan Training .....	12
3.2.1 Sawmill Business Plans .....	12
3.2.2 Log Selling .....	13
3.3 Market Studies.....	13
3.4 Skills Based Training .....	14
3.5 Governance Issues.....	15
<b>4 Implications for the Future</b>	<b>16</b>
4.1 Future Priorities .....	17
<b>5 References</b>	<b>19</b>

## TABLES

Table 1: Sources of CFUG income (proportion of total income).....	1
Table 2: Financial performance of the Chaubas Sawmill .....	4
Table 3: Financial performance of the Shree Chhap sawmill .....	5
Table 4: Indicative residual price analysis for log sales and community sawmilling .....	8

## FIGURES

Figure 1: Value chain analysis for plantation pine sawn timber.....	7
Figure 2: Overview of NACRMLP Approaches to timber enterprise development.....	10

## **ANNEXES**

Annex 1: Business Plan for Chaubas Sawmill

Annex 2: Business Plan for Shree Chhap Sawmill

## Acronyms

CFUGs	Community Forest User Groups
DFO	District Forest Officer
FECOFUN	Federation of Community Forest Users of Nepal
FUGs	Forest User Groups
NACRMLP	Nepal Australia Community Resource Management and Livelihoods Project
NTFP	Non-timber Forest Product
ToT	Training of Trainers

## Background and Summary of Recommendations

This report deals with the marketing of timber from community forests arising from Stage 1 of the Nepal Australia Community Resource Management and Livelihoods Project (NACRMLP). NACRMLP is the final in a series of projects which has seen the birth and development of community forestry in Nepal, and has often provided a lead for community forestry development in other parts of the world. The opportunity to market wood from plantations established as part of a community forest could generate substantial income for poor communities. The experience of the Project in assisting community forest user groups (CFUGs) to market timber from community forests provides some valuable lessons for timber marketing in Nepal and other countries with an interest in community forestry.

NACRMLP was designed as a two-stage project. The first stage, completed over 18 months, tested approaches to improving livelihoods. The original project design then planned a four-year implementation phase based on the experience of Stage 1. However, following completion of the first stage the Australian Government decided to truncate the second stage activities into a final stage of approximately 18 months. This final stage has focussed, therefore, on consolidating progress to date from the many years of support for community forestry provided through NACRMLP and preceding projects. It has also aimed to establish a sound basis for sustaining community forestry activities and improving livelihoods.

Consistent with the revised approach, this report focuses not only on lessons from stage 1 of NACRMLP but also identifies key issues for the future development of timber processing and marketing. Section 1 gives an overview of the role of timber processing and marketing in current income generating activities of community forests. Section 2 provides an overview of approaches to income generation from timber sales trialled in the first stage of NACRMLP and details activities of two community-owned sawmills supported by the Project. Section 3 discusses the lessons learnt from assisting community sawmills. Section 4 discusses the future of timber enterprises and their sustainability.

Lessons learned from harvesting the community forests include:

- Chaubas and Shree Chhap sawmills have given lower returns to CFUG's than sales of logs.
- The nature of risk associated with any economic activity must be understood. Sawmill ownership, for example, may not be the best option. Greater economic benefits may accrue through joint ventures with private entrepreneurs. Alternatively, selling logs (rather than sawntimber) may improve returns. The logs may be sold as standing trees, at forest roadside, or delivered to a mill, whichever is most advantageous to the community.
- Successful community run businesses need a paid manager. Reliance on the voluntary efforts of CFUG members is a high risk strategy.
- Good governance of CFUGs and business enterprises is vital for sustainability. Also, where income has been generated, its distribution should take into account the needs of women and the poor.

- The regulatory environment must not reduce returns to the community through delays in official documentation and unnecessary interference.

The decision on whether or not to maintain operational funding to the sawmills rests with the local CFUG owners. These groups need to weigh up the potential trade-offs that might have to be made between financial and economic returns. The viability of the mill operations has been assessed compared to log sales, and business plans for the future utilisation of wood from community forests have been drawn up (Annexes 1 and 2).

The key components of NACRMLP activities assisting the CFUG sawmill owners included:

- Interaction workshops to consider options for development;
- Development of business and marketing skills and training in business planning;
- Market studies;
- Skills based training for harvesting; and
- CFUG governance training and development.

Priorities for ongoing Project assistance include:

- Refinement, with relevant CFUGs, of the business plans for the two community sawmills and for log sales.
- Training for entrepreneurial skills and business planning should include CFUGs with potential for log sales beyond the target corridors. This training needs to include options analysis for enterprise development and the importance of risk assessment.
- Identifying and developing opportunities for involving the private sector so that market risk can be shared. For instance, log sales to private buyers may be a better option than establishing a sales cooperative in Kathmandu. As another possibility, the private sector may become involved in sawmilling either through a contracted manager, with the CFUG retaining strategic control, or in a joint venture.
- Assisting with the monitoring of auctions and tenders (and building skills in these areas) and by facilitating inter-district visits between CFUGs to successful private sector/community partnerships.

# 1 Introduction

Australian support for reforestation activities in Nepal began in the 1960s. From the mid-1970s this was provided through a number of development assistance projects emphasising reforestation of degraded land, forest protection, and establishing community forest user groups (CFUGs). Plantation establishment and management were part of this, together with training to help CFUGs undertake these activities. In more recent years, CFUGs have been strengthened through capacity building for members and the staff of relevant support agencies. Poverty reduction has been and remains the long-term aim of all project activities. The projects are located in the Kabhre Palanchok and Sindhu Palchok districts, north of the Kathmandu valley.

Most of the plantations were established between the early 1980s and the early 1990s and are now 15-25 years old. They need thinning to maintain growth rates and to produce larger, more valuable logs over the next 10-20 years. The community forests already provide both marketed and non-marketed products including timber for local household use, firewood and non-timber forest products. In addition to these, the production of sawlogs from thinnings and ultimately final harvest provides scope for significant income generation for CFUGs. After years of investment in plantation establishment, protection and management, a financial return to CFUGs would be welcome and should provide material support for community development. Investing surplus funds from timber harvesting to reduce poverty is a major goal of NACRMLP.

Support for community forestry through various Nepal Australia forestry projects has followed three stages of development. These are:

- Stage 1 - development of CFUGs with emphasis on establishing tree plantations, forest protection and subsistence products for households;
- Stage 2 - emphasis on forest management and utilisation to generate income for local communities. Introducing sawmills was part of this stage; and
- Stage 3 - emphasis on investing surplus CFUG funds generated from forest utilisation for the benefit of the community as a whole.

From the experience gained in NACRMLP, utilising the community forests in the Project districts (Stage 2) is still in its early stages, while investing CFUG funds (Stage 3) is only in its infancy. Nevertheless, the baseline survey conducted by the Project in 2003 (NACRMLP 2003a) illustrates the importance of timber in income generation by CFUGs. Over the five years to 2002/03, timber sales accounted for 45% of the total income of Rs 5.8 million generated by the CFUGs included in the survey (see Table 1).

**Table 1: Sources of CFUG income (proportion of total income)**

Year	Fuelwood	Timber	NTPF	Seedling	Grass	Grants	Fines	Interest	Visitor Fees	Annual levy	Other
1998/99	46.1%	15.2%	2.5%	0.0%	0.7%	12.5%	1.6%	2.3%	0.6%	17.0%	1.4%
1999/00	12.8%	48.8%	6.4%	0.5%	0.4%	6.8%	1.4%	1.9%	1.5%	17.1%	2.3%
2000/01	11.1%	49.0%	2.3%	0.4%	0.6%	4.4%	1.4%	3.4%	0.6%	20.5%	6.3%
2001/02	4.9%	61.6%	4.0%	0.5%	0.7%	10.3%	0.7%	2.7%	0.2%	9.1%	5.2%
2002/03	10.4%	42.0%	10.3%	0.1%	2.7%	6.3%	1.4%	3.2%	0.2%	20.1%	3.3%

Source: NACRMLP (2003a)

Key challenges associated with commercial log sales include:

- The need for training in selecting, harvesting and milling logs;
- Developing business planning and management skills;
- Ensuring equitable distribution of the income from sales of logs and sawn timber. This, among other things, requires good governance of CFUGs; and
- Identifying markets and developing marketing skills for CFUGs, especially sales of logs.

This report documents the experience gained from NACRMLP in addressing the aims of the Project and in meeting its challenges. Alternative approaches are also discussed.

## 2 Project Approaches

NACRMLP emphasises rural poverty reduction through equitable and sustainable, community based, natural resource management systems. The Project included four objectives:

- Improved governance;
- Improved livelihoods particularly for the poor and marginalised;
- Sustainable resource management practices; and
- Improved community based approaches to managing high altitude forest resources.

Only the first three objectives are relevant to timber marketing at this stage.

The Project adopted a two-stage approach to implementation to allow time for a multi-disciplinary team of professionals to work in the field with government and other interested groups for approximately a year and half, so that the lessons learned could be used to fine-tune a work program for a subsequent phase. The approach was to focus on specific geographic corridors to test approaches and then broaden out to other areas. For sawn timber production and marketing the key target areas were:

- Chautara Corridor (Sindhu Palchok district) including the Shree Chhap sawmill; and
- Chaubas Corridor (Kabhre Palanchok district) including the Chaubas sawmill.

### 2.1 Community Owned Sawmills

As plantations established in earlier Nepal Australia forestry projects have grown and matured, the potential for communities to benefit from the sale of timber has emerged. This led to the Project supporting two community based sawmills based on two different models of ownership:

- The **Chaubas sawmill**, established in 1996, as a jointly owned operation between four CFUGs: Chapani Kuwa, Faga Khola, Dharapani Hile and Rachhama<sup>1</sup>; and
- The **Shree Chhap sawmill**, established in 2002, and owned by the Shree Chhap Deurali CFUG, also processes logs from nearby CFUGs.

The sawmills were built to maximise employment and returns by selling sawn timber rather than simply selling logs. Studies by Jackson et al (1995) and Ladley (1995) supported the installation and operation of the Chaubas sawmill, but a feasibility study was not conducted for the Shree Chhap sawmill. Project support included a loan for purchasing equipment for the Chaubas sawmill. The Shree Chhap Deurali CFUG purchased and installed the Shree Chhap sawmill. More detail on the history of these sawmills is provided in NACRMLP Report (2003b).

The operations of the sawmills were reviewed by the Timber Marketing Specialist in Stage 1 of NACRMLP (NACRMLP Report 2003b) and the outcomes of that review are

---

<sup>1</sup> Another CFUG has sold logs to the sawmill but is not an owner

described below, together with supplementary information on the financial performance of the sawmills.

