Socio-economic outcomes of community forestry in Nepal: Lessons from three diverse rural communities

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I Binod Prasad Devkota,  

I hereby declare that this submission is my own work and to the best of my knowledge and belief, understand that it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgement is made in the thesis. Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged.

I agree that this thesis be accessible for the purpose of study and research in accordance with the normal conditions established by the Executive Director, Library Services, Charles Sturt University or nominee, for the care, loan and reproduction of the thesis, subject to confidentiality provisions as approved by the University.

Signature  

Date
Dedication

This thesis is dedicated to the memory of my brother, Mr. Rishi Ram Devkota (departed his life on 10th August, 2010) and my daughter, Miss Shubhechha Devkota (departed her life on 26th September 2005).
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English language editor statement

Professional English editors – Mr Gerard Daniel and Ms Robyn Reynolds – were engaged for the sole purpose of improving the use of English language in this thesis. The professional English editors did not change the academic content of this thesis.

Disclaimer

Opinions expressed in this dissertation do not necessarily reflect the view or position of any Nepal Government official. This research was supported by staff of the Government of Nepal Ministry of Forests and Soil Conservation, as well as Charles Sturt University in Australia, but the opinions expressed herein do not necessarily reflect the view or position of the Ministry. Furthermore, no official endorsement by the Government of Nepal should be inferred. The author accepts full responsibility for the contents of this document.
Abstract

Community-based forest management has been introduced in many developing countries, including Nepal, in response to the failure of previous government-centred forest policies. The Government of Nepal has developed its logic of community forestry over the past 30 years from a focus on subsistence forestry, to improving the livelihoods and welfare of rural communities. During the past three decades, 1.2 million hectares of Nepal’s forests have been transferred to community management with the objectives of supplying forest products, reducing poverty and addressing local environmental problems. Although the transfer of forest management responsibility from government to local communities continues to gain momentum, there has been little detailed research concerning the extent to which the desired long-term socio-economic outcomes have flowed to targeted rural communities. This research explored the major socio-economic dimensions of community forestry on the livelihoods of rural communities in Nepal, with particular emphasis on identifying:

- the socio-economic characteristics of, and forest management by, rural communities;
- the main socio-economic outcomes of community forestry for rural communities; and
- the major factors influencing the socio-economic outcomes of community forestry.

An interpretivist mixed-method approach was used to obtain qualitative and quantitative data collected from three case study sites in Nepal. The major findings of this research are:

1. There has been an overall improvement in the forest condition and economic status of community forest user groups (CFUGs), but not necessarily an improvement in the social well-being of all individuals, especially poor and disadvantaged families. Therefore, focus on the biophysical and economic outcomes can be misleading indicators in regard to the change in social outcomes. Investment in community forestry on creating positive biophysical changes may not lead to similarly positive social or well-being outcomes. Indeed, in some circumstances, investment in the bio-physical dimension of community forestry may be at the expense of desired social outcomes, and can even entrench social inequity at the local level.

2. CFUGs are useful institutions for local community development and forest governance but these institutions often lack equity in regard to committee membership, decision-making and capacity building. Profound changes to the distribution of funds generated by CFUG’s, priority projects and implementation strategies may not occur until poorer members of village communities can engage more actively the decision-making processes of CFUGs and local elites are prepared to relinquish unfair power.

3. An increase in population alone does not necessarily lead to deforestation, as the causal relationship between these two phenomena is complex, and varied in any given situation. This research revealed that despite a growing population, with good forest governance and inclusive enterprise development, poverty can be reduced and forest condition improved. Although Nepal’s community forest management policies are still largely constructed on the basis of forest conservation (i.e., preventing deforestation), some mature CFUGs have moved beyond this paradigm into advanced enterprise development. Community forestry policy also needs to evolve so to be more supportive of pro-poor enterprise development and proactive in enabling marginalised people to benefit.
List of abbreviations

AFO  Assistant Forest Officer
AusAID  Australian Agency for International Development
AUS  Australian Dollar
BISEP-ST  Biodiversity Sector Programme for Siwaliks and Tarai
BZM  Buffer Zone Management
CBFM  Community-based Forest Management
CBNRM  Community-based natural resource management
CBS  Central Bureau of Statistics
CF  Community Forestry
CFM  Collaborative Forest Management
CFP  Community Forestry Program
CFUG  Community Forest User Group
CFUC  Community Forest User Committee
CIFOR  Center for International Forestry Research
ComForM  Community-based Natural Forest and Tree Management in the Himalaya
CPFP  Community and Private Forestry Program
CPR  Common Property Regime
CSU  Charles Sturt University
DAG  Disadvantaged Group
DDC  District Development Committee
DFC  District Forest Controller
DFID  Department for International Development
DFO  District Forest Office(r)
DFRS  Department of Forest Research and Survey
DoF  Department of Forests
FAO  Food and Agriculture Organisation
FECOFUN  Federation of Community Forest User Group of Nepal
FOP  Forest Operation Plan
GDP  Gross Domestic Product
GoN  Government of Nepal
HDI  Human Development Index
HJCFUG  Helejaljale ‘Ka’ Community Forest User Group
ICIMOD  International Centre for Integrated Mountain Development
IFAD  International Fund for Agriculture Development
IGA  Income Generating Activities
INGO  International Nongovernmental Organisation
IOF  Institute of Forestry
IUCN  International Union for Conservation of Nature and Natural Resources
KCFUG  Kankali Community Forest User Group
LNGO  Local Nongovernmental Organisation
MDGs  Millennium Development Goals
MEDEP  Micro-Enterprise Development Program
MFSC  Ministry of Forests and Soil Conservation
MOPE  Ministry of Population and Environment
MPFS  Master Plan for the Forestry Sector
NAFP  Nepal-Australia Forestry Project
NACFP  Nepal-Australia Community Forestry Project
NACRMP  Nepal-Australia Community Resource Management Project
NACRMLP  Nepal–Australia Community Resource Management and Livelihood Project
NGO  Nongovernmental Organisation
NPC  National Planning Commission
NRs  Nepalese Rupees
NSCFP  Nepal-Swiss Community Forestry Project
NTFP  Non-timber Forest Product
ODI  Overseas Development Institute
PF  Panchayat Forest
PPF  Panchayat Protected Forest
SDC  Swiss Development Corporation
SDCFUG  Shreechhap Deurali Community Forest User Group
SP  Sindhupalchok
TNC  Trust for Nature Conservation
UNDP  United Nations Development Program
US$  The United States Dollar
VDC  Village Development Committee
VIPs  Very Important Persons
WCED  World Commission on Environment and Development
Chapter 1

Introduction

1.1 An overview of the forestry and poverty context

Anthropogenic deforestation has been a serious problem throughout the world (Barraclough & Ghimire, 2000; FAO, 2010a). Much of the world’s forest coverage has been lost because of human intervention. Although offset to some degree by reforestation, the forest assessment report which was published by the FAO in 2010 indicates that the net change in forest areas of the world during the period 2000–2010 has been estimated at minus 5.2 million hectares per annum (FAO, 2010a). Commercial activities such as legal and illegal logging and the conversion of forests to agricultural land have led to an overexploitation of forest resources in developed and developing countries (FAO, 2005).

A large proportion of more recent deforestation has been occurring in developing countries in Asia, Africa and Latin America (Bee, 1993; FAO, 2010a), where poverty is prevalent [Chapter 2]. More than 1.2 billion of the world’s population lives in extreme poverty in developing countries (FAO, 2011, p.12). Increasing population, endemic poverty, demands for forest products and the expansion of agriculture are the major factors responsible for the overexploitation of forest resources in many developing countries (Allen & Barnes, 1985; Brothers, 1997; FAO, 2010a; Laurance, Albernaz, & Costa, 2001).

There are many debates about the relationships between deforestation, population growth and poverty [Chapter 2]. These debates question whether loss of forest resources causes poverty, or whether poverty and the increased population contribute to forest encroachment and deforestation; or whether poverty is caused by a loss of access to forest resources, or by a dependence on forest-based rural livelihoods (Fisher & Hirsch, 2008). The population of most developing countries is still more rural than urban with about 3.1 billion people (55% of the global population) living in rural areas (IFAD, 2010). More than 25 percent of the world’s population - an estimated 1.6 billion people - depend heavily on forest resources for their livelihoods (FAO, 2011, p. 12; World Bank, 2008). Forest use by a local population can change, for example, from hunting to sedentary agriculture, and can vary with each household’s socio-economic level [Chapter 2]
Forests and trees have an important role to play in the reduction of rural poverty in many developing countries (FAO, 2010a). However, the contribution of forest resources, in support of rural livelihoods depend on many factors, including forest management regimes; opportunities for alternate enterprises; access to competitive forest markets; the state of rural poverty; and the socio-economic conditions of rural communities (Adhikari, Falco, & Lovett, 2004).

Many authors worldwide, as well as employees of development agencies, are in general agreement that past and present government-managed forestry programs have not been successful in stopping deforestation [Chapter 2]. It is also generally agreed that those programs have not successfully supported the livelihoods of rural communities (Adhikari, 2003; Adhikari, Falco, & Lovett, 2004; Adhikari, Nagata, & Adhikari, 2004; Bajracharya, 1983; Griffin, 1988; Wiersum, 2000). The consensus is that a government-centered forest management approach cannot achieve sustainable forest management and poverty reduction (Acharya & Acharya, 2007; Bajracharya, 1983; Budhathoki, 1987; Gilmour & Fisher, 1991 Gronow & Shrestha, 1991; Joshi, 1993, Joshi, 1997; Malla, 2009).

1.2 Community forestry as a means of arresting deforestation and reducing rural poverty

Various alternatives to government-managed forestry programs have been suggested [Chapter 3]. One of these is the community-based forest management (CBFM) approach (Arnold, 1998; Malla, 2000). The concept of CBFM has been promoted and implemented in many countries as an alternative option; not only for solving deforestation and poverty problems of rural communities, but also for the development of infrastructure in rural areas (Acharya & Acharya, 2007; Kumar, 2002;).

Therefore, CBFM policies have been emerging in many developing countries as a response to the failure of government forestry institutions at the local level which has led to an increasing deterioration of forests (Adhikari, Williams & Lovett, 2007; Branneney, Malla, & Neupane, 2007; Gilmour, Malla & Nurse, 2004; Joshi, 1998; Malla, 2009; Nurse & Malla, 2005). In contrast to the government-centred forest management, different types of popular CBFM approaches have been implemented in many countries of the world (Adhikari, 1990; Malla, 2009; World Bank, 2008) [Chapters 2 and 3].
Community forestry is community-based where control and management of forest resources is exercised by the rural poor people who use these forest resources, specifically for their domestic requirements and as an integral part of their farming system (Acharya, Goutam, Acharya, & Gautam, 2006; Gilmour & Fisher, 1991; Malla, 2000). Community forests have both market and non-market economic importance; including protective, productive and aesthetic values for rural communities.

Community Forest User Groups (CFUGs), as local forestry institutions, are responsible for managing their community forests for their mutual benefit [Chapter 3]. These CFUGs can generate and improve other resources such as physical, social, financial and human resources through the implementation of a sustainable community forestry program (Yadav, Dev, Springate-Baginski, & Soussan, 2003). Thus, rural communities are principal stakeholders, both agents and beneficiaries in community forestry and rural development programs. Furthermore, initiatives which are based on sustainable forest management and development as part of the rural community development and sustainable livelihood strategies, are thought to support not only good governance but also to increase socio-economic benefits for the poor and ethnic minorities (Adhikari, Nagata, & Adhikari, 2004; FAO, 2001).

Participatory modes or methods of forest management for example, the devolution or delegation of power or certain aspects of decision-making to the local community are regarded as offering “seeds” of hope, because they entail a shift from the regulatory production-oriented goals of forestry to include the wider aims of local communities [Chapter 3]. Those aims include the setting up of conditions that enable sustainable livelihoods and social justice to occur (Gauld, 2000). These strategies, which are commonly referred to as CBFM strategies can be diverse depending on the country or regional context [Chapter 3].

Strategies for CBFM have helped produce sustainable forest governance particularly where there has been a shift in control and management of forest resources to communities so that they can meet their livelihood needs (Warner, 1997). Others have said that the benefits to local communities as a result of community forestry (Bhattarai, 2007; Bhattarai, Conway, & Yousef, 2009; Dev, Yadav, Springate-Baginski, & Soussan, 2003; FAO, 2001; Kanel, 2004; Yadav, et al., 2003) can include:

- improvement in the bio-physical conditions of local forests (i.e. in terms of both quality and quantity);
empowerment of local communities to manage forests sustainably; and
dev elopment of local forest-based enterprises and industries.

However, community forestry is not always easily implemented. Some people (e.g. Agarwal, 2001; Agarwal, 2009; Bhattarak et al., 2009) argue that policy makers and stakeholders in community forestry should attend to the removal of barriers such as:

- inequities regarding the social exclusion of women, poor and disadvantaged groups and ethnic minorities;
- conflict mismanagement; and
- other factors such as government bureaucracy, miscommunication, lack of better market access that hinder the flow of benefits to rural communities from forestry.

In this context, it can be argued that community forestry is one of the more useful approaches for forest management, in that it can help to create opportunities for the mobilisation of resources in a local community; via the implementation of rural development activities as per the needs and interests of poor and ethnic minorities. However, many challenges remain regarding equity in participation and the sharing of benefits from community forests [Chapter 3]. For example, women, poor and disadvantaged people are still struggling for representation on CFUG committees, decision-making and inclusion in the benefit sharing processes of community forestry. Many of the benefits of community forestry are flowing to local elites and poorer people are suffering from scarcity of forest products because of lack of the equitable distribution of forest products and other benefits (Thoms, 2008). In this context, it could be argued that community forestry programs are still not focused on pro-poor activities and the equitable inclusion of women, poor and disadvantaged members within a community forestry process. Therefore, these forest users have not received the full range of socio-economic benefits intended from programs.

1.3 Community forestry in Nepal

Community Forestry in Nepal is considered a world innovation in the field of participatory environmental governance towards meeting the twin goals of conservation and poverty reduction (Kanel & Dahal, 2008) [Chapter 3]. Realising the need to involve people in preventing deforestation, the government changed its forest policies and strategies and started handing over forests near hill rural settlements to local people for protection and use (GoN 1989). In 1978, community forestry was adopted as a new strategy that initially emphasised
people participation in reforestation of degraded land. It has now become a viable option for the regeneration and protection of the forest whilst providing forest products for the needs of the local people (GoN, 2000; Hunt, Jackson, & Shrestha, 1996; Kanel & Dahal, 2008; Nagendra, Pareeth, Sharma, Schweik, & Adhikari, 2008; Ojha, Persha, & Chhatre, 2009).

The Government of Nepal has developed the logic of community forestry in viewing shifting roles of community forestry from fulfillment of subsistence forestry needs of rural communities to improving the livelihoods and welfare of rural communities (Figure 1.1). This logic is also anticipated to conserve local natural forest system sustainably through the local community participation and good governance (DoF, 2004; GoN, 2000, DoF, 2009; Kanel, 2004; Nagendra & Gokhale, 2008). A summary of the underlying logic of the introduction and development of the community forestry program is shown in Figure 1.1 [see Chapter 3 for detail].

Figure 1.1 Government’s logic of community forestry development in Nepal


By the late 1980s, community forestry had been modified to include participatory forest management and rural development. The basis of participatory forest management is the handing over of control of local forests to CFUGs that have locally recognised rights to use a forest [Chapter 3]. The Forest Act in 1993 supported by the Forest Rules issued in 1995 gave CFUGs legal rights to all forest products from their forest (but not rights to sell the land, build houses or cultivate the area) in return for assuming responsibility for protection of the forests (Hunt et al., 1996; Kanel & Dahal, 2008). Thus, Nepal has been at the forefront of much of the development of CBFM for over 30 years [Chapter 3].

Regenerating degraded areas by plantation is an important aspect of community forestry. Operational plans recommend the area to be planted in a given community forest. Community forest nurseries are established for raising seedlings for planting in community forests. Collectively, a large area has been taken up for plantations ever since the handing over of forests commenced. For example, in the Kabhrepalanchok and Sindhupalchok Districts of Nepal, forest user groups have planted a total of 21,250 hectares from 1978 to 2010 (DFO Kabhrepalanchok, 2011; DFO Sindhupalchok, 2011). Similarly, Virgo and Subba (1994) reported an increase of 34 percent of forest area in the community forests of the Dhankuta district between 1978 and 1990. Similar increases have been observed in community forests of other districts as well [Chapters 3 & 8]. As such, community plantations appear to be an effective measure for reducing deforestation in Nepal.

Tachibana and Adhikari (2009) studied the impact of community forestry on forest conditions in the middle hills of Nepal and concluded that irrespective of government support to CFUGs, tree regeneration has improved significantly in those forests where community forestry is in practice. In a recent study of community forestry in the Dhading District of Nepal (Pandit & Bevilacqua, 2011) reported that community forestry practices have been successful in achieving the initial objectives of reversing the trend of deteriorating hill environments and improving bio-physical condition. Pandit and Bevilacqua identified the main factors that led to improved bio-physical condition of community forestry; as the effective implementation of forest management plans with an emphasis on forest protection, increased environmental awareness among forest users; and effective enforcement of rules and regulations.

The National Planning Commission (NPC) (2007) also claimed that through the means of community forest user groups, improved gender balance, community empowerment, and institutional development are being reported throughout Nepal. Community forests constitute
a leading renewable resource which can provide a safety net for poor and vulnerable rural people, supply products for markets and value add all of which can also sustain biodiversity and environmental health in Nepal (Kanel & Dahal, 2008). Although there has been research regarding community participation in protection and management of community forests, there has been less research to verify whether the community forestry has led to actual not perceived social and economic benefits for rural communities.