### 2.1.1 Sawmilling Review

The review investigated potential markets for plantation grown pine timber and the experiences of the two sawmills in selling sawn timber. The review indicated that the sawmills were not profitable and doubts were raised over the long term viability of the sawmills, suggesting that log sales were likely to produce greater returns than sale of sawn timber.

Table 2 illustrates the financial performance of the Chaubas sawmill<sup>2</sup>. The sawmill has made a profit in four of the eight years for which the data are available although it was out of action in later years because of the build up of large stocks of unsold sawn timber. Table 2 indicates the sawmill made a profit in 2003, its last full year of operation. Following completion of a new business plan, the sawmill resumed operation in 2005 and to date has sold 2,500 cu ft of sawn timber.

**Table 2: Financial performance of the Chaubas Sawmill**

Income / costs	1996	1997	1998	1999	2000	2001	2002	2003
Rs								
<b>Income</b>								
Timber sales	191,458.20	1,503,172.97	1,787,840.95	448,494.73	1,207,130.50	77,135.00	790,416.27	855,799.82
Other	42446	882.00	957.91	561.14	725.00	5,886.60	412.00	80.00
<b>Total income</b>	<b>233,904.20</b>	<b>1,504,054.97</b>	<b>1,788,798.86</b>	<b>449,055.87</b>	<b>1,207,855.50</b>	<b>83,021.60</b>	<b>790,828.27</b>	<b>855,879.82</b>
<b>Costs</b>								
Logs (at roadside)		776,608.00	620,231.80	519,682.00	534,258.00	108,865.00	476,953.00	192,798.25
Transport costs		187,331.92	157,129.00	47,300.00	136,749.00	11,600.00	114,660.44	24,811.14
Salary and wages	179534	404,562.62	543,486.98	218,941.00	357,881.56	164,518.50	318,055.73	191,209.96
Repairs & maintenance		135,253.50	51,926.50		31,850.00	4,946.00	36,803.32	19,664.00
Other mill costs	16432	49,110.00	45,279.00	18,302.00	53,747.00	9,900.00	58,296.00	38,309.00
Administration	19484	13,160.56	16,823.50	7,192.00	19,138.00	10,851.00	8,915.50	12,462.00
Tax			6,320.00	66,351.75	18,517.00	15,000.00		93,825.16
Depreciation			46,475.02	14,527.78	24,014.84	37,124.02	30,967.08	26,005.58
Other	7326	26,527.39	15,247.46				2,000.00	
<b>Total costs</b>	<b>222,776.00</b>	<b>1,592,553.99</b>	<b>1,502,919.26</b>	<b>892,296.53</b>	<b>1,176,155.40</b>	<b>362,804.52</b>	<b>1,046,651.07</b>	<b>599,085.09</b>
<b>Net profit/loss</b>	<b>11,128.20</b>	<b>-88,499.02</b>	<b>285,879.60</b>	<b>-443,240.66</b>	<b>31,700.10</b>	<b>-279,782.92</b>	<b>-255,822.80</b>	<b>256,794.73</b>
<b>Cumulative profit/loss</b>	<b>11,128.20</b>	<b>-77,370.82</b>	<b>208,508.78</b>	<b>-234,731.88</b>	<b>-203,031.78</b>	<b>-482,814.70</b>	<b>-738,637.50</b>	<b>-481,842.77</b>

The major contributing factor to the losses incurred by the Chaubas sawmill appears to have been the inability to sell timber as it is produced. This has had a negative impact on cash flow since income from timber sales has only been received a long time after processing. Such delays have also caused timber to deteriorate and therefore the price received has been reduced. According to the management committee, salaries, wages, and log and transport costs have also been higher than planned. The threat of a 40% tax on log sales (later removed), local rulings on felling trees, and poor security in the area have also affected mill operations.

Table 3 illustrates the financial performance of the Shree Chhap sawmill based on data provided by the sawmill management committee. The sawmill made a sizeable profit in the first year, followed by two years of losses as the volume processed dropped. A large contribution to the profit in 2002 came from income derived from sawing logs supplied by CFUGs other than the sawmill owner. However, these CFUGs suffered large losses since

<sup>2</sup> Data provided by the sawmill management committee

there was difficulty in selling much of the sawn timber produced and thus returns were much lower than expected. Consequently, at least two of the CFUGs decided the sawmill should not process their logs in subsequent years, they would sell logs only.

**Table 3: Financial performance of the Shree Chhap sawmill**

Income & costs	2002	2003	2004
<b>Income</b>			
Timber sales			
Timber	389,413.00	6,436.00	4,751.00
Strips			1,492.00
Planks			6,640.00
Other		8,149.00	316.00
Other	262,806.00		2,016.00
<b>Total income</b>	<b>652,219.00</b>	<b>14,585.00</b>	<b>15,215.00</b>
<b>Costs</b>			
Logs (at roadside)	185,400.00	18,458.00	
Transport costs		34,919.00	
Salary and wages	40,260.00	4,801.00	25,514.00
Repairs & maintenance			
Other mill costs			7,186.00
Administration	15,925.00	4,392.00	4,849.00
Tax			
Depreciation			
Other	28,798.00		1,336.00
<b>Total costs</b>	<b>270,383.00</b>	<b>62,570.00</b>	<b>38,885.00</b>
<b>Net profit/loss</b>	<b>381,836.00</b>	<b>-47,985.00</b>	<b>-23,670.00</b>
<b>Cumulative profit/loss</b>	<b>381,836.00</b>	<b>333,851.00</b>	<b>310,181.00</b>

Note: includes costs of running CFUG

Factors contributing to the poor performance of the Shree Chhap sawmill include:

- **Harvesting and transport costs were much higher than planned.** As the CFUGs' forests were located further from the sawmill and transport of logs was by hand, the cost of logs delivered to the mill was much higher than expected ie. Rs35-40/cu ft, almost double budgeted cost.
- **Recovery rates were low.** 8,000 cu ft of logs from Gaurati produced only 3,200 cu ft of sawntimber, a recovery rate of 40%. 6,000 cu ft of logs from Lampati produced only 2,200 cu ft, a recovery rate of 37%.
- **The sawn timber was not sold for a long time after it was produced** since the CFUGs found it difficult to find buyers. When the sawn timber was sold some 15 months after production, it had deteriorated in quality and realised only Rs100-150/cu ft rather than the anticipated Rs200/cu ft plus. The timber sold was also influenced by the need to transport logs by hand which meant that logs were generally cut to a maximum length of 6' which limited the length of sawn timber produced and so further reduced prices received (longer lengths attract a premium). Larger girth logs also had to be split down the middle in order to carry them by hand; reducing the recovery rate.

Due to losses, two CFUGs (Gaurati and Lampati) decided to sell logs to local buyers. Thus, with only limited availability of logs from its own CFUG forests, combined with uncertainty over management, Shree Chhap sawmill has not been productive in 2005.

## 2.2 Options for the Future of the Sawmills

The future of the sawmills depends on whether profit performance can be turned around. Further, the NACRMLP (2003b) review and the actual performance of the sawmills outlined above raises the issue as to whether the economic returns from the sawmills justify their operation. Local communities might be better off selling logs rather than operating the sawmills. Value chain analysis is a useful tool in assessing these alternatives.

### 2.2.1 Value Chain Analysis

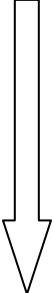
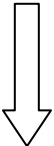
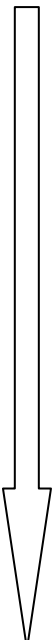
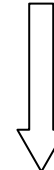
Value chain analysis identifies the key components making up the value of a product and helps to identify those activities which generate the greatest value. In the pine plantations under review, the major product is sawn timber used in construction activities. This has a relatively low unit value which reflects the lower quality of the logs the plantations are presently producing from thinnings and on which the performance of the sawmills must, at this stage, be assessed. However, these thinnings are essential to ensure large logs in 10-15 years time from which higher quality sawn timber can be produced. Figure 1 outlines the components of the value chain for plantation pine sawn timber in Nepal.

Key issues in maximising net product value include:

- **Ensuring efficiency in harvesting and transport so that delivered log costs are minimal** – the sawmills are aware of the importance of planning harvesting operations to ensure a regular and reliable supply of logs. However, since harvesting is entirely by hand, cost saving is difficult, although simple improvements such as manual log sulkies for extracting trees to roadside can reduce logging costs, terrain permitting. Further savings might be realised by ensuring hand saws and axes for felling, trimming, docking and crosscutting are always well maintained and sharp and, in the cases of saws, the teeth are correctly set for the work involved. Trimming (removing branches) is the most time consuming job in stump operations and technique, as well as having the right type and size of axe, is important in reducing the time required.
- **Grade and volume recoveries have a significant impact on net product values** – in general recovery rates are limited by the smaller size and quality of the logs available from thinnings. However, as noted previously, thinnings are essential to ensure larger, better quality logs in 10-15 years time and higher recoveries.
- **Sales and marketing have an important influence on product value** – failing to sell sawn timber in a timely fashion can significantly reduce its value through blue stain, checking and warping.

The value chain analysis also reflects the service provided by Kathmandu sawmills in marketing the timber and carrying associated costs such as storing timber, maintaining networks with local builders and, where required, re-sawing timber for customers. The latter service suggests that rural sawmills might do better selling fitches rather than dimension stock. These fitches could then be resawn in Kathmandu, the better to meet customers' needs. To some extent this is being done already, as the cutting schedules provided by the Chaubas sawmill suggest the mill is cutting as large a section size as possible. Provided the Kathmandu sawmillers agree, this tendency should be encouraged.