1.4 The research gap and key questions

Although the transfer of forest management responsibility from the government to local communities is gaining momentum in many developing countries, including Nepal, there has been little detailed research concerning the extent to which desired socio-economic outcomes have flowed to the targeted rural communities. In view of the leading role Nepal has had regarding the development of the concept of community forestry (Agrawal & Ostrom, 2001 Ojha, Persha, & Chhatre, 2009), the Nepalese people now have a valuable opportunity to assess the outcomes of community forestry implementation over the short-term and long-term.

Hence, this research aims to explore the social and economic outcomes of community forestry in Nepal. This research is based on a broad multi-dimensional concept of community forestry. In this context, I have interpreted community forestry as being an integrated forest resource management and community development approach, whereby the important aspects of community forestry are explored via the subjects of:

- community development;
- economic development;
- policy and legislation; and
- forest resource (as is illustrated in Figure 1.2 below).
It is important that all beneficiaries be included in a community development plan. In relation to this research, beneficiaries are regarded as being community forestry members. Hence, their participation in designing, planning, implementing and evaluating forest management and local community infrastructure development activities is an important consideration. Community participation is strengthened when community members make decisions or negotiate an equitable share regarding any decision-making that affects them (Bhattarai, 2007). However, participation in decision-making often takes place within a network of power relationships. So, decision-making does not always empower the participants or guarantee economic or social benefits.

Effective social cohesion, and robust networks regarding CFUGs not only facilitate sustainable community forest management and community development but also help to improve economic conditions via the implementation of income-generating activities and the creation of competitive market opportunities for forest products; all of which contribute to reduce rural poverty but only if equitable (Dhakal & Masuda, 2009; Kanel, 2004).

Formal institutions, such as those which formulate government forest policy and legislation, and local CFUGs have key roles to play in relation to the sustainable management and development of forest resources as well as ensuring the flow of goods and services to local rural communities (Giri, 2010; Hobley, 1996; Mahanty, Gronow, Nurse, & Malla, 2006). Some earlier studies indicated that after government-managed national forests have been placed in the care of rural communities, the physical condition of those forests (degraded at
the time of handover) had generally improved (Bhattarai, Jha, & Chapagain, 2009; Branne and Dev, 1993; Malla, 1992, 1997; Yadav et al., 2003). Yet others have argued that the amount of forest products which is currently being supplied from the majority of community forests in Nepal is well below the CFUGS’ overall demand for these products (Adhikari, 2005; Adhikari, et al. 2004; Bhattarai et al., 2009; Dhakal, 2007; Malla, Neupane, & Branne, 2003). Thus, the socio-economic outcomes of community forestry for rural communities often appear to be poorly understood or underestimated.

Therefore, despite the considerable investment of more than AU$3 billion in community forestry in Nepal over the past 30 years (DoF, 2011), the socio-economic outcomes of community forestry initiatives as well as their roles in supporting the sustainable livelihoods of rural people are still not clearly understood. In view of the fact that the government of Nepal still regards community forestry as being a priority development strategy, there remains a vital need for the nature and scale of socio-economic outcomes of community forestry for rural communities to be properly examined. My main research interest is to further investigate the key socio-economic outcomes of community forestry for rural communities relating to my previous work experience and whilst acknowledging the claims of a number of earlier studies in the community forestry of Nepal.

This research has been framed by the following key questions:

1. What are the socio-economic characteristics and forest management practices of rural communities involved in community forestry? [addressed in Chapter 5]

2. What have been the socio-economic outcomes from community forestry for rural communities? [addressed in Chapter 6]

3. What are the most influential factors that have shaped the socio-economic outcomes from community forestry? [addressed in Chapter 7]

1.5 Methodological framework for this research

Gilmour and Fisher (1991) have pointed out that both physical and socio-economic systems are involved regarding community forestry. The authors argued that the need for a shift from a technically oriented paradigm in forestry towards a different way of understanding what forestry is and should be (a different paradigm). Although both schemes have to be brought together and integrated analytically and then practically in the form of policy, these two
systems exist in different scientific paradigms. The physical scheme is typically within the purview of natural sciences, whilst the socio-economic system is within the realm of social sciences. Based on reviews of the existing literature regarding different aspects of community forestry, I have developed and used a framework for critically analysing the socio-economic outcomes of community forestry for rural communities [see Chapter 3 for detailed discussion].

This research is mainly based on mixed methods largely guided by a constructivist-interpretivist paradigm. It involved the collecting of both quantitative and qualitative data [see Chapter 4]. Socio-economic characteristics of CFUGs are important factors to influence the implementation of community forestry program and generation of various outcomes of the program (Adhikari, 2003). The performance of CFUGs for generating socio-economic outcomes from community forestry also depend on previous history of forest management and the implementation experience of the groups (Malla, 2009; Westermann, Ashby & Pretty, 2005). Therefore, I focused my data collection on the experiences of three CFUGs in Nepal purposely selected which have diverse socio-economic characteristics [Chapter 4]. In relation to each of these three CFUGs, community forestry has been utilized for at least a decade. My case study districts were Chitwan — an Inner Tarai district (not involved in the Nepal Australia Forestry Project (NAFP); Kabhrepalanchok — a Middle Hill district (involved in the NAF Project); and Sindhupalchok — a High Mountainous district (involved in the NAFP). The Nepal-Australia Forestry Project was implemented in Kabhrepalanchok and Sindhupalchok districts from 1978 to 2006 (although not under that name).

My primary data, principally qualitative data, were collected during 2009 and 2011, which involved interviewing 71 people, surveying 138 households and facilitating six focus group discussions of poor, women and Dalits members of the CFUGs. This was complemented with analysis of secondary data including that in journals, books, office records, audit reports, constitutions and forest operational plans of the three selected forest user groups in order to answer the key research questions. Quantitative data were analysed through comparative methods including the use of graphs and tables, and descriptive statistics.
1.6 Structure of the thesis

My thesis is comprised of eight chapters, as outlined in the following Table 1.1.

Table 1.1 Structure of the thesis

<table>
<thead>
<tr>
<th>Chapter 1: Introduction</th>
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<tbody>
<tr>
<td>Chapter 1: Introduction</td>
<td>This chapter is divided into three parts, covering challenges of deforestation and rural poverty (including international and Nepalese contexts), the role of community forestry to address these challenges and a brief summary of this research approach.</td>
</tr>
<tr>
<td>Part two: Theoretical framework</td>
<td>Chapter 2: The links between forestry and rural livelihoods</td>
</tr>
<tr>
<td>Chapter 2: The links between forestry and rural livelihoods</td>
<td>Background information and contextual setting for this research is provided by a review of the literature on deforestation and poverty, community-based natural resource management and sustainable livelihoods model.</td>
</tr>
<tr>
<td>Chapter 3: An overview of community forestry and theoretical perspectives of socioeconomic outcomes</td>
<td>In this chapter, an overview of the concept, definition and evolution of community forestry is given. The literature on community-based forest management models that have been implemented in different countries, including Nepal is reviewed. The logic of socio-economic outcomes regarding community forestry which provides the main conceptual framework for the research is described. There is also an analysis of the main contributions to socio-economic outcomes in relation to community forestry and the livelihoods of rural people.</td>
</tr>
<tr>
<td>Part three: Research methodology</td>
<td>Chapter 4: Research methodology - data collection and analysis</td>
</tr>
<tr>
<td>Chapter 4: Research methodology - data collection and analysis</td>
<td>In this chapter, the research methodology is described. The methodological choice, data collection and analysis methods, researcher’s identity, with limitations of the research presented at the end of the chapter.</td>
</tr>
<tr>
<td>Part four: Results and analysis</td>
<td>Chapter 5: Socio-economic characteristics of CFUGs and forest management</td>
</tr>
<tr>
<td>Chapter 5: Socio-economic characteristics of CFUGs and forest management</td>
<td>In this chapter, the socio-economic characteristics of three sample CFUGs are described. This is followed by forest management by local community and changes in the bio-physical condition of community forests.</td>
</tr>
<tr>
<td>Chapter 6: Socio-economic outcomes of community forestry</td>
<td>In this chapter, socio-economic outcomes of community forestry for rural communities are presented and discussed.</td>
</tr>
<tr>
<td>Chapter 7: Factors affecting socio-economic outcomes of community forestry</td>
<td>Influential factors, that shape socio-economic outcomes of community forestry are analysed in this chapter.</td>
</tr>
<tr>
<td>Part five: Discussion and conclusions</td>
<td>Chapter 8: Discussion and conclusions</td>
</tr>
<tr>
<td>Chapter 8: Discussion and conclusions</td>
<td>In this chapter, on the basis of findings of the study and reviews of the relevant literature, key issues which are related to socio-economic outcomes are highlighted and discussed. Conclusions as a synthesis of the study are also provided in this chapter. Recommendations for improvement of community forestry programs to achieve better socio economic outcomes are given. Suggestions regarding areas for future research are provided.</td>
</tr>
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</table>
Chapter 2

Understanding the links between forestry and rural livelihoods

2.1 Introduction

In this chapter, literature regarding the connection between forest resources and rural livelihoods, especially in developing countries such as Nepal, is reviewed. Deforestation and poverty are complex phenomena with social, economic and environmental implications. Causes and consequences of deforestation and the link between deforestation and poverty are discussed in this chapter.

Misguided national forest policies, weak governmental institutions or institutional malfunction, are the major forces driving deforestation. In addition, population growth and poverty, historical and contextual factors such as lack of clearly defined common property rights, lack of land tenure, and lack of appropriate policy for community engagement in forest management, are recognised as the main causes of deforestation (Durand & Lazos, 2003; GoN, 2000; Kerr, Pfaff, Cavatassi, Davis, Lipper, Sanchez & Timmins, 2004).

Increasing world poverty, increasing demand for forest products and defective government forestry institutions, are also major factors contributing to the overexploitation of forest resources in many developing countries (Barraclough & Ghimire, 2000; Laurance, 1999). There is increasing human activity impacting on forest ecosystems (e.g., conversion of forestland into non-forestland; degradation; or fragmentation).

In this chapter, major consequences, of deforestation, are discussed. Loss of species and high levels of erosion cause loss of soil nutrients. Declining agricultural productivity, results from loss of soil nutrients and severe erosion, and reduces income in rural communities. This creates poverty, and increases deforestation, and vice versa. Deforestation and poverty are interrelated global issues with interrelated global challenges (Sands, 2005).

In addition, literature, examining theory and experiences in economic development, community development, forestry and livelihoods is reviewed. Development is the prime concern of rural people: how can they obtain everything they need for their subsistence
livelihood. The role of forests, in reducing poverty, is evaluated and the role of forests on, community development is also assessed.

A review of literature indicates that forests and trees have a significant role to play, in the struggle to reduce poverty, as well as supporting local community development activities. Good governance of local forest can help poor people receive an increase in benefits.

### 2.2 Connections between deforestation and rural poverty

Total world forest area is estimated to be just over 4 billion hectares (31% of the total land area). This is equivalent to 0.6 hectares per capita (FAO, 2010a, FAO, 2011). In developing countries these forests are vital, for the maintenance of livelihoods of poor people in rural communities. These people are heavily dependent on forest resources for heating, cooking, nutrition, medicine, income and their farming systems (FAO, 2010a, Mallik & Rahman, 1994).

In developing countries, forests provide employment and livelihood assistance for a large proportion of the population. Forests often act as an economic safety net in times of need (FAO, 2010a). Approximately 1.6 billion people rely profoundly on forests and agroforestry for their livelihoods (FAO, 2011, p.12). Between 1990 and 2000, there was an estimated net loss of 9.4 million hectares of forests per year worldwide. Whilst the decrease was, in fact 14.6 million hectares, there was an increase of 5.2 million hectares of new forest areas (i.e., 1.9 million ha in the tropics and 3.3 million ha in non-tropical areas), mainly in developed countries (FAO, 2001).

The most recent estimate, although the rate of deforestation has been reduced from 14.6 million hectares per annum (1990-2000) to 13 million hectares per annum (2000-2010), is still alarmingly high, as a result of unsustainable timber harvesting and clearing of forest land, mainly in developing countries (FAO, 2010a).

#### 2.2.1 Definition and concept of deforestation

Defining deforestation is a challenging task, because there is no single commonly accepted definition. Sands, (2005) defines it as being simply a process whereby forested areas are converted for permanent non-forested land uses, such as agriculture, pasture and urban development use. According to Nawir, Murniati & Rumboko (2007), deforestation is “the loss
or continual degradation of forest habitat due to either natural or human-related causes” (p. 16). This definition encompasses both deforestation and degradation.

Deforestation can be defined as being a reduction of forestland, mostly because of non-forestry activities by humans. It is a process whereby forest areas are converted for non-forest land use, such that arable land, an urban area, a logged section, or wasteland eventuate (Mwavu & Witkoski, 2008). According to Wallace (1981), “deforestation occurs if all trees have been removed and the land is converted into agricultural or other non-forest uses, or if the remaining trees no longer qualify as a forest, regardless of their proportion to the initial forest cover” (p. 8). This definition refers to the loss of both quantity and quality, of forest flora and forestland. The Food and Agriculture Organisation of the United Nations (FAO, 1982) has defined deforestation as being “the complete clearing of tree formations and their replacement by some other use of the land” (p. 3). However, FAO (2004) later updated that definition of deforestation to “the conversion of forest to another land use or the long-term reduction of tree canopy cover below the minimum 10 percent threshold” (p. 25).

In relation to this research, deforestation is considered as being the conversion of forestland for permanent non-forest land use, such as agricultural expansion, a settlement or infrastructural development. In addition, overharvesting of forest products, forest fire and grazing, lead to a reduction in the quality of the biophysical condition of the forest (Chew, 2001; Sands, 2005).

**A global overview of deforestation**

There are basically two different deforestation perspectives which can be broadly categorised as development and conservation. Some researchers (e.g., Meyfroidt, Rudel & Lambin, 2010; Sands, 2005) argue that forest transitions occur because, over time, farmers concentrate on their most productive lands, and abandon their least productive areas, which eventually revert to forest. Furthermore, researchers claim that tropical countries today are similar to that of European countries in the 17th and 18th centuries and North America in the 18th and 19th centuries, when deforestation occurred to establish agricultural and grazing lands to provide for a rapidly increasing population.

The expansion of area under cultivation for food crops and pasture may be a priority, for economic growth, so that a growing population can be fed, and export income can be earned. Conversion of forest to plantation crops increases national income (Murdiyarso & Skutsch,
2006; Sands, 2005). Logging provides essential funds for development. Cities grow and infrastructure is created, as part of modernization and a growing economy.

These are ‘governed’ activities, which, for the most part, cannot and should not be stopped. They are essential for development. At best, the impact on forests may be softened by sensible coordination between sectors, overall land use planning, the use of more sustainable timber extraction methods, and encouragement of the use of agricultural systems to retain as much carbon as possible. In Europe and North America, where living standards are high and population growth has decreased, forest land is not being cleared for agriculture and grazing (Sands, 2005).

However, conservationists see the conservation of forests as foremost, particularly conserving biodiversity. Biodiversity is one of the most important prerequisites for the production of environmental goods and sustaining livelihoods. One of the consequences of clearing too much forest is the potential detrimental impact on the global life support system. Ultimately this would lead to a greater increase in poverty in most of the developing countries, where the majority of people live and have a limited capacity to cope with the current impact of deforestation (Sands, 2005).

Yet there is a great deal of what may be called ‘ungoverned’ deforestation occurring. In many places, this starts with the gradual reduction of stocks of biomass within the natural forest (Murdiyarso & Skutsch, 2006). Although deforestation has, in the past, been considered to be a component of ‘civilisation’, that clearing is still continuing and forests have disappeared in many parts of the world. Many people regard natural forest as being of limited economic value, when compared to alternative uses of forest areas (Sands, 2005). The economically and ecologically valuable tropical rainforests of the Amazon (Brazil) are being replaced by soybean plantations, whilst Indonesian forests are being replaced by palm oil plantations (Lima, Skutsch, & de Medeiros, 2011; Noordwijk, Suyamto, Lusiana, Eksadnata, & Hairiah, 2008).

It is clear that deforestation is presently occurring mainly in developing countries. Inhabitants of industrialised nations long ago, not only cut down forests, but have since planted trees on a large commercial scale (IPCC, 2007). Most importantly, large-scale deforestation does not lead to long-term sustainable economic development in developing countries, because the ability of future generations to meet their own needs is compromised (WCED, 1987). Indeed,
large-scale deforestation in developing nations benefits people in developed countries, as well as the elites of the developing nations, whilst widespread scarcity and poverty in developing countries increases ((Barraclough & Ghimire, 2000).

2.2.2 Understanding the concept of poverty

A consensus has emerged, for the need to address poverty and environmental degradation as a joint problem. With the appearance of the Brundtland Report, ’Our Common Future’, in 1987, environment became a major concern, for development. The writer(s) of the report argued that poverty is both a cause and effect of environmental problems (WCED, 1987). Other researchers challenge this notion, arguing that it is the state's lack of understanding of rural poor that causes environmental problems (Ghai, 1994). Some researchers say problems occur due to marginalisation of the rural poor (Mink, 1993); through the unequal exerting of power by people of class, ethnicity, gender and age (Agarwal, 1994; Shah & Shah, 1995), as well as the tendency of powerful groups to grab resources and obstruct state policies which challenge entrenched inequalities in rural areas (Goetz & O’Brien, 1995).

Poverty is a complex socio-economic condition, which characterises certain people in a society (IFAD, 2010). Generally, poverty exists when the resources of families or individuals are insufficient for a socially accepted standard of living to occur (Sarma, 1987). Sarma (1987) indicates that poverty occurs because of unequal access to resources and power. Poverty has also been defined largely in terms of income (IFAD, 2010; World Bank, 2003). Extreme poverty is defined as existing for those people whose income is less than US$1.25 per day (World Bank, 2010). However, poverty, defined only in relation to income and consumption, can be narrow and incomplete.