**Figure 1: Value chain analysis for plantation pine sawn timber**

Component of supply chain	Costs and Values	Major determinants of value
<p>Logs harvested from plantations</p> 	<p>Value of standing tree = Rs 20/cu ft</p> <p>Cost of harvesting and transport to roadside = Rs 30/cu ft</p> <p><i>Value of log at the roadside = Rs50/cu ft</i></p>	<ul style="list-style-type: none"> <li>• Prevailing prices paid by community sawmills for logs harvested from CFUG forests of Rs50/cu ft at the roadside</li> <li>• Recent sales of logs from CFUGs at roadside to traders have been at prices around Rs70/cu ft</li> <li>• Minimum price of Rs50/cu ft declared by government</li> </ul>
<p>Transport to the sawmill</p> 	<p>Rs 15/cu ft</p> <p><i>Value of log at sawmill gate = Rs65/cu ft</i></p>	<ul style="list-style-type: none"> <li>• Transport costs based on local transport to community sawmill</li> <li>• This cost varies with distance to sawmill.</li> </ul>
<p>Sawmilling</p> 	<p>Cost of sawn timber Rs 50/cu ft</p> <p>At around 50% recovery, this equals Rs25/cu ft of log processed</p> <p>At 40% recovery the log cost increases to Rs31/cu ft.</p> <p><i>Value of sawn timber (at 50% recovery) ex mill door Rs180/cu ft</i></p>	<ul style="list-style-type: none"> <li>• Major cost components of sawmills include: <ul style="list-style-type: none"> <li>▪ Salaries and wages</li> <li>▪ Operating costs for the sawmill – including repairs and maintenance, spare parts, and fuel</li> <li>▪ Administration costs – mostly associated with meetings of management committee and business dealings</li> <li>▪ Depreciation of capital assets</li> <li>▪ Sales and marketing costs</li> </ul> </li> <li>• Recovery rate has significant impact on sawmill costs. 50% appears reasonable based on quality of logs currently available from CFUG plantations and that a strategy of cutting as large section sizes as possible can be sustained.</li> </ul>
<p>Transport to market</p> 	<p>Estimated costs of transport to end product market Rs 25/cu ft of sawn timber</p> <p><i>Value of sawn timber delivered to market Rs205/cu ft</i></p>	<ul style="list-style-type: none"> <li>• Most timber likely to be sold to major markets but point of sale is usually roadside if not mill gate eg, most common point of sale for Chaubas sawmill is Dholalghat</li> </ul>
<p>Marketing</p>	<p>Average sale price of sawn timber ~Rs220/cu ft</p>	<ul style="list-style-type: none"> <li>• Typically sold by sawmills in Kathmandu which re-saw as appropriate, maintain stocks and sell to builders.</li> </ul>

Note: Analysis based on value of log at roadside of Rs50/cu ft. However, experience suggests that actual value of logs is lower. This would result in higher margins for final seller than estimated above. Higher margins would be consistent with normal benchmarks.

## 2.2.2 Economic Analysis of Options

The primary aim of installing the sawmills has been for the forest owners to take a larger share of the economic value of harvesting and processing their plantations. However, experience to date of the Chaubas and Shree Chhap sawmills has not supported this

endeavour, raising the issue as to whether there are more profitable ways of capturing the economic value available along the product chain other than investing in a sawmill.

The potential economic value to forest owners can be estimated using residual valuation of logs (or any other forest product) at various points along the production chain. In purely financial terms, the point along the production chain at which the greatest net value can be realised by the forest owner is the point at which the product should be sold. Thus the owner could sell stumpage (ie the standing tree), logs at roadside, logs delivered to a sawmill or sawn timber depending on how much profit they want to make and how much they want to invest and extend their activities. The product value along the production chain increases but so do the production costs. Value chain analysis may show it is more profitable for the forest owner to sell stumpage rather than sawn timber or something in between. Table 4, using up to date figures, provides the data for such an analysis. The residual price estimated for sawn timber production is based on operational costs of a community sawmill while that for log sales is based on typical prices received from sales to agents acting on behalf of sawmills from Kathmandu and surrounding areas. The analysis shows that log sales are likely to provide a greater return to forest growers than sawn timber from a community sawmill assuming 50% recovery.

**Table 4: Indicative residual price analysis for log sales and community sawmilling**

Item	Sawn timber Rs/cu ft	Sawn timber values converted to Rs/cu ft log volume	Logs Rs/ cu ft	Comments
Price of sawn timber at roadside (a)	200	100		Assume 50% recovery
Transport cost of sawn timber from sawmill to roadside (b)	25	12.5		
Ex mill door value /ft <sup>3</sup> sawn (c)	175	87.5		
Sawmill processing cost (Rs/ft <sup>3</sup> log vol) (d)	50	25		
Log value/ft <sup>3</sup> in the mill yard		62.5		
Transport of logs from roadside to mill yard per ft <sup>3</sup> log vol		15	70	Value of logs for sale at forest roadside to a private buyer
Harvesting costs (logs stacked at forest roadside) per ft <sup>3</sup>		30	30	
Residual log value/ft <sup>3</sup>		17.5	40	Stumpage (value of standing tree)

Residual value analysis suggests the sawmills from Kathmandu and surrounding areas buying logs at roadside can afford to pay more than community-based sawmills. The former have economies of scale and are also sawing higher quality logs from sal (*Shorea robusta*) and native chir pine (*Pinus roxburghii*). In addition, they have more sawmilling experience and lower marketing costs than the community sawmills.

Whether or not the poor returns to forest owners can be offset by additional local employment and income generated by community sawmills is not easy to determine, but the history of the sawmills suggests not. Residual price analysis indicates that communities would need to value the additional benefits of local employment at Rs22.5/cu ft of logs processed to offset stumpage differences (Table 4). Based on an input of 10,000 cu ft the saw mill would need to employ labour to the value of Rs225,000. For an average rural wage of Rs70/day this equals around 3200 working days. If the sawmill worked for half the year it would have to employ around 18 people which is considerably more than are actually employed. The Chaubas sawmill at full production only employs around ten people (four labourers, four machine operators, one guard and one manager). Log harvesting and transport actually employs more, particularly poor people, further reinforcing the attractiveness of selling logs, compared to sawmilling.

Risk associated with alternative activities is another factor to consider. An activity providing lower returns may be more attractive if it is also associated with lower risk. The capital required for a sawmill suggests there is considerably more risk borne by communities making such investments than those involved in log sales only. Furthermore, while there is considerable risk of not being able to sell stocks of sawn timber if there is a market down-turn, trees can be left to grow without deteriorating when demand falls off.

### **2.3 Conclusions and Approaches**

The review of the operation and management of the sawmills (NACRMLP 2003b) concluded that they had largely been unsuccessful in generating sustainable income and were financially and economically unattractive compared to log sales. It was also found that communities did not have sufficient understanding of the risks associated with sawmilling compared to those associated with log sales. Lack of clarity and accountability in the distribution of income from sawn timber sales was also identified as a problem.

The decision on whether or not to maintain operational funding to the sawmills rests with the local CFUGs owners. These groups need to weigh up the potential trade-offs that might have to be made between financial and economic returns. The review recommended the viability of the mill operations should be assessed compared to log sales and that business plans for the future utilisation of wood from community forests should be drawn up. NACRMLP would work with communities to develop their skills in business planning so that they could then make informed decisions on the future of the mills. In addition, NACRMLP would work with CFUGs to develop log sales.

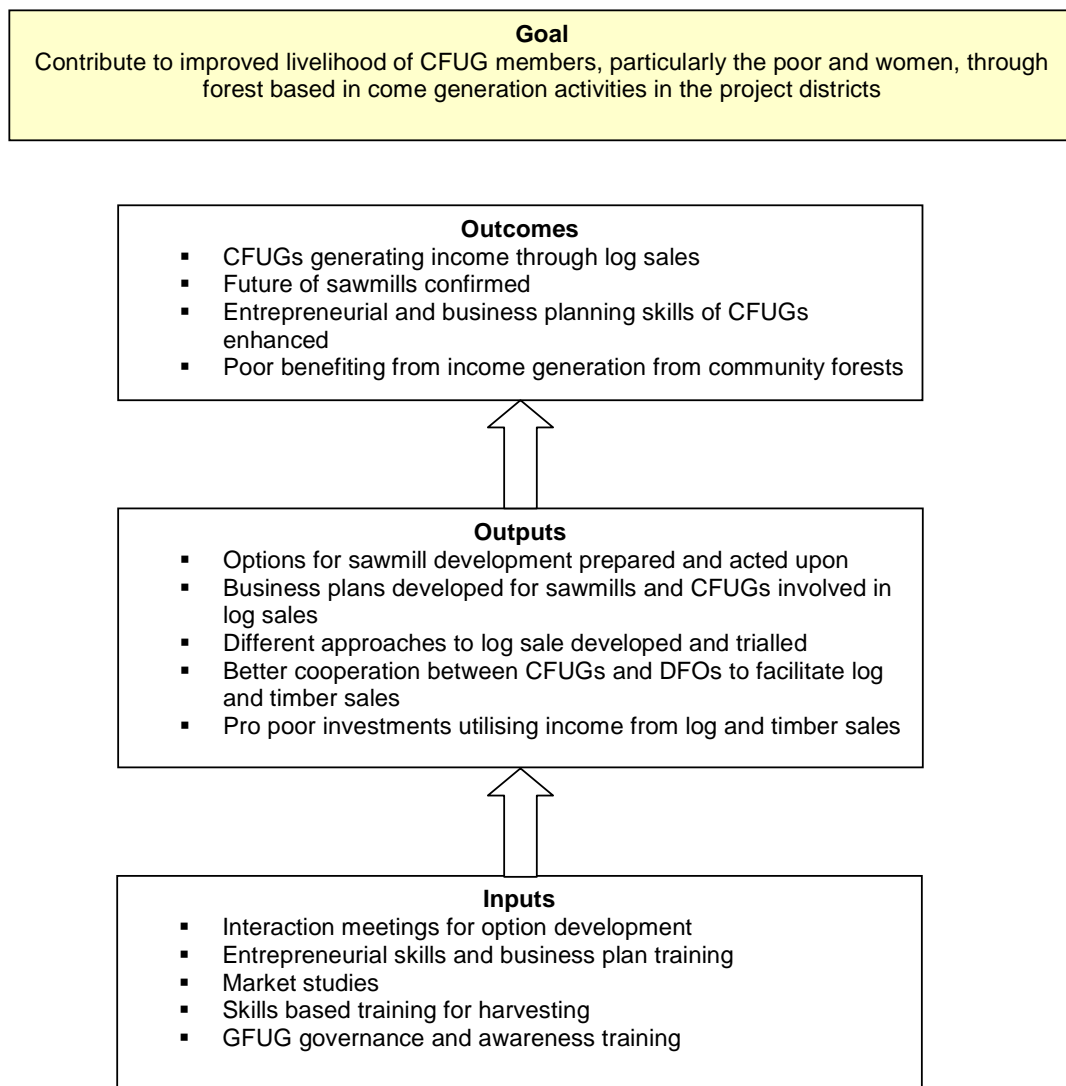
The key components of NACRMLP activities to achieve these outputs became:

- Interaction workshops to consider options for development;
- Development of business and marketing skills and training in business planning;
- Market studies;

- Skills based training for harvesting; and
- CFUG governance training and development.

While these different activities are discussed separately below, they are interrelated eg; the results of interaction workshops, market studies and development of business and marketing skills all contribute to the production of business plans. Similarly, skills-based training for harvesting is vital to marketing logs. Figure 2 presents the approach adopted for timber enterprise development.