Amartya Sen describes poverty as “capability deprivation”, which limits an individual’s achievable functioning (Sen, 1999, p. 3). Sen describes poverty as being a lack of capability to live a life with qualifies personal values; earning an income, maintaining health, accessing education, empowerment and human rights. Sen further argues that even though economic poverty and capability poverty are different, they are linked; as can be seen in South Asia and in Sub-Saharan Africa. There, people suffer from dire economic poverty, in the form of below subsistence level earnings. They also suffer from capability poverty, in the form of high infant mortality rates. In other words, poverty, when being described as capability deprivation, limits an individual’s achievable functioning. Blanco (2002) defines poverty as being the total
absence of opportunities, accompanied by high levels of undernourishment; hunger; illiteracy; lack of education; mental ailments; emotional instability; social instability; unhappiness; sorrow; and hopelessness regarding the future.

2.2.2.1 Absolute and relative poverty

Poverty has also been classified as being either absolute poverty or relative poverty (Giddens, 2006). Absolute poverty refers to basic subsistence conditions that must be met in order that a physically healthy existence occurs. People who lack the basic requirements for human existence, such as sufficient amounts of food, shelter and clothing, are said to live in poverty. Absolute poverty is attributed to people whose income or consumption is below the poverty line (Quibria & Srinivasan, 1994). Todaro and Smith (2008) define absolute poverty; when a population or section of, is, at best, only able to meet its bare subsistence essentials of food, clothing, and shelter.

Relative poverty, is defined in cultural terms, and should not be measured according to some universal standard, regarding deprivation (Blanco, 2002). Human needs can vary greatly what is considered essential in one society may be a luxury in another. The concept of relative poverty presents its own complexities (Khan, 2001). As societies develop, the concept of relative poverty changes. As societies become more affluent, standards of relative poverty are gradually adjusted upwards (Giddens, 2006).

Although there are differences, between absolute and relative poverty, the poverty line can be used as a common denominator. The poverty line relates to the price of basic goods and services needed for human survival in a given society (Giddens, 2006). Individuals, or occupants of households, whose income falls below the poverty line in that society, are said to live in poverty.

2.2.2.2 Rural poverty

Rural poverty is a state of chronic shortage, of economic, social and political participation. It relegates individuals to the point of being excluded as social beings. It prevents access to the benefits of economic and social development, thereby limiting the cultural development of rural communities in many developing countries in Africa, Latin America, and Asia (Blanco, 2002; Khan, 2001).
Absolute poverty is significant where rural people are illiterate and where there are ethnic minorities, women and other disadvantaged groups in rural areas (World Resources Institute, UNDP, UNEP, & World Bank, 2005). Indeed, rural settlements are socio-economically characterized by a low level of well-being, high levels of illiteracy and high migration rates. Personal consumption and access to services such as health, education, housing, potable water, sanitation, food, transport and communications are often worse than those urban poor people experience (Singh, 1995). It has also been noted that the majority of poor people live in rural areas in extended family groups. This helps to provide a labour force for their labour-based subsistence level agricultural farming. In addition, their income, spending and employment opportunities usually focus on staple food items. They have little in the way of land, schooling or other assets, and face many interlocking barriers to progress (World Resources Institute et al., 2005).

The International Fund for Agriculture Development (IFAD) (2001) identifies poor rural people as being:
- destitute people, such as sick or disabled persons, abandoned children and displaced persons;
- extremely poor people, including illiterate or landless persons, or those with exceptionally few assets;
- comparatively poor people, such as those who have small farms and who are often heavily indebted;
- people who are ‘nearly poor’, including small farmers, who are at risk of slipping deeper into poverty as a result of factors such as conflict, debt and land degradation.

Rural people have neither adequate bargaining power nor the capability to influence the market economy, given their subsistence livelihoods (World Bank, 2008). They depend mainly on agriculture, fishing, forestry and other natural resources, which involve small-scale industries and services (Khan, 2001). Harvests are a primary source of rural income, especially when other sources of income falter. These people are not only poor; but they are voiceless. Whilst being dependent directly on natural resources, they have little say in how those resources are used; and they suffer the consequences when decisions are influenced by corruption (World Resources Institute et al., 2005).
2.2.2.3 Causes of poverty
Socio-economic conditions are the major factors regarding poverty, and thus, these elements are used in relation to poverty analysis (Waelbroeck, 1998). Livelihood system shocks may occur as a result of deforestation or other natural disasters (World Bank, 2010). Poverty is also linked to a lack of both power and security, not just a limited amount of money (Roe, Walpole, & Elliot, 2010).

In addition to socio-economic and political aspects, human rights are also prominent, when conducting a poverty analysis. In this context, poverty is a situation whereby people are unable live both in peace and with a feeling of security. There is an inability to benefit from opportunities. There is an unavailability of choices. These people lack freedom, self-esteem and respectful living conditions. They are socially stratified and excluded and are forced to live a marginal life which reflects a lack of human rights (UNDP, 2007). Thus poverty, for rural people, is a complex socio-economic state.

Table 2.1 is comprised of a summary of the World Bank’s (2001) multi-dimensional concept regarding the causes of poverty.

Table 2.1 The multi-dimensional nature of poverty

<table>
<thead>
<tr>
<th>Assets or capital</th>
<th>Vulnerability</th>
<th>Powerlessness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets:</td>
<td>Multiple risks from:</td>
<td>Powerlessness caused by:</td>
</tr>
<tr>
<td>• Natural capital</td>
<td>• Natural disasters</td>
<td>• Social differences (including gender)</td>
</tr>
<tr>
<td>• Human capital</td>
<td>• Economic crises</td>
<td>• Inequitable access to resources</td>
</tr>
<tr>
<td>• Financial capital</td>
<td>• Political instabilities</td>
<td>• Inequitable legal systems</td>
</tr>
<tr>
<td>• Social capital</td>
<td></td>
<td>• Unresponsive public administrations</td>
</tr>
<tr>
<td>• Physical capital</td>
<td></td>
<td>• Corruption</td>
</tr>
</tbody>
</table>

Source: Adapted from the World Bank, (2001).

2.2.3 Drivers of deforestation

According to a recent estimate of the FAO (2010), 13 million hectares of forest are significantly affected each year by forest fire, pests (insects), disease, drought, wind, snow, ice and floods. None-the-less, the areas of forests which are affected by disturbances are substantially underreported. Information is missing from many countries. Since 1900, the forests of the world have been subjected increasingly to human pressure. Agriculture, urban sprawl, unsustainable forestry practices, mining, petroleum exploration, national debt, unsustainable harvesting, logging technology, intensive commercial logging, failure of
government policies and political instability, have all contributed to the increasing rate of annual deforestation (Chew, 2001; Gibson et al., 2000; Nawir et al., 2007).

Wibowo and Byron (1997) indicated that the market values of tropical timbers are a major driving force, contributing to deforestation in many developing countries. In addition, Mawavu and Witkoski (2008) argue that the rates of deforestation are not only determined by the market values of timbers, but also by the interests and needs of rural or local people, their social and economic values, their religious beliefs, land tenure, management regulations, the allocation of land and the enforcement of their property rights. Furthermore, encroachment upon forestland for subsistence agriculture; forest fires; grazing and overexploitation of forest products (e.g., collecting firewood for cooking and heating; fodder for feeding livestock, timbers for construction purposes and subsistence agriculture) all contribute to an increasing rate of deforestation (Bajracharya, 1983; Barbier & Burgess, 1996).

The drivers of deforestation vary in terms of nature and scale. Results of previous studies indicate that, in developing countries, poverty, high population growth, and defective government forest policies, are the central drivers of deforestation (Figure 2.1) (Malla, 2009; Meyfroidt, Rudel, & Lambin, 2010; Molnar, 2009). This applies not only in the short-term, but also long-term, given the amount of wood harvesting for fuel and export in many developing countries (Allen & Barnes, 1985; Joshi, 1993; Kummar, 1992).
Forest encroachment, for agricultural purposes, given the ever-increasing demand for food by an increasing population, as well as basic construction needs for housing, community welfare, health, education facilities, transportation, communication, and other infrastructure, are some of the underlying causes of deforestation (Bhattarai, Conway, & Yousef., 2009; Pacheco, 2020)
Aguilar-Støen, Börner, Etter, Putzel, & Maria del Carmen Vera, 2011). Because of the lack of access to other resources, and the lack of employment opportunities, rural people suffer poverty. They depend heavily on what local forest resources are available (Barraclough & Ghimire, 2000).

Natural and anthropogenic causes of deforestation are many and varied (Figure 2.1). However, this research relates to literature concerning anthropogenic deforestation. The sections that follow illustrate some of the major drivers or causes of anthropogenic deforestation, occurring mainly in developing countries.

### 2.2.3.1 Population growth

According to the U.S. Bureau of Census (2012), the current population figure of the world is more than seven billion and the annual rate of population growth is still more than one percent. The latest world population projection of United Nations estimates that Asia will remain the most populous major area in the world during the 21st century but Africa will gain ground as its population more than triples, passing from 1 billion in 2011 to 3.6 billion in 2100 (Figure 2.2). The growing population is responsible for disturbing pristine conditions of forest resources and deforestation in the developing countries of Asia, Africa and Latin America (Bee 1993; FAO, 2011; Mwavu & Witkoski, 2008). However, the relationship between population growth and uses of forest resources is complex and numerous factors further reinforce this complexity.

In relation to population and resources, the Malthusian consumption-oriented approach suggests that any additional numbers of people will be burdensome (Wibowo & Byron, 1997). Many authors (e.g., Bongaarts, 1993; Subedi, 1995; Pant, 1992) have agreed that, over time, population increases will put huge amounts of pressure on natural resources and their regenerative capacity. So there is a presumption that the impact of population growth on natural resources is always negative.

However, in addressing the issue of population, Amartya Sen (1999) disagrees with the proposition presented in Malthus’ (1798) essay, stating the number of people would soon exceed the amount of food they require. Sen (1999) believes that the exponential population growth will eventually be slowed by the empowerment of women, and an increased awareness of adequate family planning measures; whereby the high birth rate will begin to fall.
However, the current rapid population growth will lead to increased poverty in many developing countries (Lam, 2011). Ehrlich and Ehrlich (1990) have indicated that the deterioration of natural resources is a direct consequence of population growth. These researchers argue that population growth has a disproportionate negative impact on the environment and natural resources.

### 2.2.3.2 Poverty and deforestation

There are links between poverty and deforestation, in developing countries (Fisher & Hirsch, 2008; Sands, 2005). Forest destruction by loggers and other external resource claimants has long-term adverse effects on the livelihoods of forest-dependent communities, as they lose access to their main sources of sustenance (Sands, 2005). The livelihoods of those who live in, or near, forests, depend considerably on rapidly changing agricultural practices. Yet in the
agrarian context, poverty and forests, receive only background attention in popular, political and academic discourses (Fisher & Hirsch, 2008; Kerr et al., 2004).

In relation to agriculture, little heed is paid to social, technical and economic change. In addition, socio-economic conditions, high population growth, and low productivity from agricultural land are major factors contributing to the emergence of poverty and the accelerating amount of deforestation in developing countries (Fisher & Hirsch, 2008; Kerr et al., 2004; Sankhayan, Gurung, Sitaula, & Hofstad, 2003).

Moreover, the authors of the Brundtland report regard the poor as being not only agents, but victims who are forced to degrade the environment in order to survive, as well as being locked into a downward spiral of environmental degradation (WCED, 1987). The virtually circular process, whereby poverty is connected to environmental degradation which, in turn, produces poverty, has been widely posited since 1987 (Blaikie & Brookfield, 1987; Lele, 1991).

After the United Nations Conference on Environment and Development (UNCED) was held at the Rio de Janeiro Earth Summit in 1992, many participants argued that poverty is a driver of land degradation and deforestation (Kerr et al., 2004). An analysis of the proceedings at the summit indicates that the single most important cause of poverty is insufficient access to natural resources (Øyen, 1999). Poor people have little or no assets, and have virtually no say in decisions which affect their subsistence livelihoods (DFID, 2001). Therefore, they clear more forestland so that crop yields can be maintained, because they cannot afford to invest money to prevent soil degradation (which causes decreasing harvests) on their existing agricultural land (Qasima, Shrestha, Shivakoti & Tripathi, 2011).

It has also been argued that simply increasing the amount of human capital to poor landowners, so that poverty could be reduced, would allow them to improve their crop production, thereby reducing their need to clear more forest (Kerr et al., 2004). Rudel and Roper (1997), as well as Sandra (2007), agree with this argument, and indicate that poverty-driven clearing is the main cause of rainforest destruction. They argue that occupants of poor households in a given location are more likely to degrade or clear forest areas because of:

(i) insufficient skill, knowledge and tools machinery to clear a sufficient enough area of land for farming purposes; and
(ii) a need to ensure their survival, in view of commodity-market swings; family emergencies; and other shocks.

Sterile and circular debates abound involving poverty and deforestation (Fisher & Hirsch, 2008). Such debates question whether forest loss causes poverty, or does poverty contribute to forest encroachment or whether it is loss of access to forests or dependence on forest-based livelihoods, which causes poverty (Mwavu & Witkoski, 2008). Poor rural people generally live closer to forest areas, when compared to their access to markets. Because of a lack of alternative employment poor people often rely on illegal harvesting and logging activities for income, in order to meet basic needs. Their livelihoods are heavily dependent on forest resources. Hence forests are cleared by poor people so that they can build homes for themselves, and obtain land for subsistence agriculture (Sands, 2005). Forest areas are being cleared by poor rural people more rapidly than they are by richer people; which suggests that poverty increases the amount of deforestation (Kerr et al., 2004; Pfaff et al., 2008).

2.2.3.3 Agriculture that drives deforestation

Unsustainable agriculture, a common practice in many countries, is responsible for deforestation (Barraclough & Ghimire, 2000). Use of forestland, especially by poor people, for different forms of agriculture, to produce food for a growing population, is one of the main drivers of anthropogenic deforestation (Grau, Gasparri, & Aide, 2005). According to the FAO (2007), 90 percent of deforestation is caused by unsustainable agricultural practices, whilst logging and plantation forestry play a greater role in forest degradation. Developing countries in Africa, South America, South and South-East Asia have become deforested because of unsustainable agriculture. Soil degradation follows. Consequently, productivity of agricultural land decreases; absolute poverty increases and becomes one of the most prominent global problems (IPCC, 2007; Laurance, 1998, Laurance, 1999; Lynam, 1997).

To provide food for a growing world population, shifting cultivation or slash-and-burn agriculture (Khoriya kheti in Nepali), perhaps the most unsustainable and primitive form of cultivation, has been adopted particularly in upland or mountainous areas of many developing countries (Rasul & Thapa, 2003; Sands, 2005). This form of agriculture is considered to be environmentally suitable, after land has remained fallow for 15 to 20 years to enable the soil to regenerate via vegetation cover. However a fast growing population, combined with expanding government control over common property resources, including forests, has
compelled shifting cultivators to shorten the fallow period, resulting in deforestation, accelerated soil erosion, soil nutrient depletion and biodiversity loss (Rasul & Thapa, 2003).

2.2.4 The link between weak government institutions and deforestation

Formal elements (government policies, rules, laws, constitutions, treaties, agreements, and so on) and informal, such as norms of behavior, conventions, self-imposed codes of conduct, traditions, culture, and beliefs, not recognised by law but widely practised by a society in accordance with their socio-cultural and political economic conditions, play significant roles, concerning environmental governance, sustainable management and development of forest resources (Berkes & Folke, 1998). However, when the state creates both the ‘norms’ and the ‘enforcing agencies’, distinction between basic norms and rules (by institutions) is difficult to maintain (Ostrom, 1999).

Leach, Mearns and Scoones (1999) explain the roles of institutions, regarding resource management, and access to and control over those resources, are influenced by a set of interacting and overlapping institutions. Both formal and informal institutions, embedded in the political and social life of the area, can play significant roles, in the protection and development of forest resources (Berkes & Folke, 1998; Bromley, 1989; Ostrom, 1999). Authors, such as Joshi (1993), Klooster (1999) and Malla (2009) argue that governments’ defective policies and improper supervision arrangements encourage deforestation.

The ‘Tragedy of the Commons’, Hardin (1968) suggested that common-pool resource institutions are likely to fail where there is unrestricted access to natural resources. It also suggests that eventually there will be overexploitation or degradation, of all the resources which are used in common (Feeny, Berkes, McCay, & Acheson, 1990). Deforestation has occurred largely in relation to open-access forests (i.e., forestland where property rights are nonexistent, or unenforced), and where there is no incentive, toward management and conservation (Hyde, Amacher, & Magrath, 1996).

Government forestry institutions, some researchers have argued that because of the lack of good governance, such as community participation, social justice, transparency and devolution, government-centric forest management has made bureaucrats ineffective, whereby there is inefficient supervision of the harvesting and logging of timbers (Devkota, 2005; Wibowo & Byron, 1997). Weak government forestry institutions may, in fact,
encourage corruption, whereby corruption goes hand in hand with weak government, if not hand in pocket (Sands, 2005).

Corruption keeps poor people in poverty, which, in turn, puts more pressure on forest resources. This occurs in many developing countries. In such situations, government forest policies exist only on paper and government implementation is weak because of limited resources. This explains a wide range of ills in many developing countries.

Consider a case study carried out by Laurance (1999), in relation to Brazilian forest policy. Despite a number of government initiatives designed to slow deforestation, the rates of forest loss in the Brazilian Amazon actually increased throughout the 1990s. The main reason for this chronic problem was weak enforcement of legislation designed to protect the forests, especially in the remote Amazonian frontier (Durand & Lazos, 2003). Eventually stronger environmental legislation was enacted. It was undermined by executive decrees and congressional vacillation, which rendered it impotent (Laurance, 1999).