**Figure 2: Overview of NACRMLP Approaches to timber enterprise development**



It must also be emphasised that timber marketing activities and the Project as a whole have been adversely impacted by Maoist insurgencies, particularly in rural areas. While not dealt with in this report it must be recognised that this has caused considerable disruption to Project activities and communities.

## **3 Lessons from Enterprise Development Activities**

### **3.1 Options Development through Interaction Workshops**

The Project arranged interaction workshops with each of the sawmill management committees and relevant CFUG members to review progress and consider options for future development. The aim of the interaction workshops was to provide community members with the skills to assess different options for income generation from log sales and sawn timber production and to enable them to “do the maths” to assess viability of alternative options.

As a result, it was decided to continue operating the Chaubas mill for at least another year. The participants felt they had learnt many lessons and could develop a business plan to provide a more effective outcome than those of previous years. Key aspects of the new business plan included appointment of a new sawmill manager, linking the manager’s remuneration to sales performance, reducing the number of representatives on the sawmill management committee, ensuring sawn timber output matched market requirements in a regular and timely fashion, and understanding the need for cost control in sawn timber production. In general, the understanding of the sawmill committee of the key requirements for effective business operation has improved considerably and, as part of this the committee prepared a new business plan. This is discussed below.

The Shree Chhap sawmill also decided to keep the sawmill operating and, to this end, has prepared a revised business plan, also discussed below. However, uncertainty over the management structure of the sawmill has delayed progress in implementing the plan.

The other major focus for timber enterprise development in NACRMLP has been log sales. Awareness of CFUGs varies greatly with some actively involved in log sales while others do not yet understand forest regulations and timber harvesting processes. The interaction workshops have included:

- Overviews of forest based enterprises and their potential to generate income;
- Review of previous attempts by CFUGs to sell logs;
- Defining opportunities and constraints for utilising logs and selling them; and
- Developing a strategy and action plan for selling logs.

As a result of these workshops, interest in selling logs has increased and a number of CFUGs have successfully harvested and sold logs to commercial buyers in the regions.

Further options have also been discussed including the possibility of establishing a marketing cooperative for logs in the Chautara corridor and of a marketing depot in Kathmandu. This discussion has been facilitated by the Federation of Community Forest Users of Nepal (FECOFUN) with assistance from NACRMLP and included holding an interaction workshop.

This proposal arose from the perception that increased returns from sales of sawn timber could be realised by establishing a marketing organisation in Kathmandu to sell plantation softwood timber. The workshops identified significant costs and risk in doing this and decided at this stage that local sales on an individual basis offered the best alternative, but interest in a cooperative remains active.

## **3.2 Entrepreneurial Skills Development and Business Plan Training**

Training to develop entrepreneurial skills and in business planning has been provided to both sawmill management committees and CFUGs in the project corridors. As with other training conducted by the NACRMLP this focuses on training of trainers (ToT) including District Forest Office (DFO) staff, CFUG members and service providers. The major components of the training included the concept of the enterprise, pro-poor and gender focussed enterprises, entrepreneurial competencies, selection of a business, running a business and business plan preparation. The Project aimed to facilitate business plan development by those directly involved rather than develop business plans on their behalf.

### **3.2.1 Sawmill Business Plans**

Both Chaubas and Shree Chhap sawmills have developed business plans (Appendices 1 and 2).

The Chaubas plan anticipates processing 20,000 cu ft of logs to produce 12,000 cu ft of sawn timber together with sales of other by-products used for local construction and firewood. Total annual revenue of Rs2.3 million assumes an average selling price of Rs192/cu ft. Total annual cost of harvesting and delivering logs to the mill, and converting to sawn timber amount to around Rs1.9 million.

The plan appears to reflect an improved understanding of the business of operating a sawmill and the need to assess market returns and contain costs. However, the ability of the planners to identify the economics and risks associated with a sawmill business requires further development. In particular, the current plan is optimistic in its assumption that the sawmill will be able to process and sell in a timely fashion around 12,000 cu ft pa, thereby overestimating revenues. The decision by the Chaubas community to continue operating the sawmill also appears to be based on the belief that additional local employment will result in addition to substantial economic benefit.

It is understandable the community is reluctant to close the sawmill down, despite the fact that it has generally not delivered the returns expected. In the circumstances, NACRMLP must continue to work with the committee and other service providers to help build skills to monitor the business plan based on ongoing results and, if necessary, help communities to consider alternatives such as selling logs only. Similar comments can be made of the business plan developed by the Shree Chhap sawmill. It should also be noted that the Shree Chhap business plan is less developed in that that a new manager for the mill is yet to be appointed and some calculations in the business plan may require additional refinement once this is resolved.

A major lesson to be learned from NACRMLP is that community ownership of a complex operation such as a sawmill has not been as successful as it might have been. Involving the private sector would have ensured that any such project was more carefully assessed. If, in fact, a private sector partner cannot be found, this suggests the venture is not viable. Communities should develop business and commercial skills and an understanding of the timber market through selling logs only, before attempting to establish a sawmill. This might also assist communities to understand the opportunity costs of log sales and the risks associated with processing and marketing.

### **3.2.2 Log Selling**

Business plans by CFUGs for log harvesting and marketing and for NTFP enterprises have also been prepared. In a visit to Lankuri CFUG in the Chautara corridor to inspect harvesting operations, the CFUG chairman was able to present a business plan that clearly identified revenues and costs of producing a pre-determined volume of logs from thinnings.

Preparing business plans also exposes areas where CFUGs may require additional training. For instance, in the Lankuri CFUG plan, logs were to be sold to the sawmill at a lower price than private log buyers would have been willing to pay. Two reasons were given for this – firstly the CFUG hoped that providing logs to the sawmill would help generate local employment, and secondly, the CFUG could sell all its logs, including the smallest ones, to the sawmill. In terms of enhancing employment, this brings with it the risk of increasing economic and financial costs. Furthermore, sending the smallest logs to the sawmill simply increases its costs of production by lowering recovery while at the same time reducing returns. While the preparation of the Lankuri business plan assisted in controlling and assessing the harvesting operations, it described existing activities rather than analysing alternative options for income generation.

Business plan training to date appears to have helped CFUGs and other parties to consider more rigorously the costs and returns from proposed operations, however, as is evidenced in the business plans prepared by the sawmills, the plans tended to reinforce existing activities rather than assessing alternatives as part of the early development of a business plan. The importance of assessing not only the existing situation but possible alternatives in the first phase of drawing up a business plan needs stronger emphasis in ongoing approaches to training.

## **3.3 Market Studies**

Lack of knowledge about markets and how they work is a significant constraint in developing log and sawn timber sales from CFUGs. To help understand how markets work, the Project reviewed the overall market situation and has also sponsored a number of market studies by CFUGs and the sawmills.

The strongest demand for all types of sawn timber was from the Kathmandu valley. Demand for timber sawn from plantation pine was primarily at the lower end of the market, mainly as a component in construction formwork competing with lower quality natural forest species. Accordingly, prices for sawn timber from plantation pine were at the lower end of the range, although still sufficient to give positive returns from log sales.

***The benefit of market studies - Lampate Community Forest User Group***

*Lampate CFUG in Sindhu Palchok was unable to sell logs because of lack of market information, including the size and quality requirements timber buyers were demanding. As a result harvested logs were left in the open ground for about nine months losing value through blue stain.*

*NACRMLP provided Lampate CFUG members with the opportunity to explore markets for logs both locally and beyond the district boundaries. A team of CFUG representatives (including members from a number of other CFUGs) visited buyers to discuss market opportunities. This provided them with information on potential market demand, contact with buyers, and prices they could expect for different quality logs.*

*This information helped build the confidence of the CFUG members and in 2004, Lampate CFUG auctioned 1408 cu ft of logs to a local contractor for Rs73 per cu ft.*

Sawmill production and market analysis indicated that CFUGs received greater returns from log sales than sawmilling. Plantation pine only forms a small part of the total input to Kathmandu sawmills, much of the rest is made up of high quality native pine and hardwood. The community sawmills, on the other hand, have only poorer quality plantation pine thinnings as a resource. As these pines mature and get bigger, the quality of sawn timber will improve but this will take some years to eventuate.

NACRMLP activities have focussed on increasing market understanding by the sawmills and CFUG members, primarily by incorporating marketing into business planning training and sponsoring visits to Kathmandu sawmills. The aim of these visits was to:

- Provide direct contact with the participants in local and external marketing;
- Develop business relationships between buyers and sellers;
- Explore how business deals are done;
- Clarify the nature of demand including size and quality of logs and sawn timber, market competition and other opportunities; and
- Encourage networking of CFUGs to improve their understanding of market issues.

The market studies facilitated by NACRMLP have directly assisted log sales and an understanding of market issues by CFUGs. CFUGs now use auctions and tenders for sales of logs although there have been instances of uncompetitive practices, including collusion by bidders to depress prices. In some cases, where the major source of information has been buyers, market studies by CFUGs have led to unrealistic perceptions of the potential size of the market for plantation pine logs. These can be made more realistic by extending the scope of the studies, in particular taking into account the experiences of other CFUGs, rather than simply listening to potential buyers.

### **3.4 Skills Based Training**

Skills based training is an important component of both timber and non-timber enterprise development. This has not been a specific responsibility of the enterprise teams within NACRMLP but they have worked with other members of NACRMLP to facilitate such training.

Training in association with DFO staff has included tree marking, felling, logging, transportation, legal procedures and taxation issues. In general, skills based training for tree marking and felling has been effective and some CFUGs have successfully planned and managed harvesting operations. There is a continuing need to maintain harvesting skills to promote quality forests in order to maximise returns from the final harvest.

### **3.5 Governance Issues**

Governance must ensure transparency in reporting the financial affairs of the CFUGs, especially that income from selling logs and sawn timber benefits their poor members and disadvantaged groups and women are actively involved. As with the skills based training programs, governance has not been a specific responsibility of the enterprise teams within NACRMLP. However, they have worked to coordinate activities in this area, mostly to empower women and disadvantaged groups and in the preparation of Livelihood Improvement Plans (LIPs). Results to date indicate that women and disadvantaged groups have become more involved but ensuring they receive direct benefits from income generated is difficult as better off individuals and groups generally control most CFUG activities.