As in Brazil, deforestation and forest degradation, due to inadequate policies and weak government forestry institutions, can be found in many developing countries (Messerschmidt, 1993; Mwavu & Witkoski, 2008; Pacheco et al., 2011). Therefore, researchers (e.g., Bromley, 1991; Hanna, Folke, & Maler, 1995; Wibowo & Byron, 1997) argue that the lack of clearly defined common property rights is one of the most serious causes of deforestation in many developing countries. It is believed that the incorporation of clearly defined common property rights in a community forestry program is the most viable way to stop deforestation and forest degradation (Bartlett, 1992; Joshi, 1997a & 1998). However, Klooster (1999) argues that the CBFM approach acknowledges that there are local tenure rights, and that management responsibilities should be devolved to local communities in order that forest resources be sustained, so that the livelihoods of people in rural communities can be protected (Messerschmidt, 1993; Poffenberger & McGean, 1996; Utting, 1994).

2.3 Deforestation and rural poverty in Nepal

Deforestation has been a serious problem in Nepal, especially in Tarai and Inner-Tarai, where government-managed national forests exist (Bhattarai et al., 2009; DoF, 2005; Joshi, 1993). In the Nepalese context, deforestation is either degradation of forest, leading to a lower number of trees per unit of area, or a complete conversion of forest into barren areas; or land for agricultural or pastoral purposes (Brown & Shrestha, 2000); or for the development of
infrastructure. Bhattarai et al. (2009), and Laurance (2000), argue that the development of infrastructure, such as highways and roads, not only has an immediate impact regarding deforestation, but has more invasive long-term effects. The most recent national forestry inventory was completed in 1994, and was published in 1999 (FAO, 2005). The report shows that every year a large portion of the forests has been deforested and encroached upon for timber production, agricultural extension and human settlements.

2.3.1 Causes and consequences of deforestation in Nepal

Deforestation in Nepal is primarily caused by human activities (Barraclough & Ghimire, 2000; Tamrakar, 2011). Population pressure, poverty and defective government forest policies, whereby bad governance and inequitable distribution of natural resources occur, are considered to be some of the underlying causes of deforestation and environmental problems in Nepal (Bajracharya, 1983; Bhattarai et al., 2009; Upreti, 2004) (see Figure 2.3).

An examination of relevant literature shows that the threat to sustainable use of forest resources in Nepal is not limited to population growth (Adhikari, 2003; Bhattarai et al., 2009). The absence of effective governmental forestry institutions is detrimental, to achieving sustainable management and development of forest resources.
Figure 2.3 Causes of anthropogenic deforestation in Nepal (researcher’s interpretation of literature)

The history of deforestation in Nepal indicates many causes of deforestation. Population growth, poverty, defective government forest policies, and weak local institutions are regarded as being the major causes of deforestation (Bhattarai et al., 2009; Joshi, 1998; Malla, 2009). In addition, forest encroachments and overexploitation of forests have been shown to be related activities.

2.3.1.1 Population growth

Nepal has one of the highest population densities in the world, with respect to arable land (MOPE, 2000). Many factors have encouraged change, in the population growth of the country. For example, labour-based agriculture requires a larger workforce and therefore people prefer to live in a joint or extended family system and give birth to many children. The high population growth rate can also be attributed to a significant decline in mortality, together with a high level of fertility during the last four decades (Singh, 1995). Other major factors that affect the population growth rate of Nepal are illiteracy, poverty, early marriages, continuous improvements regarding public health, the inadequate use of contraceptives, lack
of appropriate family planning facilities in the country, and traditional social norms and values (CBS, 2007).

The most recent population census of Nepal (2011) records 26.6 million people (males 12.9 million; and females 13.7 million); with 1.4 percent annual growth rate. Average population density is 181 people per square kilometer (CBS, 2011). The population of Nepal is increasing rapidly. Even at low levels of consumption, the overall impact on natural resources is more negative than it should be. As a typical overpopulated small country, Nepal has a relatively young population, and an increasing annual growth rate.

Figure 2.4 shows population size; and average annual population growth rate during period 1960-2015. As the population increases, demand on natural resources to meet basic requirements also increases.

Figure 2.4 Population trend in Nepal (1960 to 2015)

Note: * projected population

2.3.1.2 Poverty as a driver of deforestation in rural Nepal

Like many other developing countries, Nepal has deforestation problems and population growth. Poverty causes deforestation (Adhikari, 2004; Bajracharya, 1983; Tamrakar, 2011). Overpopulation and poverty are inextricably linked, and both are responsible for deforestation (Tamrakar, 2011). Although the causal link between population growth and overexploitation is very complex, rapid population growth increases the number of poor people in the country. As a result, consumption of forest resources also increases. With a high population growth,
environmental resources face tremendous pressure (Pandey, 2009). Despite substantial efforts to build development infrastructure to stimulate economic growth, Nepal is still engulfed in a ‘vicious cycle’ of poverty, underdevelopment and environmental degradation (NPC/UNDP, 2010).

Nepal is one of the South Asia’s poorest countries; having a per capita gross national product of just US$562 in 2009/10 (CBS, 2010). According to one estimate, about 25.16 percent (NPC/UNDP, 2010, p. 3) of the total population were still below the poverty line in 2010, and owned less than 0.5 hectare of agricultural land per household (CBS, 2010). About 95 percent of people in Nepal live in rural areas (UNDP, 2011). Of those, about 25 percent survive on less than US$1.25 income each per day, whilst another 55 percent of people each have an income of about US$2 each per day (UNDP, 2011). The Nepal Human Development Report 2011 indicates that the overall Human Development Index (HDI) for Nepal is 0.458. Overall, it is ranked the country 157th out of 187 nations (UNDP, 2011).

Although the country possesses various types of natural resources, rural poor communities (comprised of either small size landholders or landless people), depend substantially on various forest products for food, timber, fuelwood, fodder, medicine, and non-timber products for survival (Adhikari et al., 2004; Adhikari, Nagata, & Adhikari, 2004; Bajracharya, 1983). In addition, rural people who suffer severe poverty often have to change their means of survival; from subsistence agriculture to the illegal trading of forest products in local markets, to obtain enough money to meet their basic household needs. In this context increasing demand, by the increasing number of poor people for forest products, has led to an overexploitation of forest resources (Shrestha & Sharma, 2004).

Extensive utilisation of and increasing demand for forest products, have led to dwindling supplies, of both forest area and forest quality (UNDP, 2007). According to one estimate, forests supply about 75 percent of the total energy demands in rural areas of Nepal (CBS, 2009). The demand for firewood, fodder and timber for household needs far exceeds the total annual production from forests. There is heavy pressure on forest resources, and overexploitation of forest resources occurs (Joshi, 1998; Malla, 2009).

The stand density of existing forests has also decreased significantly. The total amount of growing stock of 178 cubic metres per hectare in 1978 dropped to less than 100 cubic metres per hectare in 1994; with only one percent regeneration (GoN, 1989; DoF, 2010). This
indicates that the quality and quantity of forest resources is gradually decreasing, because of overexploitation of forest resources.

The basis of Nepal’s economy is subsistence farming. Together with agriculture, forestry plays a prominent role in the economic and social life of rural people. In combination, agriculture and forestry make up about 33 percent of GDP (NPC/UNDP, 2010). The majority of rural people are highly dependent upon livestock and surrounding forests. Ever-increasing numbers of livestock contribute to forest overexploitation and depletion. Poor people do not have sufficient private land to provide grasses and forages to feed their animals. So many rural poor depend entirely on forestland for feeding their livestock. Overgrazing is one more activity which leads to deforestation and depletion of forests in the country.

The conversion of marginal land to cultivated land is increasing. Population growth, and a decline in good crops from farm production, has intensified changes in land use (Barracough & Ghimire, 2000). High human fertility, a high mortality rate and a high agricultural labour force prevail in rural areas. These, as well as inadequate employment opportunities, are likely to have an increasingly negative effect on deforestation and poverty.

2.3.1.3 Land use change by Nepal’s rural communities

In addition to population growth there has been a significant change, in land use, (Figure 2.5). The most notable change is in agriculture, pasture and forestland (Blaikie & Brookfield, 1987). The Sixth Five-Year Plan (1980-1985) indicates that in 1970 the amount of land used for agricultural purposes was 16.5 percent of the country (147,181km²), (GoN, 1980). That same document indicates in 1980 the total amount of land used for agriculture reached about 22 percent, an increase of 5.7 percent between 1970 and 1980. According to the Eighth Five-Year Plan (1992-1997), total amount of land being used for agricultural purposes in 1990 was about 27 percent of the total area of the country (GoN, 1992).
While agricultural land has increased, the amount of pastureland has decreased. Of the total land resource, 12.7 percent was used as pastureland in 1970. By the end of 2008, the total pastureland was only 10.6 percent of the total land area (FAO, 2009). This decrease is primarily attributable to the conversion of pastureland into agricultural land. Such land use changes, have occurred because of an increasing population. Forest areas have undergone similar changes. The loss of forestland has occurred not only because of its conversion into cultivated land, but also the collecting of fodder and firewood by a growing population (Bajracharya, 1983; Barraclough & Ghimire, 2000).

The conversion of forestland into non-forestland was noted in both the Ninth Five-Year Plan (1998-2002) and Tenth Five-Year Plan (2003-2007) (DoF, 2005; NPC, 2008). The total area of agricultural land in 2009 was 27.4 percent, an increase of 10.9 percent between 1970 and 2009. The latest forest statistics of the Department of Forest Research and Survey (DFRS) estimate that the forest area in Nepal is currently only 29 percent (4.27 million hectares) of the total area of the country (147, 181 km²). It was 37 percent of total area in 1988 (DFRS, 1999). Between 1964 and 1998, more than 16 percent of the total forest area of Nepal has been lost.

The recent rate of deforestation there is estimated to be 1.3 percent per annum (DoF, 2005).
The statistics show that Nepal is comprised of approximately 1.6 million ha (10.6%) of shrubland and degraded forest; 1.7 million ha (12%) of grassland; 3.9 million (27.4%) of agricultural land; and about one million hectares (7%) of uncultivated lands (DFRS, 2005; FAO, 2009). This indicates that a substantial amount of land has been converted for agricultural purposes. These changes reflect the population growth and the ever-increasing needs of people.

Forestland encroachment for agricultural purposes to feed an ever-increasing population is widely believed to be one of the biggest causes of deforestation in Nepal (Bajracharya, 1983; FAO, 2009; Gautam, Webb, Shivakoti, & Zoebisch, 2003). From the 1960s to the 1990s, approximately 380,000 hectares of forest land were converted to agriculture land. On average, this amounted to about 12,667 hectares per year (FAO, 2005). Encroachment of the forest occurred in the hills, as well as in the Tarai. Encroachment in the hills was scattered, and regarded as small in terms of area, while the Tarai forests were heavily encroached.

According to the Master Plan for the Forestry Sector (MPFS), 570,000 hectares of the Tarai forest were encroached between the 1960s and the 1980s for agricultural purposes alone (GoN, 1989). These encroachments in the Tarai forests were made by people who migrated from the hills, after agricultural land there turned unproductive because of inept agricultural practices, which caused the loss of top soil (Bhandari & Grant, 2006; Wallace, 1981). This sort of encroachment practice, although illegal, is continuing in the Tarai. The DoF estimates that over the last 25 years at least 80,000 hectares of forestland has been encroached upon for settlement purposes by people who have migrated. Landless people from the Tarai districts have also encroached there (DoF, 2008).

Additionally, shifting or swidden cultivation, which is perhaps better known as the slash and burn method, is still being practiced by indigenous people such as the Chepang and Tamang, despite the very low return. This mode of cultivation is being practised in conjunction with a land fallow period of just two to three years (Barraclough & Ghimire, 2000). There is very little information available about the dynamics of swidden cultivation in Nepal.

Many authors (e.g., Adhikari, 2005; Ickowitz, 2006; Mwavu & Witkowski, 2008; Rasul & Thapa, 2003) note that deforestation in developing countries have occurred largely because of poverty, and a lack of alternative resources for subsistence livelihoods. Consequently, this places pressure on the land, resulting in negative ecological consequences.
Because of insufficient budgets and lack of human resources to conduct regular forest resources assessment, no up-to-date information, about forest encroachment areas and shifting cultivation, has been recorded in the database systems of the DoF and other forestry offices (DoF, 2005). The DoF is the government authority legally responsible for stopping deforestation and for protecting forests. However, that department cannot stop all malpractice, because it has limited amounts of manpower, and an insufficient annual budget. Because of political instability in the country, further pressure is placed on forest resources by poor and so called ‘landless people’ (DoF, 2004). Worse still are the actions of political parties, which indirectly support malpractice activities. Moreover, when they come into power, they legalise these sorts of activities by allocating ownership of these abused forestlands.

2.3.1.4 Defective forest policies and legislation of the past

Deforestation in Nepal also results from defective government forest policies. In fact, government policies have historically had the largest negative impact, regarding forest degradation in that country (Bajracharya, 1983). Inappropriate forest policies have also had a major negative impact regarding deforestation there (Bajracharya, 1983; Devkota, 2005; Joshi, 1998).

The history of forest degradation, and environmental deterioration in Nepal, begins with the rulers and the ruling class of Nepal, who used forest resources and forestland to become wealthy and powerful. The wealth of the nation was based on timber exports from Tarai. The end of the Rana regime, during the 1950s, led to the nationalisation of forests in order that forest resources and forestlands be removed from private ownership (Nagendra et al., 2005; Shrestha, 2001). Thus, the Forest Nationalisation Act 1957 came into being, in order that powerful people be prevented from owning national forest resources. The government nationalised all private and communally managed forests and took legal control of them (Dressler et al., 2010; Nagendra, et al., 2005). As a result, all forest resources became the property of the state. People could not possess any forestland as private property.

Although the government nationalised all forests in order that deforestation be kept in check, and managed forestlands for the benefit of the country, the Forest Nationalisation Act 1957 was ineffective regarding the protection of forests. That made the problem, of insecure tenure, worse (Bajracharya, 1983). This created dissatisfaction. The government had very little in the way of human power to manage the forests. These areas virtually turned into open access
Consequently, the forestlands were heavily exploited (Bajracharya, 1983; Panday, 1993).

In many places, the earlier owners of these forests had also cleared them, and converted the areas for agricultural or pasture use, without the knowledge of the government. So, during the 1970s the government demanded that farmers register private lands. This, however, caused many farmers to further clear their land, in an effort to make the boundaries clearer (Shrestha, 2001).

After the forests had been nationalised, a new political system called Partyless Panchayat was introduced in 1961 by the King. Under that new political system, the state itself monopolised forest resources. That period of state ownership was comprised of several different schemes or approaches; and each is known by a different name (Devkota, 2005). For example, the then rulers cleared an undeclared amount of forest area, and used the money for political gain; such as in the general referendum of 1979. The government then cleared forest areas and removed people from several different parts of the country (Bajracharya, 1983; Nagendra et al., 2005).

During Panchayat regime, the government engaged in felling forests and providing timber and fuelwood throughout the country, by means of government owned companies such as the Timber Corporation of Nepal (TCN), the Forest Development Board of Nepal, and the Fuel Supply Corporation of Nepal (GoN, 1989; Joshi, 1998). Despite knowing about encroachment upon the Tarai and inner Tarai forests, government bodies remained silent, in order to retain political support (Shrestha, 2001).

As the destruction of forests continued, the government, instead of involving citizens in the protection of them, promulgated the Forest Act 1962, which further strengthened government control. This included a provision, whereby anyone found guilty of illegally cutting down trees in a forest, could be severely punished (Devkota, 2005). In other words, the government regarded citizens as being the destroyers of forestlands, and tried to keep them away from forests by employing armed guards, especially in the Tarai areas. Because there was virtually no provision, to meet the needs of local people from forest products, local people resorted to cutting down trees illegally in the Tarai forest area. In the hills, the locals used forests as open access resources. No control was exercised over these people (Nagendra et al., 2005). Thus these occurrences and negative government policies contributed to deforestation.

Most of the efforts of government-managed forestry, to check deforestation in Nepal, have not been successful (Bajracharya, 1983; Dressler et al., 2010; Nagendra et al., 2005; Nagendra &
Gokhale, 2008). From the beginning of forest management, which occurred in the late 1950s, the government treated people as being the main cause of deforestation, and enacted laws that prevented them from entering forestlands. However, the approaches taken by the government became counterproductive (Devkota, 2005; Dressler et al., 2010; Joshi, 1998). The government’s forestry institutions ignored traditional communal rules that regulated forest uses, and disregarded people participation and their needs. As a result, degradation and deforestation increased substantially. In fact, many areas were encroached upon and forestlands were clear-felled illegally (Bajracharya, 1983).

By means of the *Forest Nationalization Act 1957*, and a change in the political system in 1961, the government of Nepal took monopoly control over forest resources (Nagendra et al., 2005). The very simple forest protection policy introduced top-down approaches, such as prohibiting access of people to forests (GoN, 1989). Meanwhile, the indigenous communities and their resource needs were overlooked. The government adopted two kinds of control policies.

Firstly, there was the establishment of the national parks and wildlife reserve centres, under the protection of the military. Secondly, forestlands outside the military protected areas were controlled by government departments such as the District Forest Office (Devkota, 2005). This particular public office was located in the most important town or city in the district. In the past, the DFO mobilised its semi-skilled forest rangers to monitor forests, and to check whether any unwanted forest-related activities had occurred. Local political units were also used by the government administration, as control measures. Given the rugged nature of the hills, government institutes found it difficult to stop people entering the forestlands (Joshi, 1998).

Neither of these forest policies was concerned with the welfare of local people. The mistake, regarding the first one, where the army protected national parks, was corrected only in the mid-1990s, when the Buffer Zone Rules 1993 were introduced, so that the conflict between the army and the people could be minimised. This conflict has been discussed elsewhere (Chaudhary, 2000; Wells & Sharma, 1998). The other policy mistake was not including local people in forest conservation. It was later acknowledged in the Forest Sector Master Plan of 1989, and has since been corrected. Local communities are now empowered through their forest users groups. The careless overexploitation of timber and non-timber forest resources in the past is considered to reflect the ineffective implementation of government policies and the
malfunctioning legal system at the time (Barraclough & Ghimire, 2000). Overharvesting of forests occurred in the past in government-managed forests in order that the demands of forest-based industries be met (Dressler et al., 2010). Because the forests were not managed scientifically, over-harvesting had a negative effect, causing the decline of many tree species, such as *Bombax ceiba, Acacia catechu,* and *Terminalia tomentosa.* Blank areas of forests filled up with weed growth (GoN, 2002a). Sometimes malpractice was carried out by government staff members for individual benefit (Larsen, Olsen, & Boon, 2000).

Despite having total control over forestlands, the government failed to properly manage forest areas though its existing bureaucracy (Bajracharya, 1983). Ultimately, defective government policies led to degraded (*de facto*) open access resources (Joshi, 1997a; Nagendra & Gokhale, 2008). Massive deforestation began in the 1950s, with the gradual collapse of the feudal forest management system (Gilmour & Fisher, 1991). Because of the reduction in area, wildlife population was severely affected. Similarly, many plant species became extinct or threatened with extinction (Bajracharya, 1983). The IUCN list of threatened categories shows that nine plant species are now extinct and 84 plant species and 40 species of wildlife are now endangered, because of deforestation in Nepal (BPPN, 1995).

Joshi (1998) reported that the serious consequence of deforestation has been an increase in the number of landslides, especially in the hills. Almost everywhere in the hills, where deforestation has taken place, landslides occur. The Theory of Himalayan Environmental Degradation represented by Eckholm (1976) links population growth to contemporary upland deforestation and soil erosion, which are presumed to cause downstream flooding and silting. This theory argued that landslides and soil erosion were principally caused by deforestation. Others support this view and have reported that the effects of landslides and soil erosion can be observed particularly in the 10 to 30 cm rise in riverbeds, which, at certain times of the year, causes widespread flooding in the Tarai (Uprety, 1998). However, some other authors (e.g. Ives and Messerli, 1989) claimed that the Eckholm’s (1976) theory is not a valid entity. Ives and Messerili (1989) do not accept the major linkage between, population growth and deforestation in the mountains leading to massive damage on the plain. The authors believed that the appropriate establishment of forest resources in the mountain is a vital but well-being of the mountain environments and the mountain people dependent upon those environments. The authors further concluded that socio-political elements of the deforestation problem should be addressed adequately to minimise environmental degradation.
Deforestation has also been reported to cause severe economic loss with agricultural production reduced drastically because of landslides and the loss of fertile topsoil (Bajracharya, 1983). The reduction in production, of both agricultural and forest products, has affected the whole nation (Devkota 2005). Village economies have been badly affected. Rural households rely heavily on forest areas and their products. Bajracharya (1983) indicates that even though the scarcity in fuel wood is a problem in Nepali villages, food deficit is the cause of the problem. Deforestation in Nepal is indirectly caused by the food deficit, because people sell firewood at the local market so that they can purchase food items.

Legal authority, regarding participatory forest management in Nepal, dates back to 1978. According to Joshi (1997), the policy was concerned with management by local leaders or local political units (Gaun Panchayats and Nagar Panchayats), rather than with collective management. Later on, in 1988, the government of Nepal devised a Master Plan for the Forestry Sector (MPFS). The government realised that it would be necessary to involve people at the local level, in order that forest resources be saved and managed (Joshi, 1998). That Master Plan acknowledges the existence of forest resources and their potential, and sets out four long-term and three medium-term objectives.

The long-term objectives are that the basic needs of people be met; that soil and water resources be protected; that ecosystems and the gene base be conserved; and that the local and national economies be consolidated. The medium-term objectives are that the control of forests be democratised, and for, legal, institutional and structural adjustments to be made, to facilitate change (GoN, 1989). Later policy revisions have ensured that local communities are empowered to manage their forest resources, through the formation of Community Forest User Groups (CFUGs) (GoN, 2000). These legally recognised groups have been given rights to manage forest products (both timber and NTFPs) from forest areas, in accordance with management plans. That has involved participation by women and disadvantaged people; anticipating a reduction of rural poverty.

The above analysis indicates that the exploitation of forest resources is due to increased population size, poverty and defective government policy of the past. However, some authors (e.g. Barraclough & Ghimire, 2000; Eckholms, 1976, Joshi, 1997; Tamarakar, 2011) have argued that the increased population growth is the main cause of deforestation in Nepal. In their view, the increasing rural population and deforestation are closely linked; (GoN, 2000; Pant, 1992; Qasim et al., 2011; Shrestha, 1993). Therefore, the link between deforestation and
population growth is contentious, as several analysts (e.g. DeFries et al. (2010); Dhital, 2009; Gautam et al., 2002; Gilmour, 2009; Ives and Messerli, 1989) argue that the link is more complex and nuanced.

2.4 Connections between forestry and rural livelihoods in Nepal

Agriculture, as the mainstay of the rural economy, provides a livelihood for more than 75 percent of the population (MFSC, 2008). The estimated population of Nepal in 2009 was 23 million people. About 80 percent of the working population live in rural areas, and depend on subsistence farming (CBS, 2009). Rural poor people often lack enough assets to sustain or rebuild livelihoods. Poor health; lack of clean water and sanitation; weak physical infrastructure and remoteness from government services are other factors that prevent them from sustaining or rebuilding livelihoods (Koirala, 1998). Lack of access to, as well as the inability to use, technology reduces their speed of recovery and options regarding livelihood strategies.

In rural areas, an insecure supply of food items and poor nutrition, are still major concerns. Most households have little or no access to primary health care, education, clean drinking water and sanitation services. Rural poor people are generally illiterate, have large families, are landless, and have very small landholdings. Small, fragmented subsistence farming is characteristic of Nepalese agriculture and the average landholding is less than 0.2 hectares. The immediate concern is how to increase the crop yields, income and food security, as well as reduce the number of challenges regarding livelihood security (CBS, 2007). For many, life is a constant struggle, for survival. The most vulnerable groups are the lowest of the social castes, indigenous peoples and women (NPC, 2008).

Hinduism, which is the dominant religion, influences the caste system. The population of the country is comprised of many castes and ethnic groups (CBS, 2009). Moreover, the caste differential is still prominent in rural society because of the social stratification by the hierarchies, as stipulated by the Muluki Ain (the national code of Nepal 1854), that regarded Dalits as being an ‘untouchable’ caste (UNDP, 2009). Although the Muluki Ain and Interim Constitution 2007 does not specifically encourage caste distinctions (GoN, 2007),

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1 The term ‘Dalits’ refers to lower caste people within the Hindu caste system who are religiously, culturally, socially and economically oppressed.
discrimination according to gender and caste still exists, shapes society and dictates much in relation to social interaction, especially in rural areas. In socio-economic terms, the caste system significantly obstructs any participatory involvement, in routine day-to-day informal social interaction.

The country is divided into three ecological zones, namely, mountains, hills and plains (Tarai). Poverty, in terms of income, is most pronounced in the mountains; followed by the Tarai and the hills. The latest Nepal Living Standards Survey (2003/04) indicates that there is extreme inequality between rural and urban populations. The average income for a rural person is 2.7 times lower than it is for the average urban individual (CBS, 2004). However, poverty has fallen in relation to all caste and ethnic groups. The Brahmin/Chhetri have the smallest number of households (19%) whose occupants are below the poverty line. In contrast, occupants of almost half of all of the lower caste and disadvantaged households fall below the poverty line (DFID & World Bank, 2006).

Because of poor development growth in the agricultural sector, living standards in rural areas are still deteriorating and poverty is increasing (GoN, 2007). The growing population has put huge pressure on cultivable land, especially in the Tarai region, which also supports many landless migrants from the hills.

The principal means of income for the greater proportion of the population is low-productivity agriculture. More than 81 percent of the population rely wholly or partially on subsistence agriculture with 63 percent operating their own farms. About seven percent of people earn enough income to survive by working on someone else’s farm (CBS, 2009). Although more than 81 percent of the workforce are employed in agricultural activities, which account for 40 percent of the gross domestic product, the achievement in this sector has not been satisfactory and so agricultural production is declining. Of the remaining 19 percent of the total labour force, about three percent engage in industry work and 11 percent in providing a service. The remaining five percent of people are engaged in other occupations (GoN, 2007).

Forests are an integral part of the daily lives of rural people in Nepal. Forests contribute to the overall rural economy in many ways. They provide employment, value regarding the processing and marketing of forest products, energy, trade and investment back into the forest sector. The majority of rural people use forest products such as fuelwood, fodder, timber, food, medicinal herbs, ritual materials, cattle bedding materials and compost for agricultural fields. Forests are the main sources of construction materials for housing and agricultural
implements. Forests also provide forage and fodder for cattle (Adhikari et al., 2004; GoN, 2002b).

Rural people receive both tangible and intangible benefits from forest resources. Tangible benefits include timber, as well as non-timber products such as bamboo, rattan, medicinal plants, fruits, flowers, fibres, aromatic plants, and oleo-resin. Wild animals and their products also create employment opportunities and provide income that benefits both local communities and the national economy (Adhikari et al., 2004; Dev et al., 2003; IFAD, 2001). Forests also contain and protect sites and landscapes which have high cultural, spiritual or recreational value (FAO, 2007).

In the last few decades, a number of researchers (e.g., Bhattarai, 2003; Blaikie & Cameron, 2001; Pandey, 1999; Shrestha, 1997) have sought answers, to the causes of poverty and growing inequality in Nepal. Although causes differ, in these studies, all researchers agree that general stagnation, or retardation and deprivation have occurred. That has produced, in Blaikie’s terms, a ‘state in crises’. Recently, the effects of the caste system, as well as ethnic and gender discrimination have been acknowledged as barriers, to reducing poverty and improving social inclusion (DFID & World Bank, 2006). Many factors contribute to chronic poverty in Nepal’s steep and mountainous areas. The rugged terrain and harsh climate do not help, crop yields. These areas are also physically isolated with poor communications, limited amounts of infrastructure and inadequate access to natural resources. Increasing population pressure as well as overgrazing have led to an unsustainable use of natural resources and deforestation (Singh, 1995). Soil erosion in the uplands causes flooding in the lowlands that can be devastating, for crop yields.

Economic activities overall, have gradually shrunk since the 1990s because of difficulty in maintaining law and order. The weak security situation has resulted from a 12 year long internal conflict, which has affected development works, hampered industrial growth and created problems in transportation. The success of the people’s movement, Jana-Aandolan II, in FY2005/06, has led to the restoration of peace, allowing development works and other economic activities to occur (GoN, 2008). If peace cannot be maintained, and the country is pushed back into conflict, then the economy will encounter a number of problems. The present challenge is for peace to be maintained in order to promote sustainable economic development and improve the livelihoods of people.
2.5 The concept of economic development and poverty reduction

In general, economic development is a process whereby the community, state and/or nation changes by becoming better (Shaffer, Deller, & Marcouiller, 2006). It combines the concepts of ‘economic’ with ‘development’. The word ‘economic’ refers, in general to an accepted paradigm for organising business and financial sectors (and even government sectors to some extent) of a nation. The economic element is regarded as being the main prerequisite for building a prosperous society.

However, ‘development’ can be defined in different ways. For some people, the concept relates to successful commercial enterprises. For others, it suggests something different. So ‘development’ has been defined by economists and philosophers in various ways. For example, Christenson and Robinson (1989) define it as being a process whereby new options, diversification, thinking about apparent issues differently, and anticipating change, occur. Development involves change; improvement; vitality; an attempt to improve the level of participation; flexibility; attitudes; the function of institutions; and equity regarding life. Shaffer (1989) argues that ‘development’ involves the creation of ‘wealth’, namely the things that people value; not just dollars.

Nobel Laureate, Amartya Sen, defines ‘development’ as being "the process of expanding the real freedoms that people enjoy" (Sen, 1999, p. 3). Sen argues that ‘development’ can be a process where real freedom, in relation to activities or aspects of life which people enjoy, increases. In his view, ‘development’ is the realisation of freedom; as well as the abolishment of lack of freedom. Poverty, famine, starvation, undernourishment, tyranny, poor economic opportunities, systematic social deprivation, neglect of public facilities, intolerance, over-activity of repressive states, and lack of political rights, could be regarded as constituting a lack of freedom. In addition to GNP growth, individual income can be a very important factor, regarding the notion of freedom. Freedom depends also on other determinants, such as socio-economic arrangements, ease of access to health, education facilities, and political and civil rights (Sen, 1999).

‘Development’ constitutes permanent change, the capacity to act and be innovative. It tends to imply more understanding, more insight, more learning, more nuances, and some semblance of structural change. Structural change reflects changes in technology, ownership patterns, occupational mixes, product mixes, industry mixes, and institutions. ‘Development’
also encompasses growth and reduces vulnerability to changes which occur outside the community (Shaffer et al., 2006). The movement from economic growth to economic development relates to development policies (Schweke, (1990).

Recent literature, exploring economic development, indicates that the links between poverty, economic growth, and income distribution have been studied extensively. Khan (2001) argues that absolute poverty can be reduced if at least two conditions are met. These are that:

- economic growth occurs, or mean income rises on a sustainable basis; and
- economic growth is neutral (when compared to income distribution), or it reduces income inequality.

In general, poverty cannot be reduced if economic growth does not occur. Persistent poverty, within a substantial portion of the population, can hinder the prospects for economic growth. Furthermore, the initial distribution of income and wealth can greatly affect the prospects for growth and the alleviation of mass poverty. A substantial amount of evidence suggests that a highly unequal distribution of income is not conducive to either economic growth or poverty reduction (Khan, 2001). In addition, natural resources management and rural development is necessary to achieve poverty reduction, sustainable development, food security, preserving of the environment, a limited amount of forced migration and peace. Thus rural poverty reduction is possible when and where poor rural people are empowered and the right combination of enabling policy and rural investments are in place.

2. 6 The concept of community development

Community development combines the concept of ‘community’ with that of ‘development’. There are many definitions of ‘community’. Literature, examining ‘community’, shows that the latter can be defined in five different ways (Campfens, 1997). It can be defined as being:

(i) a way of life, (ii) a geographic location, (iii) a social system, (iv) a type of relationship, and (v) a source of energy. ‘Community’ is a group of people with a shared identity (Flora & Flora, 1993). Shaffer et al., (2006) have defined ‘community’ as being a group or unit, whereby the members of it have some common interests.

There are at least three different ways to define ‘community’, such as:

- 'community’ as being a place whereby space is a major aspect of the definition: A municipality or county within a political boundary is an example;
• a ‘community’ of shared interests, whereby space has virtually no role in the definition. A community of scholars for example;

• ‘community’ shared be regarded as being a logical decision-making unit, whereby space may or may not be involved (Shaffer et al., 2006).

DeFilippis and Saegert (2008) argue that communities constitute places where people live and work; though not necessarily both in the same place. Furthermore, those researchers say that communities are the people, the places and the institutions which we ourselves encounter in everyday life. They argue that those elements provide opportunities and support for activities, as well as barriers and constraints. In a broad sense, a community is like a film set in which people have some sense of place, common interests and goals and are also willing to cooperate or work together to achieve those goals (Duinker et al., 1997). A definition of ‘community’ would have some basic components or prerequisites, such that a community has common values, territory, population type and economic dependence. It is also important to note that a community is both a means and an end, to community development. These concepts cover a wide range of different types of communities potentially located in specific geographic regions and whose members are dependent on forests for their income, livelihoods and enjoyment.

Community development is a process whereby the people of a community, assist government authorities, to improve the socio-economic and cultural conditions of that settlement. This helps that community become integrated into the life of the nation, so it can contribute fully to national progress (Biggs, 1999). Community development fundamentally relies on the creation of new options, whereby issues and problems are dealt with via the adoption of new attitudes. The community itself takes action and virtually everyone in it participates. A report from Aspen Institute (1996) indicates that community development involves the combined commitment, resources and skills of members of a community, so that those strengths can be utilised in order that problems be solved.

By means of this process, local people can not only help create more jobs, income and infrastructure, but they can also help their community become better able to deal with change (DeFilippis & Saegert, 2008). This process relies on interaction between people, as well as joint action, rather than individual activity. This is what some sociologists call ‘collective agency’ (Flora & Flora, 1993). Community development involves empowering individuals and groups of people in such a way that they are equipped with the skills they need to effect
change in their own communities. These skills are often used to create political power. This is done through the formation of large social groups, which work for a common agenda (NPC, 2006). Community developers have to understand how to work with individuals and how to influence communities' positions.

Literature examining economics indicates that community economic development occurs when people in a community analyse the economic conditions of that community; determine its economic needs and unfulfilled opportunities; decide what can and should be done so that economic conditions within that community are improved. Communities then proceed in such a way that the agreed-upon economic goals and objectives are achieved (Shaffer et al., 2006). Discussing, economic development may mislead, because it is often considered synonymous with economic growth. It is important to recognise that whilst these two concepts are closely related, they are fundamentally different. Growth can occur without development and development can occur without growth (Shaffer et al., 2006).