## 4 Implications for the Future

The major outcomes from Phase 1 of the timber marketing component of the NACRMLP are:

- The number of CFUGs planning and implementing log sales has increased with a concomitant increase in income. 11 CFUGs in Kabhre Palanchok and 16 in Sindhu Palchok were involved in such sales.
- A cooperative marketing network has been supported in Sindhu Palchok through interaction meetings and project support for market studies. While this network is still developing it appears to be responding well to issues of concern to potential members.
- The Chaubas and Shree Chhap sawmills have produced business plans, albeit with insufficient consideration of alternative options.
- Understanding the need for business planning and developing entrepreneurial skills in CFUGs has increased, leading to the introduction of new enterprises.
- There is better coordination between DFOs and CFUGs in planning and implementing log harvesting.

Developing new enterprises takes time; caution must be exercised since wrong decisions can have a significant impact on poor communities. Hence comprehensive business planning, taking small steps towards clearly defined goals, and constantly re-assessing opportunities is important. The financial losses of the Chaubas sawmill and CFUGs supplying logs to the Shree Chhap sawmill highlight the dangers of investing without comprehensive business planning. Furthermore, once these investments have been made it may be difficult to pull out if they do not deliver the expected benefits, thereby risking ongoing economic and financial loss for poor communities.

The effort required to promote commercial enterprises based on community forests requires a large attitudinal change for CFUGs since initially the forests were established to protect the landscape and prevent soil erosion. Whilst they have certainly delivered extraordinary landscape change they can also provide sustainable returns to poor communities by harvesting the logs and then replanting.

Sales of produce from CFUGs have highlighted the importance of governance issues in the distribution and reinvestment of income from the forests. Some CFUGs have had problems in this regard; decisions about investing surplus funds for example have in some instances discounted the needs or wishes of the poorer members of the community who do not understand the sales process and do not take a direct role in determining the distribution of income. In fairness to CFUGs, poorer members of the community are more likely to want to spend surplus funds on immediate consumption rather than on any kind of investment.

Regulations administered by District Forest Officers (DFOs) also emerged as important in determining log sales. Numerous examples arose where cumbersome approval processes and the requirement for strict adherence to operational plans have interfered with and/or delayed sales. Over the past 12 months the Project has worked with CFUGs and DFOs to develop a more cooperative environment, and this appears to be working. Unnecessary delays in approvals and inspections by DFOs are declining, however this situation remains unpredictable.

## An example of successful log selling - Nala Tukucha

*The experience of a group of CFUGs in Nala Tukucha shows how selling logs can provide sustainable benefits. These CFUGs have been thinning their forests and are well organised in harvesting and selling logs. The forests are benefiting from thinning since remaining trees will produce better sawlogs. The CFUGs first sold logs within their own communities but have now expanded to outside sales as well. For local sales, village households are paid Rs100/day (equivalent to around Rs10 per cu ft) to do the harvesting and local communities pay Rs30 per cu ft for the logs. Sales outside the CFUGs attract higher prices. The CFUGs service local community needs first but the volume of wood that can be produced from thinnings exceeds local demand. The CFUGs have therefore decided to sell logs to sawmills in Bhaktapur as they consider that this option will provide the greatest returns. The first logs were sold by auction in 2004.*

The major lessons to be learned from harvesting the community forests may be summarised as follows:

- Chaubas and Shree Chhap sawmills have given lower returns to CFUG's than sales of logs.
- Understanding the nature of risk associated with any economic activity is vital. Complete ownership of a sawmill by a poor community, for example, may not be the best option. Greater economic benefits may accrue through sharing risks with private entrepreneurs in joint ventures. Alternatively, selling logs to private contractors may improve returns to communities by eliminating the risks associated with marketing sawn timber from poor quality plantation logs. The logs may be sold as standing trees, at forest roadside, or delivered to a mill, whichever is most advantageous to the community.
- Entrepreneurial activities are most successful when a paid manager is employed. Organising log sales, for example, takes time and it is difficult for CFUG members to do this on a purely voluntary basis.
- Governance of CFUGs and business enterprises is vital for sustainability. Also, where income has been generated by log sales, its distribution should take into account the needs of the poor.
- The regulatory environment must not reduce returns to the community through delays in official documentation and unnecessary interference.

### 4.1 Future Priorities

The following should be emphasised in the future activities of NACRMLP:

- Timber enterprises should emphasise log production and sales initially in order to minimise risks and develop market linkages for plantation grown pine. The income from log sales will be maximised through competitive log markets rather than through further processing.
- Training for entrepreneurial skills and business planning should include CFUGs with potential for log sales beyond the target corridors. This training needs to include options analysis for enterprise development and the importance of risk assessment.

- Opportunities for involving the private sector should be identified for all such activities so that market risk can be shared. For instance, log sales to private buyers may be a better option than establishing a sales cooperative in Kathmandu. As another possibility, the private sector may become involved in sawmilling either through a contracted manager, with the CFUG retaining strategic control, or in a joint venture. If no willing parties can be found sawmills are unlikely to be profitable, or that security concerns are utmost in the minds of the primarily urban based investors. The future of business development may lie in private/community partnerships that allow CFUGs to derive returns but share the risks and utilise the skills and capital of the private sector.

There have been concerns that involving the private sector will lead to CFUGs losing some of the returns to which they are entitled. It must be remembered that private sector people provide a service which they may perform more efficiently than CFUGs and in doing so they take risks and are entitled to returns. Certainly there are cases where middlemen take advantage of local communities and this may be an issue in the short term. In the longer term such issues can be resolved by developing the business skills of CFUGs, by exchanging information about prices and contract arrangements between CFUGs, and by promoting competitive markets.

NACRMLP marketing teams can help in all the above by assisting with the monitoring of auctions and tenders (and building skills in these areas) and by facilitating inter-district visits between CFUGs. There are other examples of successful private sector/community partnerships in Nepal including a Swiss Government project to promote non-timber forest product (NTFP) enterprise development by forming a joint venture between CFUG members and a privately owned company with a proportion of its shares allocated to the poorest members of the community. The private company will manage the joint venture with earnings allocated according to the number of shares held by each entity.

Further options could include takeover of a community sawmill by a private owner (who would nonetheless purchase logs from CFUGs and process them locally), a joint venture between CFUGs and a private sawmilling company, or employment of a private sector sawmill manager with ownership of the mill retained by the CFUG. Once surplus income is being earned, reinvestment skills must be developed. Earning income will also help to renew the waning interest observed in some CFUGs.

## 5 References

- Acharya H (1998), Organisational status of 4 FUGs operating the Chaubas-Bhumlu Community Sawmill, Discussion Paper, Nepal Australia Community Resource Management Projects, Kathmandu, Nepal
- Acharya H Shrestha S and van Eijnatten J (2001), Organisational change in 4 FUGs operating the Chaubas-Bhumlu Community Sawmill, Discussion Paper, Nepal Australia Community Resource Management Projects, Kathmandu, Nepal
- Collett G, Chhetri R, Jackson W J and Shepherd K R (1996), Nepal Australia Community Forestry Project Socio-Economic Impact Study, Technical Note No. 1/96, ANUTECH Pty Ltd, Canberra, Australia
- Gilmour D (2003), Retrospective and Prospective View of Community Forestry in Nepal, *Journal of Forest and Livelihood* 2 (2), February 2003
- Jackson W J, Baldwin P J, Ingles A W, Malla Y B, and Chhetri R B (1995), A Feasibility Study for Timber Processing by Forest User Groups in the Middle Hills of Nepal, Nepal-Australia Community Forestry Project, Kathmandu, Nepal.
- Ladley J C (1995), Opportunities for Income Generation from Pine Plantations in Kahrre Palanchok and Sindhu Palchok, Nepal-Australia Community Forestry Project, Kathmandu, Nepal.
- NACRMLP (2002), Nepal Australia Community Resource Management and Livelihoods Project, Project Design Document, AusAID, Canberra, Australia
- NACRMLP (2003a) Nepal Australia Community Resource Management and Livelihoods Project, Milestone 7, Baseline Survey Sindhu Palchok and Kabhre Palanchok, AusAID, Canberra, Australia
- NACRMLP (2003b) Nepal Australia Community Resource Management and Livelihoods Project, Marketing of Timber Products from Pine Plantations, AusAID, Canberra, Australia

**Annex 1**

---

**Business Plan for Chaubas Sawmill**

## Annex 1: Business Plan for Chaubas Sawmill

### 1. Overview

Chaubas Village Development Committee (VDC) which is about 30 kilometres east of district headquarters of Kabhre Palanchowk, Dhulikhel is mostly covered by forest. Neighbouring VDCs also contain large areas under forest cover. In addition to natural forest, this area also contains large plantations of *Pate Salla* (*P. patula*), *Gobre Sall*, *P. roxburghii* and *Uttis* with substantial mature trees. The government has handed over most of these forests to local community forest user groups (CFUGs) for management and use with the approval of its Operational Plans. The forest products recovered from these forests, in accordance with the Operational Plans, exceed local needs. There exists therefore an opportunity to sell the excess volume in other parts of the country to raise income levels of CFUGs and to utilize existing local human resources in sustainable forest management activities. This investment plan provides the basis for production of sawn timber from the locally owned Chaubas sawmill.

The Chaubas sawmill was established in 1996. Since that time the annual profitability of the mill has been variable; it has shown profitable returns in half of the years it has operated. The major cause of losses incurred by the sawmill have been the inability in some years to make timely sales of the sawn timber produced. This led to lower prices than were originally planned. In addition, costs of harvesting and transport of logs to the sawmill have been higher than planned.

The sawmill is owned by four CFUGs:

- Fagar Khola Community Forest User Group
- Chapani Gadidanda Community Forest User Group
- Dharapani Hile Community Forest User Group
- Raksma Community Forest User Group

These four CFUGs have decided that despite the lack of profitability in the past there is merit in continuing operation of the sawmill. Accordingly they have prepared this business plan with a view to more effective management to produce profits and generate employment in the local area from both log harvesting and processing.

### 2. Business Environment

#### Key market factors

Visits to sawmills in Kathmandu, Banepa and local areas indicate that there is a strong demand for sawn timber that can be serviced from the Chaubas sawmill. It is estimated that demand exceeds 50,000 cu ft annually. The Chaubas sawmill will aim to supply at least 10,000 cu ft (with the possibility of building annual volumes to 15,000 to 20,000 cu ft).

The sawn timber (flitches, planks and strips) will be sold under contract to specific sawmills. It is planned that buyers will be identified and prior to commencement of production.

## Production

The Chaubas sawmill utilizes local raw material by mobilisation of local resources. A 20 horse power diesel engine and a 36" sawbench will be used for sawmilling. Two staff will manage the mill and the marketing. Remaining manpower will be hired according to requirements. Experienced trained manpower is available locally. Equipment required for the operation of the industry is readily available in Banepa/ Dolalghat markets.