The benefits of community development, such as employment and infrastructure, arise as a result of local people changing their attitudes, mobilising existing skills, improving networks, thinking differently about problems and using community assets in new ways. Community development can improve a community not just economically, but also by making it a strong functioning community (Shaffer et al., 2006). Normally, community development involves utilising five aspects of a community, namely the physical, financial, human, social and environmental. A community can develop new economic options, create buildings, accumulate financial capital; and also improve its environment. Shaffer (1989) argues that community development improves the ability of people within a community to collectively make better decisions about the use of resources such as infrastructure, labour and knowledge as illustrated in Figure 2.6.
2.7 Rural community development

In simple terms, rural community development is a process whereby rural people participate actively, in conjunction with government authorities or non-government agencies which are responsible for improving the socio-economic and cultural conditions of communities. Indeed, the community is both the means and the end, to rural community development. The members of that community have direct control over key decisions, including the management of investment funds (Mansuri & Rao, 2004). The community itself takes action in relation to, as well as participating in, the implementation of community development activities. It is through this action that the community becomes more effective, not just economically, but as a strong functioning community in itself. Community development not only improves the ability of people in a community to collectively play key roles so that better decisions can be made, regarding the use of resources such as infrastructure, labour and knowledge, but it also improves the quality of rural livelihoods (Graf, 2008).

Development approaches have shifted from the technology-transfer models of the 1950s to the empowerment models which were initiated in the late 1990s (Cameron, 1998; Kothari, 2005). Researchers who adopted traditional approaches, for community development, focused on technical solutions or trickle-down theory or policy change (Harpman & Anelay, 1999). Other researchers focused on increasing income (Chambers & Conway, 1992). These
approaches however, have been largely ineffective. Shaffer (1989) argues that local leadership and collaboration are the key elements for producing successful community development.

In relation to this research, members of a CFUG are regarded as being a rural community. ‘Development’ is defined as being a process that increases choices for members of the CFUG. ‘Rural development’ refers to the improvement in overall rural community conditions. This improvement involves both economic and other quality of life factors, such as environment, health, infrastructure and housing. Economic development occurs when the economic well-being and quality of life of people within a community are improved. This improvement occurs when forestry-related jobs are created or retained and when other activities, which increase income and well-being of members of that community, are conducted. Economic development of rural communities is closely connected to the wealth generated by community forestry in those areas, for the well-being of CFUGs. It can be conceptualised as being a process by which people are able to improve their overall standard of living, whilst generating income that is either independent from, or additional to, welfare support.

2.8 Using forestry to reduce rural poverty

Rural livelihoods in developing countries are directly linked with forest resources. Spirituality also plays an important part in people’s lives, and forest resources can contribute to spiritual needs. In recent years, research conducted on non-farm employment and income as a whole, has indicated an increasing amount of interest in the contribution forests make to local rural employment and income. These contributions are important, for rural livelihoods, and sustainable forest management ensures that forests continue making those contributions (Arnold & Townson, 1998). Trees and forest resources constitute a safety-net for poor rural people in times of enormous hardship or crisis (Kanel, 2004). In the absence of a welfare state, poor people often rely on nearby forests and trees to provide a means to survive. If a sudden emergency befalls a household, trees and forests provide the occupants with one of a few ways to survive.

Depending upon the type and availability of forest products, most activities in relation to them are conducted by rural people on a part-time basis. This applies particularly to occupants of farm households, who cannot grow enough crops to be self-sufficient all year round. The importance of forest product income is usually determined by time than magnitude. It is seldom a large portion of a household’s total income. But it is often important for filling seasonal or other cash flow
gaps; and helping people cope with particular expenses, or respond to unusual opportunities (Nagendra et al., 2008). Time of year may affect availability of raw materials; the need for additional cash at particular points in the annual cycle (e.g., purchasing of seeds, or hiring of labour); seasonal fluctuations in demand; or the seasonal availability of labour for gathering and processing.

DFID (2001) indicates that rural people, especially poor, who do not have alternatives for meeting their daily needs, regularly collect forest products for use at home and for generating income to support their livelihoods (Table 2.2). In this context, forest resources are often critical elements in farming systems (Nagendra et al., 2008). For poor people, forests provide a way to maintain soil fertility, without resorting to expensive fertilisers. Household income can be augmented by harvesting, processing and selling forest products, such as fuelwood, timber, bamboo, fodder, leaves, flowers, fruits, medicinal plants, honey, tools and meat (Bajracharya, 1983). In fact, forest resources are attractive for poor people, because of easy access and harvesting requires little capital or technical skills. The produce can usually be processed at home.

**Table 2.2 Benefits from forest resources for poor people**

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<th>Benefits from forest resources</th>
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<tr>
<td>Subsistence goods</td>
<td>Wood for building, fuelwood, fodder, bedding materials, medicinal and aromatic plants, honey, mushrooms, leaves, fruits, meat, and so on.</td>
</tr>
<tr>
<td>Goods for sale</td>
<td>All of the above goods and by-products, including arts and crafts items such as baskets, furniture</td>
</tr>
<tr>
<td>Income from employment</td>
<td>Both in the formal and informal sectors</td>
</tr>
<tr>
<td>Indirect benefits</td>
<td>Land, water, clean air, religious and spiritual sites, cultural heritages, biodiversity conservation, health improvements, environmental goods and services</td>
</tr>
</tbody>
</table>

*Source:* Adapted from DFID (2001).

Several studies indicate that CBFM policies have been emerging since the 1970s in many developing countries, as a response to governments’ forestry failure at the local level which has led to progressive deforestation and degradation of forests (Bajracharya, 1983; Devkota, 2005; Griffin, 1988). In contrast to government-centred forest management, different modes of CBFM are popular, and have been implemented in many countries of the world (Adhikari, 1990; World Bank, 2008). In response to public demand for greater accountability; there has been more participatory decision-making; better delivery of goods and services from the government; central forestry administrations delegating more functions to local governments,
and local communities (Nagendra & Gokhale, 2008). Community-based development models have been adopted, rather than government-centric development approaches, so that sustainable economic development, can improve the livelihoods of rural poor people in many developing countries. In recent years, research on CBNRM has shown that poor rural communities are good ‘adaptive managers’. The success relies on the ability of people in these communities to make good judgments, in response to constant changes or surprises or emergencies that confront them in their day to day activities (Sayer & Campbell, 2004). Small agriculture and forest-based product enterprises are prominent where rural markets are dispersed; and where high transport costs protect them against competition from urban suppliers (Arnold & Townson, 1998).

2.9 Summary

Strong links between forest resources and rural livelihoods have been examined in this chapter. Deforestation is a serious global problem, especially in developing countries. Furthermore, deforestation has severe consequences and implications for the social, economic and environmental well-being of people in developing countries. There appears to be a causal relationship between deforestation and various socio-economic and institutional factors (Hyde et al., 1996). Many factors, such as population growth; poverty; lack of land tenure; lack of appropriate policies allowing good community engagement in forest management; misguided national forest policies; weak governmental institutions and institutional malfunctions, are considered to have been the major driving forces of deforestation in Nepal (Durand & Lazos, 2003; GoN, 2000; Kerr et al., 2004).

The concept of community development has been explained in this chapter. Community development, in the context of developing countries such as Nepal, refers to any activity which is carried out by an agency in order that a community reaps one or more benefits. However, literature, examining the history of forest management in developing countries, indicates that community development has been hindered not only by the failure of government institutions, but also by the lack of enforcement of government-managed forestry policies. Therefore, deforestation and poverty have driven changes, in forest policy and legislation, so that local people can participate in forest protection and sustainable management Community forestry has been initiated and promoted with great enthusiasm as a solution for reducing deforestation and reducing poverty in the country (Nagendra & Gokhale, 2008). In relation to this research, CFP is an example of community development in Nepal. In the next chapter, literature describing concepts, evolution and the implementation status of community forestry, will be discussed.
Chapter 3
Community forestry and theoretical perspectives on socio-economic outcomes

3.1 Introduction

In this chapter the concept of community-based forest management (CBFM) and the practice of it in selected Asian countries are examined. Forests play a crucial role, in the subsistence livelihoods of people in poor rural communities in many developing countries.

Numerous forests were heavily exploited during the twentieth century. Literature examining the history of forest management in many developing countries shows that, prior to the 1970s government-centered forest management led to massive amounts of forest destruction, not only by governments, but also by local people. The failure of state-led forest management indicated that there was a need for a change in forest policies, and that local people should be involved in forest management (Nath & Inoue, 2010). Governments realised that the cooperation of local inhabitants is necessary if sustainable forest management is to occur. Consequently, community-based forest management (CBFM) has been implemented in many developing countries, in order that deforestation and rural poverty be addressed.

In this chapter, four different types of community-based forest management in Nepal are described. The evolution of community forestry and the government’s policy regarding its implementation in Nepal, are examined. Community forestry has been increasingly promoted as being a high-priority forestry program, which is likely to deliver not only significant benefits for rural communities, but also poverty reduction in those communities. Sustainable forest management and forest development are also likely to occur as a result of the implementation of community forestry. Also, literature investigating the theoretical socio-economic outcomes of community forestry will be presented and discussed; as will the framework whereby socio-economic outcomes of community forestry can be also presented.

3.2 An overview of community-based forest management

Literature, describing the history of forest management, shows that several strategies have been developed to solve deforestation in many developing countries. Such strategies include
the nationalisation of forests and the involvement of the armed forces (White & Martin, 2002). However, no government forest management policies have been successful, in resolving the existing problem. This has occurred not only because of the lack of appropriate policies, but also because of the failure of government institutions to enforce policies effectively. Consequently, this has led to unsustainable management of forest resources. Rural people depend heavily on these resources for their livelihoods. A community-based forest management (CBFM) approach has been adopted in many developing countries since the 1970s; with the expectation that deforestation and rural poverty will be either reduced or eliminated (Dev et al., 2003; Malla et al., 2003).

Community-based forest management (CBFM) is a very broad concept. It is the integrated management at a community level of a multitude of forest resources, which may previously have been privately or commonly owned (Sayer & Campbell, 2004). CBFM is known by different names. ‘Community Forestry’ is the name used in Nepal, Mexico, Thailand, Cameroon, South Africa, Uganda, Canada and Togo. The term ‘Village Forest’ is used in Malawi and Mali. Both ‘Community-based Forest Management’ and ‘Social Forestry’ are used in the Philippines, whilst both ‘Social Forestry’ and ‘Joint Forest Management’ are used in India (see Appendix 1).

Several studies show that the CBFM approach involves management of forests by groups of rural people through local institutions (Chimbuya, 2003). This method is based on bottom-up activities which bring individuals and organisations together so that desired sustainable development and management goals can be achieved (Bromley, 1994). This approach may be a viable option, not only for sustainable management and development of forest resources, but also for integrated rural development and rural poverty reduction in many developing countries (Adhikari et al., 2004; Sayer & Campbell, 2004).

Community-based management of forest resources offers a way in which local enterprises can support sustainable rural growth that both adds to local incomes and builds net wealth at the national level. The World Resources Report 2008 indicates that properly designed forest-based community enterprises can not only improve the livelihoods of rural poor people, but they can also create resilience - economic, social, and environmental, - that can cushion the impact of climate change, keep communities rooted and help provide social stability (WRI et al., 2008). However, all of this can only occur when poor and disadvantaged groups are able to obtain benefits from community-based natural resources management. Such benefits
include empowerment, good governance, and adequate local institutional arrangements (World Bank, 2008).

In order that resource degradation be stopped, researchers and activists increasingly advocate community-based approaches, whereby local tenure rights are recognised, and management responsibilities are devolved to local communities (Klooster, 1999). However, using forests for poverty reduction requires a strong institutional framework and an effective legal and regulatory environment, where the rights of the poor are recognised and protected, (World Bank, 2008). The World Bank argues that an appropriate forest market strategy be implemented in order that markets work for the forest-dependent poor (see Figure 3.1).

Figure 3.1 Forest market development strategies for low-income producers


Initiatives, based on sustainable local forest management as part of rural development and sustainable livelihood strategies, can support good governance and increase the number of benefits for rural poor people (FAO, 2006). Now is the time for governments in many developing countries to:

- identify and address direct and underlying causes of deforestation;
- ensure that forest areas are legally recognised, and that the rights of forest-dependent peoples and their traditional forest management systems (e.g. rotational use of forest lands for community needs) are protected;
promote community forest management systems which are supported by forest-dependent communities, so that poverty be reduced and quality of life be improved.

3.3 The concept of community forestry

Community forestry, in the form of community-based forest management, involves practices by and for the benefit of local communities. This collective action approach has emerged in relation to forest resources management (Hobley, 1996). However, community forestry may be interpreted differently by various people. So, its meaning, in a social or economic or political or geographic or ecological context, can vary (Hirsch, 1998). The term ‘community forestry’ was initially defined by the FAO (1978) as being “any situation which intimately involves local people in a forestry activity” (p. 1).

This general definition includes both communal and individual activities. However, the definition fails to differentiate between activities that occur in relation to private property, versus those which occur on communal land. The definition embraces a number of situations, ranging from those in which there is a shortage of wood and other forest products for local needs, through to the growing of plants and trees at farm and community levels in order that cash crops and forest products be harvested. There is no clear indication about what methods are used and involvement by local people. Bartlett and Malla (1992) have commented that any such activity can be sponsored or supported by a government and/or some intermediate agent, or be carried out independently by a community.

Gilmour and Fisher (1991) have defined community forestry as being the control and management of forest resources by the rural people who use them, especially for their domestic purposes and as an integral part of their farming system. In relation to this definition, control refers to local control by forest user groups, and not by individuals. These researchers have also stated that the definition includes situations where forest products are sold to markets. Arnold (1992) claims that the notion of community forestry includes benefits which are derived from forestry activities, and defined community forestry as being:

“...an umbrella term denoting a wide range of activities which link rural people with forests and trees, and the products and benefits to be derived from them” (Arnold 1992, p. 25).

The White Paper on Sustainable Forest Development in South Africa (1996) defined community forestry as being: forestry designed and applied to meet local social, household
and environmental needs and to favour local economic development. It is implemented by communities or with the participation of communities (Ham & Theron, 1998, p. 45)

Several different definitions of community forestry have since emerged. They mostly deal with benefits which are generated through participatory management. This sort of community forestry is often defined as being people-centred or management of forests by people who are intent on benefitting themselves. So, Race, Pagan and Deane (2003) argued that community forestry involves more than just economic benefits being provided to communities. These researchers argue that community forestry is adopted by local rural people so that social benefits also can be obtained; and contribute to the development of the community.

The community forestry program was initiated on the assumption that local communities; will become active; understand the problems involved; become motivated to find the best solutions to their problems and possess adequate skills and knowledge for sustainable forest management, because of their own interests (Adhikari et al., 2004; Malla et al., 2003). The community forestry program is mainly aimed at improving the security and rural livelihoods of local people; stopping deforestation; enhancing environmental conservation; and empowering local people (Adhikari, 2005). Granting property rights over the commons will meet needs, in terms of the equitable and sustainable use of forest resources (Malla et al., 2003). In principle, community forestry is established at a local level by a group of people and those people have important roles and responsibilities regarding both the decision-making and benefit sharing processes.

Literature, outlining the history of community forestry, indicates that the failure of government-centred forestry to stop deforestation, manage a fuelwood crisis; contribute to the socio-economic development of local people; and reduce rural poverty, are some of the reasons community forestry has emerged in many developing countries (Gilmour & Fisher, 1991). Another reason is the increasing acknowledgement of the value of the participation of local people in the management and development of forest resources. Although definitions of community forestry vary according to different contexts and socio-economic factors, Brown (1999) indicates that the one element all models have in common, is community-based forest management, aside from any additional reason for the implementation of community forestry (see Box 3.1).
Box 3.1 The rationale for community forestry

Community forest management has been justified on the following grounds:

**Proximity to the forest resources**: those in closest proximity to the forest are best placed to ensure effective husbandry of it.

**Impact**: those whose livelihoods impact most on the forest should be involved in its management.

**Equity**: forests should be managed so as to ensure that adequate resources flow to rural populations.

**Livelihoods**: unlike single-purpose industrial forestry (government-centred forestry), which may shift benefits away from the poor, community forestry, deals with local needs and interests, is likely to change the way forests are managed, so as to ensure the safeguarding and diversification of multiple benefits from the forests.

**Capacity**: forest-dwelling communities may be more capable than government institutions, in relation to managing forest resources. From past and present experience, there is evidence that community involvement in forest management can substantially improve the quality and quantity of forestland.

**Biodiversity**: multiple purpose management of forests by communities is likely to lead to biodiversity conservation.

**Cost-effective**: local communities’ involvement in forest management can be an important way of reducing the costs of government. Many developing countries have a limited number of options, regarding forest management, other than to cut the cost of it.

**Governance**: community involvement introduces important checks and balances in relation to state service.

**Adaptability**: community forestry is flexible and adaptable in relation to enhancing cultural and livelihood aspects. These qualities cannot be delivered by centrally managed forestry.

**Development philosophy**: local participation, decentralisation and any subsidiary aspect, may all be regarded as important ends supporting development.


Hirsch (1998) sets out five principles, crucial to achieving sustainable community forestry (see Box 3.2).

Box 3.2 Community forestry principles

- Uses or manages natural or plantation forest at a local level in such a way that the use is compatible with objectives and values of local communities.
- Achieves the goal of sustainable development through an adaptive process of trade-offs between forestry related biophysical, socio-economic and cultural systems.
- Involves a number of users who live in the same area.
- Primarily practised by local farmers or small landholders.
- Involves a degree of decision making separate from a government-centred forestry approach.

The above interpretations show that the term ‘community forestry’ is widely used to denote forestry for local people. The definition should encompass common elements, such as community participation in forest management and distribution of forest products to members of rural communities. The concept of community forestry is also ‘forest of the people, by the people, and for the people’. Thus the above definitions cover a wide range of theoretical perspectives, rather than just being practical or working definitions.

For the purpose of this thesis, community forestry in Nepal is defined as a rural-level forest management practice on state land over which the legal rights are granted to communities for protection, management and utilisation to support their livelihoods and community development activities. Community forestry involves collective decision-making, and this sort of forestry is implemented on communal land. Community forestry is an activity whereby local communities actively participate in the planning, establishing, managing, harvesting and utilising forest products. Consequently they receive a major portion of the socio-economic and ecological benefits from local forest resources.

Whilst the basic concept, which is a component of all definitions of community forestry, is that community forestry benefits local communities, the understanding and interpretation of the concept can differ from country to country. The active participation of local people involves all members of the community, including women, poor and disadvantaged people in the decision-making, implementation and benefit sharing processes. This active participation should realise sustainable management and development of forest resources, and the improvement of livelihoods of people in rural poor communities. Thus Gilmour and Fisher (1991) indicate that the emergence of community forestry is not only a response to the failure, of the industrial government-centred forestry model, to stop the rate of deforestation and forest degradation, but that community forestry is also a practical means by which sustainable socio-economic development can occur in many developing countries.

3.4 The global emergence of community forestry

Although the present concept of community forestry emerged in the 1970s, many studies indicate that the management and use of forests by communities have existed for a long time in some form or other in many countries, such as the UK, Canada, Switzerland (Gilmour & Fisher, 1991) and Nepal (Adhikari, 1990; Bartlett & Malla, 1992). Between the 1940s and the late 1960s, industrial forestry brought economic growth in the western world, and it was
thought that developing countries could also prosper by using this model. However, this development model has not been fruitful in the majority of developing countries. It contributed to the oil crisis in the 1970s, and is associated not only with the increasing rate of forest destruction and land degradation, but also with the failure of the forest industries model, for economic development in developing countries (Gilmour & Fisher, 1991; Hobley, 1996).

In 1977, the World Bank Forestry Sector Review noted that many industrial forestry and government-centred forestry projects failed unless there was collaboration with local communities (World Bank, 2008). In order that the problem of deforestation be dealt with, and that there be sufficient amounts of fuelwood and other forest products so that the needs of rural people could be met, the FAO promoted a people-oriented policy in 1978 called ‘Forestry for Local Community Development’. The need to involve rural people in forest management was presented also at the World Forestry Congress in Jakarta in 1978 (Gilmour & Fisher, 1998; Malla, 2009). In addition, the recognition of the potential benefits resulting from community participation, in forestry activities, has led to the emergence of community forestry in many developing countries.

Changes in FAO and World Bank policies have enabled community forestry to emerge as worldwide practice. Community forestry is promoted by international aid organisations and is presented in program and project packages (Hobley, 1996). Hobley (1996) discussed the sorts of changes that have occurred in relation to forestry and local community development since the late 1970s (see Table 3.1). Her typology clearly shows how community forestry has been developing.
Table 3.1 The typology; movement in the philosophy of community forestry and shifts in community forestry concepts.

<table>
<thead>
<tr>
<th>Decade</th>
<th>Events</th>
<th>Responses and Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>Forest industries, resettlements and export of timber</td>
<td>Forestry for Local Community</td>
</tr>
<tr>
<td>1970s</td>
<td>Oil crisis: - the energy crisis- fuelwood impacts of deforestation on forests and people</td>
<td>Creation of new forest resources:- woodlots Social Forestry</td>
</tr>
<tr>
<td>1980s</td>
<td>Eco-disaster: - forestry renaissance</td>
<td></td>
</tr>
<tr>
<td>Late 1980s</td>
<td>Changing development practice: - from top-down to bottom-up planning Projects, subsistence needs, forest farming systems</td>
<td>Local control and management of resources:- participation, acknowledgement of value of indigenous technical knowledge, enhanced role of NGOs Participatory management: institutional and policy reform, new partnerships Collaborative, joint, participatory, community forestry</td>
</tr>
<tr>
<td>1990s</td>
<td>New forest sector policies</td>
<td>Participatory management:- institutional and policy reform, new partnerships Collaborative, joint, participatory, community forestry</td>
</tr>
<tr>
<td>2000+</td>
<td>Environment, livelihoods, governance, climate change, rights, PES, REDD++</td>
<td>Forestry for Multiple Objectives, Multiple Clients, Multiple Partnerships</td>
</tr>
</tbody>
</table>


Whilst the energy crisis is the reason that community forestry (forestry for local communities) has been adopted in many developing countries, large-scale tree planting was the first step to be carried out in many such countries in Asia, Africa and Latin America. Large-scale tree planting was termed ‘Social Forestry’ in India and it included the establishment of plantations in a variety of areas outside forests, such as village grazing common areas, government revenue land, canal and tank banks. However, Hobley (1996) argues that social forestry failed in India, because rural communities were not involved in the decision making process. Moreover, there was reluctance by community institutions to take responsibility for the management of the tree planting process. Hence, only a relatively small number of the trees survived. The goal, in relation to forest management, is that local people be involved and empowered, regarding the conservation of forest resources.

Globally, approximately 11 percent of forest area is governed by communities. Community ownership of forest resources in developing countries is three times that which is possessed
by private owners (Bull & White, 2002). It is estimated that at least 22 percent of all forests (377 million ha) in developing countries are managed by communities (World Bank, 2008). So the involvement of communities in relation to the sustainable management of forest resources is not a new concept. Community participation in the forestry sector is a major component in poverty reduction. When forest management becomes more responsive to local needs and interests, the tangible and intangible benefits for forest user communities will be increased. As more of the world’s forests become controlled by communities, community forestry practices will play an even greater role in poverty reduction, good governance, and the sustainable management of forest resources.

### 3.5 History of community forestry in Nepal

Prior to the mid-1950s the forest resources of Nepal were owned and controlled by local ruling elite. However, Indigenous and traditional practices, regarding forest management were prevalent during this period (Nagendra & Gokhale, 2008). Because the size of the population was then relatively small and forest resources relatively large, there was not as much pressure on forests as there is today. None-the-less, for a long time Nepal’s rulers used these resources to pay the salaries (Jagir) of their soldiers, buy allegiance, bribe elite and powerful people to support them, and above all, to increase their personal and family wealth (Jefferson, 1993). The British rulers in India, who advised Nepali rulers to export hardwood from the Tarai to make railway sleepers, aggravated this situation. By 1950, one-third of the forestland in Nepal was in the hands of the elite and powerful and 75 percent of this amount was possessed by the Rana families (Bajracharya, 1983).

In 1957, the government nationalised the forests by enacting the *Private Forest Nationalisation Act 1957*. The main objective was the protection, management and conservation of forests for the benefit of the entire country. Joshi (1993) acknowledges the benefit regarding this nationalisation, in view of the fact that a large number of forests, which had been privately controlled, were transferred to the government.

However, many researchers (e.g., Chand & Wilson, 1987; Gronow & Shrestha, 1991; Whelpton, 2005) argue that nationalisation accelerated deforestation and forest degradation. They claim that the Act merely placed all forestland under the control of the Department of Forests, whereby foresters were turned into policemen and licensing officers, who acted against the interests of local villagers (Bhattarai, 1990). Thus, local control over forest resources was replaced by a central governance system. Lack of forest ownership resulted in a
lack of incentive for people to conserve forest resources. As a result, most of the forests which had previously been managed were converted to open access areas. This led to massive amounts of destruction and degradation, as well as conversion of forestland into agricultural land, both by the previous owners and by people who did not own the forests (Joshi, 1998).

Forest management, which is based on a ‘sustained yield’ of timber, was introduced in 1961, with technical assistance from India (Gautam et al., 2004). The main aim was to optimise the yield of timber, so that the highest amount of annual income on a commercial basis could be obtained. Many areas were clear-felled so that regeneration could occur. Thousands of cubic metres of timber were produced annually; and so a lot of revenue was generated in the beginning (Gautam et al., 2004). But the people who had formulated the government forest policies had not taken into account sustainable management and development of the forests.

Despite many genuine efforts, forest management by the government was unsuccessful. Policing and licensing policies failed to control management of the forests. Moreover, the Forest Acts of 1957, 1961 and 1968 were unsuccessful, in meeting the needs of local people (Joshi, 1997; Whelpton, 2005).

This top-down approach failed to alleviate poverty, because the beneficiaries (the local forest users) were assigned no roles in relation to the planning, decision-making, implementation and monitoring processes (Hobley & Malla, 1996; Nagendra & Gokhale, 2008). It has been suggested that the main reason for this lack of success is that too much emphasis was placed on a sustained yield, whilst too little attention was given to social and ecological factors regarding the management plans (GoN, 1989). Consequently, the District Forest Officers who were in control of the implementation process for each forest management plan, concentrated on the harvesting of products and meeting timber production and revenue targets. In Table 3.2, the key periods are presented, regarding forest policies and legal provisions in Nepal.
## Table 3.2 Timeline of forest policies and summary of legal provisions in Nepal

<table>
<thead>
<tr>
<th>Date</th>
<th>Forest policies/legal provisions</th>
<th>Main focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>Private Forest Nationalisation Act</td>
<td>No rights of the local people regarding the forests</td>
</tr>
<tr>
<td>1961</td>
<td>The Forest Act</td>
<td>No rights of the local people regarding the forests</td>
</tr>
<tr>
<td>1967</td>
<td>The Forest Protection (Special Arrangements) Act</td>
<td>More emphasis on prohibition and punishment regarding the use of forest resources, than on people’s livelihood needs</td>
</tr>
<tr>
<td>1976</td>
<td>The National Forest Plan</td>
<td>Realisation of the importance of people’s participation in forest management</td>
</tr>
<tr>
<td>1977-78</td>
<td>Amendment, Forest Act 1976</td>
<td>Recognition of people’s participation in forest management</td>
</tr>
<tr>
<td>1988</td>
<td>The Master Plan for the Forestry Sector</td>
<td>Emphasis on sustainable forest management and livelihoods of people in local communities</td>
</tr>
<tr>
<td>1993</td>
<td>Forest Act</td>
<td>Legal basis for providing management responsibilities to CFUGs</td>
</tr>
<tr>
<td>1995</td>
<td>Forest Regulations</td>
<td>User rights of CFUGs registered in the DFOs</td>
</tr>
<tr>
<td>1998</td>
<td>Amendment Forest Act 1993</td>
<td>Restrictions on forest resource use by CFUGs that do not prepare a resource inventory</td>
</tr>
<tr>
<td>2000</td>
<td>Forest Policy</td>
<td>Priority is community forestry, with community participation in forest management so that livelihoods can be sustained; special forest policy for block forests, collaborative forest management in the Tarai</td>
</tr>
<tr>
<td>2001</td>
<td>Revision of community forestry guidelines</td>
<td>Priority is investment of CFUGs’ funds for forest management and poverty reduction</td>
</tr>
<tr>
<td>2001</td>
<td>Second revision of the Forest Act, 1993</td>
<td>More emphasis on making CFUGs responsible for management, development and utilisation of community forests</td>
</tr>
<tr>
<td>2003</td>
<td>Collaborative forest management guidelines</td>
<td>Handover of the block forests of Tarai and Inner-tarai to local collaborative committees for joint forest management</td>
</tr>
<tr>
<td>2004</td>
<td>Fiscal Ordinance for fiscal year 2004/2005</td>
<td>Tax on CFUG revenue lowered to 15% of total amount, during the auction period of Sal timber and Khair species for outsiders, especially in relation to Tarai and Inner -tarai districts</td>
</tr>
<tr>
<td>2010</td>
<td>Revision of the Forest Act, 1993</td>
<td>A bill was prepared in the parliament so that more emphasis could be placed on the harvesting of forest products, whereby 50% of total community forestry revenue would go to the Government; the CFUG would be made more responsible for the management, development and utilisation of community forests; Community forestry acknowledged as being effective regarding national development goals</td>
</tr>
</tbody>
</table>


Furthermore, the number of trees cut down in forests frequently exceeded the annual quota for wood-based industries, such as *Kattha* and *Kutch* factories, parquet businesses, match and plywood factories, and sawmills. Illegal felling in the forests by smugglers and local people further jeopardised sustained yields from the forests (Joshi, 1997). Thus unsustainability, that caused deforestation and degradation of forest resources, led to community-based forestry
being introduced. However, it is still not certain whether the introduction of community forestry has resulted in sustainable management of forest areas, and contributed to the livelihoods of people in rural communities (Malla, 2003).

With the introduction of the concept of local community development in the 1970s, an increasing amount of attention was given to the deteriorating condition of forests in the Middle Hills area of Nepal. There had been an increasing awareness within the bureaucracy acknowledging the interdependence of forests and local forest users. Not only had it long been known in management circles that community participation (the social factor) is a necessary component regarding the sustainable management of forest resources; but that the efforts of government officials, in relation to the management of forests scattered all over the Middle Hills region, had been inadequate. This realisation came about after it was observed that government control and management of indigenous systems in various parts of the country had not been effective, even after the nationalisation of forests in 1957 (Whelpton, 2005).

Those forests under the control of local people, however, could be easily distinguished. They usually comprised of dense stands of trees, when compared to the generally degraded condition of other forests. Therefore, in 1976, a National Forestry Plan was introduced whereby the management of hill forests in Nepal would include people other than government officials (Gautam, et al., 2004). Furthermore, the Forest Act 1961 was amended in 1977, and regulations were formulated in 1978 for the participation by local people in forest management. So, with this provision, community forestry had officially commenced in Nepal (GoN, 1989).

The National Forestry Plan 1978 introduced the concept of the Panchayat Forest (PF), whereby forestland could be developed by village Panchayat (the political unit in the area) by means of the establishment of a plantation on communal or government degraded forestland. Local people would be involved. The implementation of PF and Panchayat Protected Forestry (PPF) programs, were guided by relatively decentralised forest policies and first began in 1979/80, when a community forestry project was established in the Middle Hills area of Nepal. Forests were handed over to different Panchayats after afforestation had occurred (Jha, 1998). These PFs were to be protected, managed and utilised by local people through the village Panchayat, with technical assistance from the government.
Decentralised forestry policies became popular. The decentralised aspect of natural resource management and rural development appealed to a large number of bilateral and multilateral aid agencies. Countries such as Australia, the UK, Switzerland, Germany and the USA offered to provide adequate amounts of support to the government of Nepal, in support of the implementation of decentralised forestry, through community-based forest management projects in the different hills regions (DoF, 2006). Furthermore, the Asian Development Bank and the World Bank provided loans so that the program could be implemented in the different hill districts. During the initial stage and for a number of years thereafter, the emphasis on most of these projects was the establishment of plantations and protecting the existing natural forests, with the assistance of the Panchayats.

However, despite the positive efforts, community participation regarding PF was limited. Local rural people in need of assistance, such as the poor and women, were unaware that the scheme even existed. According to the Panchayat Forest Regulations 1978, and Panchayat Protected Forest Regulations 1978, all income from the sale of forest products from PF went to the Panchayat. Net income from the sale of forest products from PPF had to be divided between the Panchayat treasury (75%) and the treasury of the GoN (25%), after GoN expenses regarding the scheme had been deducted (GoN, 1978).

This type of benefit-sharing mechanism adversely affected community forest management. It was a matter of concern that village communities, which anticipated some small return, experienced long delays before they obtained any income from their PPF (Whelpton, 2005). The distribution of profits, in terms of percentages, was not based on real needs. The government, without consulting the users, had decided how the profits would be split. In addition, the Village Panchayats were not using the funds for the welfare of villagers on any sort of equitable basis. Consequently, most village communities were not willing to nominate their forests for admission to the PPF scheme.

After the restoration of democracy in 1990, all of the PF and PPF schemes were converted into community forests. The legal authority for this was provided by amendments to the Forest Act 1961, Forest Protection Special Act 1968, and Forest Regulations 1978. The Forest Act 1993 and Forest Regulations 1995 were enacted after 1995 (Gautam et al., 2004). According to the Forest Act 1993:

... national forest should be understood [...to be] the community forest which, as part of the national forest, the District Forest Officer hands
over to the user groups for the development, protection, utilization and management in accordance with the forest operational plan, with authorization to freely fix the prices of the forest products, and to sell and distribute the forest products for the collective interests and welfare (GoN, 1993, p. 2).

So, the legal definition of community forestry contains one or more provisions regarding sustainable forest management, when compared to the policy of the earlier government-managed forestry system (see Table 3.3).

Lack of regular controls or supervision; lack of community participation regarding the management and development of forest resources; inadequate socio-economic benefits for local people; and other deficiencies, were associated with the government-managed forestry scheme. Because the government had a limited number of forestry field staff to manage government forests, there was virtually uncontrolled access to forest resources, which lead to the deterioration of forestland all over the country (Nagendra et al., 2008; Panday, 1993). In addition, government-managed forestry was concerned only with the conservation of timber-producing trees.