The main aim of the sawmill enterprise will be to produce the largest dimension solid timber from the logs supplied from forest thinning operations. These "flitches" will then be sold to customers most of which are sawmills based in urban centres, particularly in the Kathmandu Valley. These sawmills then cut the timber to suit their customer needs. In addition the sawmill will also produce strips and planks, the latter of which is essentially offcuts and is sold to local communities.

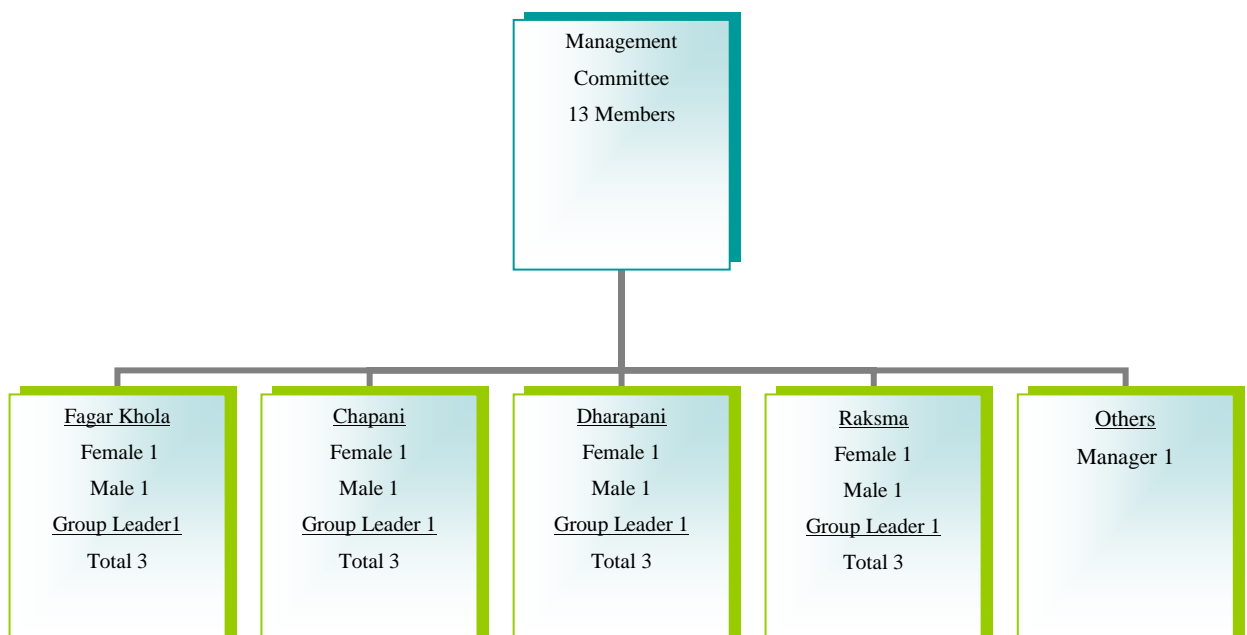
The aim of the renewed sawmill operation is to process 15,000 cu ft of timber in 2005 and then build this up to 20,000 cu ft per annum in later years.

## Constraints / risks to the business

The sawmill is established. From its previous operation the management committee has gained a lot of experience of the potential risks associated with such an enterprise. The largest threat to its profitability is the inability to sell the timber produced in a timely and cost efficient manner. This has been dealt with by identifying potential customers prior to commencing production.

## Organisation

The sawmill is managed by a committee of 13 members from the owning CFUGs. In addition a sawmill manager and a guard are appointed as full time employees. The manager sits on the management committee.



## **Goals and objectives**

### ***Goal***

To generate income for forest user groups through the production and sale of sawn timber.

To use this income as a source of investment funds for CFUGs.

### ***Objectives***

The major objectives of the sawmill enterprise are:

- To operate an industry based on timber forest products by the user groups that are formed under the Forest Act, using the authority assigned by rule 32(4) of the forest rules 2051.
- To utilize timber forest products as a result of collecting and processing within the limits of Operational Plans approved by the District Forest Office.
- To emphasise sustainable development of forest products using the revenue generated by selling processed timber forest products.
- To acquaint forest user groups with sustainable development of the local forest resources by making them more active, capable and business oriented.

## **Enterprise development strategies**

The sawmill will remain a partnership of the four forest user groups. 4000 cubic feet of pine round logs will be brought from each of the four CFUGs and around 4000 cubic feet of round logs will be brought from other CFUGs (including Lankuri FUG), totalling around 20,000 cubic feet, annually. Round logs will have circumference above 24" and length within the range 6 to 10 ft. This sawmill will use this round log as raw material and produce larger dimension "flitches", planks, strips and sawdust. This sawmill also has the potential to process wood for private producers but this has not been included in the business plan at this stage. The plan provides potential for growth in the future.

The round logs from CFUGs will be brought at the rate of Rs. 50/cu ft, at timber stores located in nearby road-heads after they have cleared legal procedures. The transportation costs from the road-heads to the sawmill will be around Rs 7/cu ft and loading and unloading costs will be around Rs 3/cu ft. Transportation will be done through a contract.

The planned timber recovery rate is 50%. Thus a minimum of 10,000 cu ft timber (mainly flitches), another 500 cu ft strips and about 60,000 kg planks will be produced from around 20,000 cu ft round logs.

For the operation of the sawmill, a manager and a guard will be employed throughout the year, whereas 4 machine operators and 4 labours will be employed for eight months. Another 4 loaders also will find indirect employment for six months period.

The milling works will be carried out for eight months from October to May, with operations in suspension throughout the rainy season from June to September.

## ***Markets***

The major market strategy is to build links with sawmills in Banepa and the Kathmandu Valley. These links have already been established and once the purchasers are happy that reliable supplies of good quality timber are available contracts for regular supply will be pursued. There is also some potential for sales of relatively small volumes to local furniture makers. Planks and strips are sold within local markets.

Key components of the marketing strategy are:

- *Product* – The main product is large dimension “flitches” sold to sawmills in the Kathmandu Valley. Sawn timber from the pine thinnings is generally required by these mills for use in construction where they compete with lower value native forest species. Other products will be sold primarily on local markets.
- *Price* – prices are determined in competitive markets. The price of sawn timber at Dholalghat is estimated at Rs200/cu ft.
- *Place* – Sawn timber “flitches” will be sold delivered to Dholalghat – cost associated with transport to be responsibility of the sawmill.
- *Promotion* – The sawmill has been developing relationships with Kathmandu sawmills, this will be built upon to strengthen customer relationships.
- *People* – The sawmill manager has primary responsibility for sales and marketing.

## **3. Financial Analysis**

The financial analysis shows that the sawmill at full capacity of around 20,000 cu ft of log input could make a profit of Rs 154,000 per annum. This represents a margin of around 7% on total sales. While this is relatively low, the sawmill owners consider that the sawmill offers benefits of community employment. These returns also assume that capital expenditure in the sawmill has been written off. However, some allowance for depreciation has been made in other costs of Rs 50,000 per annum.

Financial performance is highly sensitive to the volume of logs produced and the prices received for sawn timber. This illustrates the risks associated with operating these types of enterprises.

Table 1, a three year profit and loss statement, forecasts profitability and demonstrates ability to pay off debts, including loans. This is often needed to convince lenders of the viability of the business.

Table 2 illustrates the projected monthly cash flow situation for first two years of operation. This includes cash on hand at the beginning of year 1 of Rs 80,000 and a loan of Rs 100,000 paid back over 24 months.

## **4. Implementation and Monitoring Plan**

The financial outcomes from the business plan are sensitive to volume of output and sales. There is therefore a strong need to monitor actual performance against the cash flow plan. Key variables to monitor include:

- Volume of log production per month, including volume harvested and delivered to the mill;
- Transport cost of logs from road side to sawmill;
- Monthly production volume of sawn timber;
- Monthly production costs of the sawmill;
- Monthly sales volume of sawn timber; and
- Transport costs of sawn timber to Dholalghat.

In addition, it is important to ensure that cash received from sawn timber sales is collected in a timely basis.

If any of these variables fall below 10% of the planned levels (or 10% above in the case of log, sawn timber and processing costs) the sawmill management committee will meet to identify corrective actions. That meeting will develop specific actions to be implemented to bring performance back to the target level.

In June 2006 the CFUGs will review outcomes and decide on whether or not the sawmill will continue operation in the following year and if so prepare a revised business plan.

**Table 1: Profit and Loss Statement**

<b>Activity/cost</b>	<b>Unit</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>
Volume of logs to be processed	cu ft	15,000	20,000	20,000
Flitches (large dimension sawn timber)	cu ft	7,500	10,000	10,000
Strips	cu ft	450	600	600
Planks (waste)	cu ft	5,250	7,000	7,000
Sawdust	cu ft	1,800	2,400	2,400
Estimated prices (timber sold at Dholalghat)				
Flitches (delivered to Dholalghat)	Rs/cu ft	200	200	200
Strips	Rs/cu ft	120	120	120
Planks	Rs/cu ft	15	15	15
Sawdust	Rs/cu ft	0	0	0
<b>Income</b>	<b>Rs</b>	<b>1,632,750</b>	<b>2,177,000</b>	<b>2,177,000</b>
<b>Costs</b>				
Cost of logs at roadside	Rs/cu ft	50	50	50
Transport of logs to sawmill (average price)	Rs/cu ft	10	10	10
Delivered cost of logs at sawmill	Rs	900,000	1,200,000	1,200,000
Sawmilling costs				
Manager	Rs	46,800	46,800	46,800
Guard	Rs	32,500	32,500	32,500
Labourers	Rs	37,800	50,400	50,400
Machine operators	Rs	108,000	144,000	144,000
<i>Total sawmill labour</i>	<i>Rs</i>	<i>225,100</i>	<i>273,700</i>	<i>273,700</i>
Saw costs	Rs	4,880	4,880	4,880
Diesel, oil, grease etc	Rs	103,800	138,400	138,400
Tape	Rs	6,300	6,300	6,300
Admin costs	Rs	30,950	30,950	30,950
Other costs (incl depreciation)	Rs	50,000	50,000	50,000
<i>Total non-labour costs</i>	<i>Rs</i>	<i>195,930</i>	<i>230,530</i>	<i>230,530</i>
<i>Total sawmilling costs</i>	<i>Rs</i>	<i>421,030</i>	<i>504,230</i>	<i>504,230</i>
Total costs including logs		1,321,030	1,704,230	1,704,230
Transport costs logs to Dholalghat	Rs/cu ft	30	30	30
Costs of transport of sawn timber	Rs	238,500	318,000	318,000
Total costs of sawn timber	Rs	1,559,530	2,022,230	2,022,230
<b>Net Profit/Loss (before tax and interest on loans)</b>		<b>73,220</b>	<b>154,770</b>	<b>154,770</b>

**Table 2: Monthly cash flow analysis for years 1 and 2**

Year 1													
Item	Unit	June	July	August	September	October	November	December	January	February	March	April	May
Cash on hand (d)	Rs	80,000											
Borrowings	Rs	100,000											
Sales (c)	Rs					204,094	204,094	204,094	204,094	204,094	204,094	204,094	204,094
Total cash	Rs	180,000	0	0	0	204,094	204,094	204,094	204,094	204,094	204,094	204,094	204,094
Expenses													
Volume of logs purchased	cu ft				1667	1667	1667	1667	1667	1667	1667	1667	1667
Cost of logs at roadside	Rs				83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333
Transport of logs to sawmill	Rs				16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667	16,667
Sawmill wages - manager	Rs	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900
Sawmill wages - guard	Rs	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708
Sawmill wages - labourers	Rs					4,725	4,725	4,725	4,725	4,725	4,725	4,725	4,725
Sawmill wages - machine operators	Rs					13,500	13,500	13,500	13,500	13,500	13,500	13,500	13,500
Sawmill operating costs	Rs					24,491	24,491	24,491	24,491	24,491	24,491	24,491	24,491
Transport cost for sawn timber	Rs					29,813	29,813	29,813	29,813	29,813	29,813	29,813	29,813
Loan repayment	Rs	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287
Total expenses	Rs	11,895	11,895	11,895	111,895	184,424	184,424	184,424	184,424	184,424	184,424	184,424	184,424
Cash less expenses	Rs	168,105	-11,895	-11,895	-111,895	19,670	19,670	19,670	19,670	19,670	19,670	19,670	19,670
Cumulative cash flow	Rs	168,105	156,209	144,314	32,418	52,088	71,757	91,427	111,096	130,766	150,436	170,105	189,775

Year 2

Item	Unit	June	July	August	September	October	November	December	January	December	March	April	May
Cash on hand (d)	Rs	189,775											
Borrowings	Rs												
Sales (c)	Rs					272,125	272,125	272,125	272,125	272,125	272,125	272,125	272,125
Total cash	Rs	189,775	0	0	0	272,125	272,125	272,125	272,125	272,125	272,125	272,125	272,125
Expenses													
Volume of logs purchased	cu ft				2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222	2,222
Cost of logs at roadside	Rs				111,111	111,111	111,111	111,111	111,111	111,111	111,111	111,111	111,111
Transport of logs to sawmill	Rs				22,222	22,222	22,222	22,222	22,222	22,222	22,222	22,222	22,222
Sawmill wages - manager	Rs	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900	3,900
Sawmill wages - guard	Rs	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708	2,708
Sawmill wages - labourers	Rs					6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300
Sawmill wages - machine operators	Rs					18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Sawmill operating costs	Rs					28,816	28,816	28,816	28,816	28,816	28,816	28,816	28,816
Transport cost for sawn timber	Rs					39,750	39,750	39,750	39,750	39,750	39,750	39,750	39,750
Loan repayment	Rs	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287	5,287
Total expenses	Rs	11,895	11,895	11,895	145,229	238,095	238,095	238,095	238,095	238,095	238,095	238,095	238,095
Cash less expenses	Rs	177,879	-11,895	-11,895	-145,229	34,030	34,030	34,030	34,030	34,030	34,030	34,030	34,030
Cumulative cash flow	Rs	177,879	165,984	154,088	8,860	42,890	76,920	110,949	144,979	179,009	213,039	247,069	281,099

## APPENDIX 1 – Supporting Documentation for Costs

**Table A1: Planned log production details**

Particulars	Annual volume	Rate	Total costs Rs
Pine logs from Fagar Khola FUG	4,000 cft.	Rs. 50	200,000
Pine logs from Chapani FUG	4,000 cft.	Rs. 50	200,000
Pine logs from Dharapani Fug	4,000 cft.	Rs. 50	200,000
Pine logs from Raksma FUG	4,000 cft.	Rs. 50	200,000
Pine logs from Lankuri and other FUGs	4,000 cft.	Rs. 50	200,000
Transport costs roadside to sawmill		Rs10/cu ft	

**Table A2: Required manpower and costs (annual)**

Manpower	Required number	Total costs Rs.
Manager	1	46,800
Guard	1	32,500
Labourers	4	50,400
Machine operators	4	144,000
Total		273,700

**Table A3: Other operating costs**

Particulars	Unit	Quantity	Rate NRs.	Total costs NRs
Diesel (1 litre per 6 cft of log volume)	litres	3335	40	133,400
Lubricant oils	litres	20	175	3,500
Grease / Tar	litres	20	100	2,000
Saw 21'6" (one blade can be used for 2,500 cft.)	number	8	610	4,880
Tape	metre	35	180	6,300
Stationery	Lump sum			2,000
Water	months	12	10	120
Telephone	months	12	100	1,200
Transportation	months	12	500	6,000
Meeting costs	person/times	21 / 12	70	17,640
General assembly	person/times	57 / 1	70	3,990
Other costs (chairman, treasurer, audit, tea, etc.,)	Lump sum			50,000
Total				231,030

## **Annex 2**

---

# **Business Plan for Shree Chhap Sawmill**

## **Annex 2: Business Plan for Shree Chhap Sawmill**

### **1. Overview**

The Shree Chhap sawmill first operated in 2002. It is owned by the Shree Chhap Deurali CFUG and was constructed on the basis that it would process logs from its own community forests and also from other nearby CFUGs. Following disappointing returns in its first year of operation in 2002, the sawmill has since processed only relatively small volumes of logs generally from its own forests.

The Shree Chhap Deurali CFUG remains committed to operating the mill and, despite uncertainty over the appointment of a manager for the mill, it has prepared this business plan as a basis for ongoing development of the mill. This business plan remains a 'work in progress' pending resolution of future management but provides a basis for future development.

It is proposed that the sawmill continue under its current ownership structure ie, it focuses on processing its own logs as well as logs from nearby CFUGs. In the past the sawmill was contracted to saw logs with individual CFUGs that supplied the logs being responsible for sale of the timber produced. This proved to be not feasible and the new business plan proposes to buy logs from CFUGs and then produce and market sawn timber in its own right.

### **2. Business Environment**

#### **Key market factors**

Visits to sawmills in Kathmandu, Banepa and local areas indicate that there is a strong demand for sawn timber that can be serviced from the Shree Chhap sawmill.

The sawn timber will be sold under contract to specific sawmills. It is planned that buyers will be identified prior to commencement of production.

#### **Production**

The Shree Chhap sawmill aims to process in excess of 40,000 cu ft per year. However, this will be built up over a number of years with an aim of processing 10,000 cu ft in 2006. The sawmill equipment is in place and ready to operate and experienced trained manpower is available locally. The appointment of a full time manager will be made to coordinate activities of the mill. Equipment and consumables required for the operation of the mill are readily available in Banepa/ Dolalghat markets.

The main aim of the sawmill enterprise will be to produce the largest dimension solid timber from the logs supplied from forest thinning operations. These "flitches" will then be sold to customers most of which are sawmills based in urban centres, particularly in the Kathmandu Valley. These sawmills then cut the timber to suit their customer needs. In addition the sawmill will also produce strips and planks, the latter of which is essentially off-cuts sold to local communities.

The aim of the renewed sawmill operation is to process 10,000 cu ft of timber in 2006 and then build this up to 15,000 cu ft in 2007 and 20,000 cu ft and more in later years.

### **Constraints / risks to the business**

The sawmill is established. From its previous operation, the management committee has gained a lot of experience of the potential risks associated with such an enterprise.

The largest threat to profitability of the sawmill is the inability to sell the timber produced. This has been dealt with by identifying potential customers prior to commencing production. There is also a risk that the sawmill may not be able to secure sufficient volumes from nearby mills to meet volume targets. This will depend on ensuring timely payments to CFUGs supplying logs as well as the ability to match prevailing prices offered in general log sales.

### **Organisation**

At the current time a new management structure and membership of the sawmill management committee has not been determined. This remains a key issue to be concluded before the sawmill business plan can be acted upon.

### **Goals and objectives**

#### ***Goals***

To generate income for the Shree Chhap Deurali CFUG through the production and sale of sawn timber. To use this income as a source of investment funds for CFUGs.

To facilitate generation of income and encourage optimal forest management by other nearby CFUGs by providing a competitive market for logs.

#### ***Objectives***

The major objectives of the sawmill enterprise are:

- To operate an industry based on timber forest products by the user groups that are formed under the Forest Act, using the authority assigned by rule 32(4) of the forest rules 2051.
- To utilize timber forest products as a result of collecting and processing within the limits of Operational Plans approved by District Forest Office.
- To emphasize sustainable development of forest products using the revenue generated by selling processed timber forest products.

### **Enterprise development strategies**

The sawmill will remain under the ownership of Shree Chhap Deurali CFUG. This CFUG will supply around 20% of the total log intake volume in any one year. Other volumes for processing will be purchased from nearby CFUGs.

The sawmill will use round logs as raw material to produce larger dimension “flitches”, planks, strips and sawdust. The round logs from Shree Chhap Deurali CFUG will be harvested and transported to the sawmill at an estimated cost of Rs 40/cu ft. The round logs from other CFUGs will be brought at market rates which are estimated to be around Rs. 80/cu ft delivered to mill gate.

The planned timber recovery rate is 50%.

For the operation of the sawmill, a manager will be employed throughout the year. Machine operators and labourers will be employed as required over the period in which the sawmill operates. It is planned to operate the sawmill for eight months from October to May each year.

### ***Markets***

The major market strategy is to build links with sawmills in Banepa and the Kathmandu Valley. These links have been established but require revitalisation. Once the purchasers are happy that reliable supplies of good quality timber are available contracts for regular supply will be pursued. There is also some potential for sales of relatively small volumes to local furniture makers. Planks and strips are sold within local markets.

Key components of the marketing strategy are:

- *Product* – The main product is large dimension “flitches” sold to sawmills in the Kathmandu Valley. Sawn timber from the pine thinnings is generally required by these mills for use in construction where they compete with lower value native forest species. Other products will be sold primarily on local markets.
- *Price* – prices are determined in competitive markets. The price of sawn timber at Dholalghat is estimated at Rs200/cu ft.
- *Place* – Sawn timber “flitches” will be sold ‘delivered’ to Dholalghat – cost associated with transport to be the responsibility of the sawmill.
- *Promotion* – The sawmill has been developing relationships with Kathmandu sawmills.
- *People* – The sawmill manager has primary responsibility for sales and marketing.

## **3. Financial Analysis**

The financial analysis shows that the profitability of the sawmill increases as the volume processed expands. The sawmill is not viable at a log input of less than 10,000 cu ft. At this level it makes an annual profit of around Rs 22,000 which represents a return of only 2% of sales revenues. Returns increase to around Rs 197,000, equivalent to 9% of sales revenues, as volume expands to 20,000 cu ft. They increase further to Rs 554,000 or 13% of sales revenues at 40,000 cu ft log input.

These returns allow for depreciation of capital equipment over 10 years which equates to around Rs 40,000 annually and a contingency of Rs 20,000 pa has been allowed for other costs. Further borrowing should not be necessary beyond this.

Table 1, a six year profit and loss statement, forecasts profitability and demonstrates ability to pay off debts, including loans. This is often needed to convince lenders of the viability of the business.

Table 2 illustrates the projected monthly cash flow situation for first two years of operation. This includes cash on hand at the beginning of year 1 of Rs 30,000 and a loan of Rs 150,000 at commencement paid back over 24 months and a further loan of Rs 80,000 in year 2 to fund cash flow which is paid back over 12 months.

#### **4. Implementation and Monitoring Plan**

The financial outcomes from the business plan are sensitive to volume of output and sales. There is therefore a strong need to monitor actual performance against the cash flow plan. Key variables to monitor include:

- Volume of log production per month, including volume harvested and delivered to the mill;
- Costs of logs delivered to the mill;
- Monthly production volume of sawn timber;
- Monthly production costs of the sawmill;
- Monthly sales volume of sawn timber; and
- Transport costs of sawn timber to Dholalghat.

In addition, it is important to ensure that cash received from sawn timber sales is collected on a timely basis.

If any of these variables fall below 10% of the planned levels (or 10% above in the case of log, sawn timber and processing costs) the sawmill management committee will meet to identify corrective actions. That meeting will develop specific actions to be implemented to bring performance back to the target level.

**Table 1: Profit and loss statement**

Activity/cost	Unit	2006	2007	2008	2009	2010	2011
Volume of logs to be processed	cu ft	10,000	15,000	20,000	25,000	30,000	40,000
Volume of own log		2,000	3,000	4,000	5,000	6,000	8,000
Volume of logs purchased from other CFUGs		8,000	12,000	16,000	20,000	24,000	32,000
Fitches (large dimension sawn timber)	cu ft	5,000	7,500	10,000	12,500	15,000	20,000
Strips	cu ft	300	450	600	750	900	1,200
Planks (waste)	cu ft	3,500	5,250	7,000	8,750	10,500	14,000
Sawdust	cu ft	1,200	1,800	2,400	3,000	3,600	4,800
Estimated prices (timber sold at Dholalghat)							
Fitches (delivered to Dholalghat)	Rs/cu ft	200	200	200	200	200	200
Strips	Rs/cu ft	120	120	120	120	120	120
Planks	Rs/cu ft	15	15	15	15	15	15
Sawdust	Rs/cu ft	0	0	0	0	0	0
Income	Rs	1,088,500	1,632,750	2,177,000	2,721,250	3,265,500	4,354,000
Costs							
Harvest and transport cost own logs (at mill gate)	Rs/cu ft	40	40	40	40	40	40
Purchase cost logs from other CFUGs (at mill gate)	Rs/cu ft	75	75	75	75	75	75
Delivered cost of logs at sawmill	Rs	680,000	1,020,000	1,360,000	1,700,000	2,040,000	2,720,000
Sawmilling costs							
Manager	Rs	60,000	60,000	60,000	60,000	60,000	60,000
Labourers	Rs	25,000	37,500	50,000	62,500	75,000	100,000
Machine operators	Rs	25,000	37,500	50,000	62,500	75,000	100,000
<i>Total sawmill labour</i>	<i>Rs</i>	<i>110,000</i>	<i>135,000</i>	<i>160,000</i>	<i>185,000</i>	<i>210,000</i>	<i>260,000</i>
Repairs and maintenance	Rs	18,975	18,975	18,975	18,975	18,975	18,975
Diesel, oil, grease etc	Rs	69,000	103,500	138,000	172,500	207,000	276,000
Other costs incl admin	Rs	22,032	30,000	30,000	35,000	35,000	40,000
Other costs (incl depreciation)	Rs	60,800	60,800	60,800	60,800	60,800	60,800
<i>Total non-labour costs</i>	<i>Rs</i>	<i>170,807</i>	<i>213,275</i>	<i>247,775</i>	<i>287,275</i>	<i>321,775</i>	<i>395,775</i>
<i>Total sawmilling costs</i>	<i>Rs</i>	<i>280,807</i>	<i>348,275</i>	<i>407,775</i>	<i>472,275</i>	<i>531,775</i>	<i>655,775</i>
Total costs including logs		960,807	1,368,275	1,767,775	2,172,275	2,571,775	3,375,775
Transport costs timber to Dholalghat	Rs/cu ft	20	20	20	20	20	20
Costs of transport of sawn timber	Rs	106,000	159,000	212,000	265,000	318,000	424,000
Total costs of sawn timber	Rs	1,066,807	1,527,275	1,979,775	2,437,275	2,889,775	3,799,775
Net Profit/Loss before tax and interest on loans		21,693	105,475	197,225	283,975	375,725	554,225

**Table 2: Monthly cash flow analysis for years 1 and 2**

Year 1													
Item	Unit	June	July	August	September	October	November	December	January	December	March	April	May
Cash on hand (d)	Rs	30,000											
Borrowings	Rs	150,000											
Sales (c)	Rs					136,063	136,063	136,063	136,063	136,063	136,063	136,063	136,063
Total cash	Rs	180,000	0	0	0	136,063	136,063	136,063	136,063	136,063	136,063	136,063	136,063
Expenses													
Volume of logs processed	cu ft				1111	1111	1111	1111	1111	1111	1111	1111	1111
Cost of logs at mill gate	Rs				75,556	75,556	75,556	75,556	75,556	75,556	75,556	75,556	75,556
Sawmill wages - manager	Rs	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Sawmill wages - labourers	Rs					3,125	3,125	3,125	3,125	3,125	3,125	3,125	3,125
Sawmill wages - machine operators	Rs					3,125	3,125	3,125	3,125	3,125	3,125	3,125	3,125
Sawmill operating costs	Rs					21,351	21,351	21,351	21,351	21,351	21,351	21,351	21,351
Transport cost for sawn timber	Rs					13,250	13,250	13,250	13,250	13,250	13,250	13,250	13,250
Loan repayment	Rs	7,931	7,931	7,931	7,931	7,931	7,931	7,931	7,931	7,931	7,931	7,931	7,931
Total expenses	Rs	12,931	12,931	12,931	88,486	129,337	129,337	129,337	129,337	129,337	129,337	129,337	129,337
Cash less expenses	Rs	167,069	-12,931	-12,931	-88,486	6,725	6,725	6,725	6,725	6,725	6,725	6,725	6,725
Cumulative cash flow	Rs	167,069	154,139	141,208	52,722	59,447	66,173	72,898	79,623	86,349	93,074	99,800	106,525

Year 2

Item	Unit	June	July	August	September	October	November	December	January	February	March	April	May
Cash on hand (d)	Rs	106,525											
Borrowings	Rs			80000									
Sales (c)	Rs					204,094	204,094	204,094	204,094	204,094	204,094	204,094	204,094
Total cash	Rs	106,525	0	80,000	0	204,094	204,094	204,094	204,094	204,094	204,094	204,094	204,094
Expenses													
Volume of logs purchased	cu ft				1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667	1,667
Cost of logs at mill gate	Rs				113,333	113,333	113,333	113,333	113,333	113,333	113,333	113,333	113,333
Sawmill wages - manager	Rs	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Sawmill wages - labourers	Rs					4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688
Sawmill wages - machine operators	Rs					4,688	4,688	4,688	4,688	4,688	4,688	4,688	4,688
Sawmill operating costs	Rs					26,659	26,659	26,659	26,659	26,659	26,659	26,659	26,659
Transport cost for sawn timber	Rs					19,875	19,875	19,875	19,875	19,875	19,875	19,875	19,875
Loan repayment	Rs	7,931	7,931	15,495	15,495	15,495	15,495	15,495	15,495	15,495	15,495	15,495	15,495
Total expenses	Rs	12,931	12,931	20,495	133,829	189,738	189,738	189,738	189,738	189,738	189,738	189,738	189,738
Cash - expenses	Rs	93,594	-12,931	59,505	-133,829	14,356	14,356	14,356	14,356	14,356	14,356	14,356	14,356
Cumulative cash flow	Rs	93,594	80,664	140,168	6,339	20,695	35,051	49,406	63,762	78,118	92,473	106,829	121,184

## APPENDIX 1 – Supporting Documentation for Costs

**Table A1: Planned log production details**

<b>Particulars</b>	<b>Annual volume 2006</b>	<b>Annual volume 2008</b>	<b>Cost at mill gate</b>
Pine logs from Shree Chhap Deurali CFUG	2,000 cu ft	4,000 cu ft	Rs 40/cu ft
Pine logs from nearby CFUGs	8,000 cu ft	16,000 cu ft	Rs 75/cu ft
<b>Total</b>	<b>10,000 cu ft</b>	<b>20,000 cu ft</b>	

**Table A2: Required manpower and costs (2006)**

<b>Manpower</b>	<b>Rate</b>	<b>Total costs Year 1</b>
Manager	Rs 60,000 pa	Rs 60,000
Labourers	Rs 2.5/cu ft	Rs 25,000
Machine operators	Rs 2.5/cu ft	Rs 25,000
<b>Total</b>		<b>Rs 110,000</b>

**Table A3: Other operating costs**

<b>Particulars</b>	<b>Rate</b>	<b>Total costs Year 1</b>
Diesel , oil and grease	Rs 6.9/cu ft	Rs 69,000
Repairs and maintenance costs	Rs 1.89 cu ft	Rs 18,975
Depreciation		Rs 40,800
Admin and overhead costs		Rs 22,032
Other costs (contingency)		Rs 20,000
<b>Total</b>		<b>170,807</b>

## **Limitations**

URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of AusAID and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated November 2002.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was amended in February 2006 and is based on the conditions encountered and information received at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.