However, the community forestry program involves control of forests by local community CFUGs, whereby the user rights of those CFUGs are recognised. The community forestry philosophy is based on participatory decision-making, and ‘bottom-up’ planning approaches. The main focus, in relation to community forestry management, is on conserving not only timber species, but also those trees that provide firewood, fodder and other non-timber forest products (NTFPs), which are especially valuable in relation to the livelihoods of local rural people.
Table 3.3 Differences between government-managed forestry and community forestry

<table>
<thead>
<tr>
<th>Elements</th>
<th>Government forestry (past and present)</th>
<th>Community forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural systems</td>
<td>natural forests and plantations of timber species</td>
<td>protection of natural forests and plantations of many plant species for the production of all kinds of biomass</td>
</tr>
<tr>
<td>Objectives</td>
<td>production of raw materials for industries</td>
<td>self-reliance on forest products; biodiversity conservation through sustainable forest management, and improvement of the local environment</td>
</tr>
<tr>
<td>End products</td>
<td>timber and environmental services</td>
<td>production of all types of timber and non-timber forest products, sustainable forest management</td>
</tr>
<tr>
<td>Land ownership</td>
<td>government</td>
<td>government and communal</td>
</tr>
<tr>
<td>Time</td>
<td>long term</td>
<td>short to long term</td>
</tr>
<tr>
<td><strong>Community</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Users</td>
<td>mainly urban people, industries</td>
<td>a large variety of rural people</td>
</tr>
<tr>
<td>Local people</td>
<td>unimportant; kept out</td>
<td>important; used and institutionally supported as a resource; owners of the forest resources</td>
</tr>
<tr>
<td>People participation</td>
<td>insignificant; people are target groups to be motivated or employed</td>
<td>a requirement; people are a resource, an asset to be supported, and their involvement and responsibility are important</td>
</tr>
<tr>
<td>Role of people vs. experts</td>
<td>people are the problem, experts are the solution</td>
<td>people are the solution and a resource, experts are to support them</td>
</tr>
<tr>
<td>Labour</td>
<td>employed</td>
<td>employed or voluntarily self-employed</td>
</tr>
<tr>
<td><strong>Foresters</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Managers</td>
<td>professional foresters</td>
<td>community groups, foresters</td>
</tr>
<tr>
<td>Management and use rights</td>
<td>government</td>
<td>local community (people)</td>
</tr>
<tr>
<td>Financial management costs</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Management decision-making and planning approach</td>
<td>directive and top-down</td>
<td>participatory, and bottom-up</td>
</tr>
<tr>
<td>Role of government forest organisation</td>
<td>omnipotent manager</td>
<td>advisor or co-manager with people</td>
</tr>
<tr>
<td>Legislation</td>
<td>protective</td>
<td>productive and protective</td>
</tr>
<tr>
<td>Control agency</td>
<td>state forest service</td>
<td>combined local and state control</td>
</tr>
<tr>
<td>Foresters/users relationship</td>
<td>formal</td>
<td>both formal and informal</td>
</tr>
</tbody>
</table>


Community forestry (*Samudyak Ban*), in the Nepalese context, is a forestry co-management practice which is conducted by the local community on land which is owned by the government. Community forestry is based on a partnership between the Forest User Group (CFUG), or *Samudyak Ban Upabhokta Samuha*, and the government. It is a partnership whereby the forest users have to adhere to the forest operational plan, which is jointly agreed
to by themselves and the government. The CFUG takes on the responsibility to protect, develop and use forest resources in a sustainable way (DoF, 2009). The government, on the other hand, helps the CFUG by providing technical, administrative and legal support, when requested.

So community forestry in Nepal differs from JFM in India, Tumpangsari in Indonesia, and CBFM in the Philippines, in that forests are handed over for use by local communities for an indefinite period of time. Moreover, the CFUGs reap 100 percent of the benefits from forests, without having to share any of them with local government bodies. In this partnership the government is restricted to giving technical assistance, management advice and legal support only.

### 3.6 Community Forest User Groups

The concept of Community Forest User Groups (Samudayik Ban Upabhokta Samuha), for the management of forest resources, was introduced in the Master Plan for the Forestry Sector 1988, after the Panchayats were unable to effectively protect and manage community forests which had been handed over to them (Barlett, 1992; GoN, 1989; Hobley, 1996).

A forest user group in Nepal is defined as being “a group of people who are accepted by one another as users of a particular forest area and who accept the rules of the group” (DoF, 1992, p. 1). This definition indicates that to be an authentic forest user the right of that person to use the forest has to be acknowledged by fellow users. However, the legal definition of a user group is somewhat different. *The Forest Act 1993* defines a forest user group as being:

...a registered group of concerned forest users desirous of developing and conserving the forest and using the products for collective benefits (GoN, 1993, p. 2).

This definition mentions the registration aspect, because being registered is a precondition for a CFUG to acquire legal status in Nepal. Hobley (1996) stated that in relation to forest management, local institutions such as CFUGs can exist as formal or informal institutions. An informal institution has no legal right over forestland in Nepal. Only the registration of a CFUG with the DFO will give that CFUG formal status (GoN, 1995).

Although it is common in CPRM literature for institutions and organisations to be used interchangeably, institutions, for the purpose of this study, are perceived as being associated
with a set of formal or informal rules, norms and values. Organisations, on the other hand, are comprised of groups of people. The CFUG assembly is the apex body of CFUGs, and makes all decisions about forest protection; management; utilization; and rights and obligations regarding user members. Usually all CFUGs operate through a CFUG executive committee (CFUC), which is an administrative body that implements decisions made by the CFUG assembly, concerning different aspects of community forestry and CFUG management.

After the community forest handover process has been completed, the CFUG is fully responsible for adhering to its forest management operation plan, including the protection, management and utilisation of forest resources. By following an approved plan, a CFUG can sell and distribute forest products independently. The CFUG can also set prices in accordance with the operation plan (GoN, 1995). Because user groups are smaller than the Panchayats units, they can be more easily mobilised; and thus become effective. Such small groups can enforce rules though peer pressure and mutual agreement, so that any ‘free ride’ behavior by one or more members can be minimised. Members of a small group are in regular contact with each other as users, producers and enforcers (Karki et al., 1994). It is conceivable that a small group of rural people can manage a community forest successfully. Nevertheless, there are cases where large groups have also been successful (Bartlett et al., 1992); but such cases are not common.

Despite the popularity of community forestry in Nepal, its socio-economic outcomes and their contributions to the livelihoods of rural people are not well understood. The government of Nepal has implemented community forestry as a process whereby the subsistence requirements of rural communities can be met, and poverty reduction can be achieved (CFDD, 2001; DoF, 2004; GoN, 2000; Kanel, 2004; Nagendra & Gokhale, 2008). But the process, leading to positive change to forest management, good governance and improvement of livelihoods, requires that communities be put in charge of that process.

### 3.7 Defining common property rights and access to the forest resources

Community forestry is associated with Common Property Regimes (CPRs), because arrangements regarding community forestry, such as rules, rights and property, are devised and controlled equally by a group of people (Mckean & Ostrom, 1995; Ostrom, 1999). Here a right is, in effect, one’s capacity to call upon the collective group to stand behind one’s claim to a benefit (Bromley, 1991). A CPR is defined as being an “enforceable authority to
undertake particular action related to a specific domain” (Common, 1968, cited in Vasenda, 2001, p. 6). McKean and Ostrom (1995) have used the term “common pool resources” rather than “common property resources”, and they associate the concept with the “common property regime”. According to those researchers, the term “common pool resources”, refers to the physical resources, and not to social institutions.

Thus “Common Property Regime” refers to a property rights arrangement, by which a group of resource users share rights to a resource. Basically the CPR concept is comprised of two aspects. The first relates to entitlements regarding owners’ rights. The second relates to the duties of owners and the use of a common resource (Bromley, 1991). The management group or owners have a right to exclude non-members and non-members are obliged to abide by the exclusion decision. Individual members of the management group have both rights and duties, with respect to use rates and maintenance of the owned resource. Without defined ownership or a clearly delineated group of users, there could be no rights regarding exclusion and so anyone could reap the benefits in relation to open access resources.

So, specific individuals or groups could be excluded from benefiting from CPR resources (Dietz, Dolsak, Ostrom & Stern, 2002). Forest resources which are grown on public land have traditionally been owned by the government. However, current forest users often have collective ownership. At times, CPRs that lack owners or clearly defined property rights are regarded as having open access resources. This essentially means there are no effective regulations governing access, harvesting and so on.

In relation to the use of a renewable resource, economists are aware of the dynamics and incentives that drive people to overexploit natural resources. These include the lack of any regulation, a lack of enforcement and zero user-costs (Bromley, 1991) When a government cannot effectively exclude local people from accessing a natural resource, and if there are no communal rights and responsibilities governing the use, then a CPR effectively provides open access to that resource.

The benefit which is gained as a result of the extraction of an open access resource is limited, whilst the costs (in terms of decreased reserves or environmental degradation) are shared by all who use the resource (Ostrom et al., 2002). In relation to an open access resource there is no incentive for any individual to practise conservation, because the resource has no imputed value. Conservation of a resource tends to occur when a community collectively attributes
value to it. If the community of resource users can effectively organise and cooperate, then they can establish stakeholder-devised institutions for the productive management of a shared resource. The expression ‘tragedy of the commons’ is often used to refer to open access use. Overexploitation can occur because of misguided attitudes regarding the governing of a resource (Hardin, 1968; Ostrom, 1990). However, advocates of the CPR argue that Hardin has confused common property with open access, thereby failing to distinguish between common property and no property (McKean, 2000). None-the-less, it can be concluded that the ‘tragedy of commons’ results not from the sharing of rights, but from the absence of rights.

3.8 Institutions for the management of common property resources

The definition of an institution varies according to literature covering different disciplines. Basically, institutions are often referred to as being associated with sets of rules that are commonly understood and used, acknowledging what is required, allowed or prohibited in a given situation. In other words, institutions are defined as being connected with the ‘rules of the game’ in a society, or of being associated with humanly devised constraints that structure human interaction. Such constraints can be formal (rules, laws, constitutions) or informal (norms of behavior, conventions and self-imposed codes of conduct) (North, 1990).

Bromley (1989) defines institutions as being comprised of “rules and conventions that define individual behavior” (p. 22). Among the identified roles of institutions is one of mediator, which helps to govern the relationship between a social group and the life-supporting environmental systems on which it depends (Berkes, Folke & Colding, 2000). According to Ostrom (1999), an institution is comprised of the set of rules actually used (the working rules or rules-in-use) by a set of individuals to organise repetitive activities that produce outcomes affecting those individuals and potentially affecting others. In fact, an institution can be broadly classified as being a formal or external entity (e.g., a body of national and international laws, rules, treaties and agreements), or an informal, or internal entity (e.g., tradition, culture, belief, or local organisation which is not recognised by law but widely acknowledged and practised by the society in accordance with their socio-cultural and political economic conditions).

Indeed, institutions are important in shaping human interaction and helping to structure incentives in relation to human exchange, whereby uncertainty in transactions decreases (North, 1991). Furthermore, the underlying social organisations become increasingly relevant
in relation to the attainment of socio-economic development, and goals for natural resource sustainability. This is particularly so in rural areas where a lack of cooperation, cohesiveness and coordination frequently hamper economic progress. For this reason, it is often suggested that a strong local organisation is a key determinant for successful rural economic development.

Community property institutions are important in mitigating the deleterious effects which are caused by the overexploitation of forestry resources of CPRs. Institutions often originate spontaneously, in response to particular needs of a group of individuals. Healthy institutions (e.g., those that are functioning and appropriate) grow and evolve so that the needs and demands of the society are accommodated (North, 1991).

Although population pressure has induced the unsustainable use of key natural resources such as forests in Nepal (Joshi, 1997), the threats to natural resource sustainability are not limited to population growth alone. The absence of effective government and local institutions that manage forest resource use is more detrimental to environmental sustainability, than are population pressures and poverty. Indeed, a viable and appropriate institutional framework, responsible for natural resource stewardship, is a necessary condition for the achievement of both socio-economic development and natural resource sustainability goals.

In the context of community forestry, institutions are associated with community forestry policies, laws, general rules (both formal and informal), CFUGs’ constitutions and forest operational plans that guide CFUGs’ activities and the socio-economic outcomes of community forestry. Literature, examining community forestry institutions, indicates that not all institutions are beneficial for all members of CFUGs, because the rules or norms of institutions are created by the existing law, and CFUGs often pursue their own basic interests, which may not necessarily be compatible with those of outsiders. None-the-less, success or failure in the implementation of community forestry and its socio-economic outcomes for rural communities, can usually be assessed via the use of institutional design principles.

Common Property Resource Management is an institutional arrangement whereby resources which are held in common by the user group, are managed in accordance with a fully regulated process (Bromley, 1991). In order that common property rights be properly managed, self-governing environmental resource management organisations have to be established. Ostrom (1999) promotes eight design principles which she believes are essential
elements or conditions for effective management of common property rights; through the establishment of self-governing environmental resource management organisations (see Table 3.4).

These eight design principles provide a context within which participatory forestry programs can be understood. In addition, Ostrom (1990) has tried to establish why it is that collective action groups in some common property systems create possible solutions, thereby resisting Hardin’s ‘tragedy of the commons’, whilst others succumb. In expressing the hope that successful community property resource institutions can be established, Ostrom (1990) believes that these design principles will affect incentives in such a way that resource users will be willing to commit themselves to rules, as well as to monitoring one another.
Table 3.4 Ostrom’s eight design principles regarding local institutions

<table>
<thead>
<tr>
<th>No.</th>
<th>Design principles</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clearly defined boundaries</td>
<td>These are basic to the problem, and consist of two components: (a) the spatial delineation of a given resource as common property, and (b) the definition of rights. Individuals or households, with rights to withdraw resource units from the common-pool resource, and the boundaries of the common-pool resource itself, are clearly defined. Clear boundaries can be thought of as being necessary conditions (though not sufficient) for the conversion of an open-access resource to a valued CPR item, through the establishment of resource management institutions.</td>
</tr>
<tr>
<td>2</td>
<td>Congruence between appropriation, provision rules and local conditions</td>
<td>The heterogeneity of resource endowments, even amongst separate user groups (i.e., villages or communities) of the same geographic region, indicates the importance of designing institutions that reflect the specific characteristics of a given CPR. For example, no two physical environments (e.g., forests) are exactly the same, even for the same type of CPR. Therefore human interaction with CPRs will display considerable spatial and temporal variability, and will require that institutions be tailored to the specific parameters and nuances of a particular CPR. Effective and equitable governing structures, which will give a voice to each stakeholder, will also enable each member to participate in the modification of the institutions.</td>
</tr>
<tr>
<td>3</td>
<td>Collective-choice arrangements</td>
<td>These arrangements ensure that the institutions are responsive to the individuals that they serve. In addition, this responsiveness helps to ensure that congruence occurs. By being responsive to its members, the institutions are able to respond to and adapt to changing conditions. This is because the users of the CPR are in the best position to assess the local environment (political and physical) and any changes therein.</td>
</tr>
<tr>
<td>4</td>
<td>Monitoring of the CPR</td>
<td>It is necessary to ensure that all stakeholders comply with the appropriation rules, and that the exclusion of non-stakeholders be enforced. This design principle addresses the fundamental problem regarding open access, by ensuring that there are no ‘free-ride’ individuals, and forcing each user to pay the cost of their resource usage. Monitors are accountable to the stakeholders, and are frequently the resource appropriators themselves. Effective CPR institutions do not rely on external enforcement. The community itself is responsible for the compliance of each individual, through both formal and informal (i.e., cultural) institutions.</td>
</tr>
<tr>
<td>5</td>
<td>Graduated sanctions</td>
<td>Circumstances will arise whereby temptations to cheat lead to infractions. But effective compliance can result from the use of graduated sanctions. There is a certain amount of fairness implied with graduated sanctions. They are important so that future compliance is not discouraged when minor infractions occur, or when first-time offenders are discovered cheating. However, sanctions should be heavy for repeat offenders, in order to ensure that there is compliance by everyone.</td>
</tr>
<tr>
<td>6</td>
<td>Mechanisms for conflict resolution</td>
<td>Conflict resolution mechanisms are characterised by low transaction costs. To ensure both the fairness and the continuity of the institutions, each stakeholder must have recourse to a forum which has been established for the purpose of dispute resolution. As any set of rules and regulations is subject to different interpretations by different individuals, and because the purpose of the design principles is that an open access resource be managed, a forum is necessary regarding the dispensing of justice or punishment to those accused of non-compliance. Again, an external source of governance is not required for this to occur.</td>
</tr>
<tr>
<td>7</td>
<td>Minimal recognition of rights to organise</td>
<td>This design principle relates directly to an external presence. It refers to the need for an over-arching governmental policy framework that facilitates or even encourages the establishment of community-level institutions capable of natural resource management. The most basic requirement is that the government recognise the rights of local people to devise their own institutions regarding CPRs.</td>
</tr>
<tr>
<td>8</td>
<td>Nested enterprises</td>
<td>This design principle is auxiliary, and is only relevant for larger and more complex CPR management systems that have an ordered hierarchy</td>
</tr>
</tbody>
</table>

Although the eight design principles are mostly used in analysis, these principles are not free of criticism at both the theoretical and operational levels. Many authors (e.g., Blaikie, 2006; Cleaver, 2001; and Turner, 1999) indicate that the “defined boundary” regarding an opinion, is more rigid than any social or geographic boundary and needs to be more flexible in order that local arrangements can be properly assessed. Cox (2010), and Trawick (2001), have raised a number of questions about appropriation and equity regarding rules and practice, in relation to resources being used.

### 3.9 Good governance

‘Governance’ is an umbrella term. It is defined as being a complex mechanism whereby communities or groups articulate their interest; exercise their rights and obligations; and mediate their differences (UNDP, 2002, & 2011). In general, ‘governance’ denotes decision-making, and the process by which decisions are implemented or not implemented (UNESCAP, 2004). The term ‘governance’ is derived from the Greek words, ‘kybernan’ and ‘kybernets’; which mean ‘to steer’ and ‘to pilot’ things, respectively (Manandhar, 2007). ‘Governance’ was not in use much before the 1980s. Its use emerged because it was politically difficult for one to complain about corruption, mismanagement, and abuses by authoritarian regimes without offence being given.

‘Governance’ can be used in several different contexts (e.g., corporate governance, international governance, national governance and local governance). It denotes both political and administrative activities and also refers to the manner in which power and authority are exercised. Therefore, moral behavior and ethical conduct are also involved, in ‘governance’ (Manandhar, 2007).

Furthermore, good governance is both a goal and a process. Governance is concerned not only with what is delivered, introduced or said; but also how it is delivered, introduced and said. The institutions of governance in the three domains (state, civil society, and private areas) must be designed so that they contribute to sustainable human development. This is done by the establishment of political, legal, economic, and social mechanisms; so that poverty reduction, job creation, environmental protection, and the advancement of women and deprived poor people in developing countries can occur.
Grindle (2004) argues that good governance is widely viewed as being an essential ingredient for reducing poverty. Usually, a clear and compelling argument can be presented as to why each condition in relation to good governance is crucial in reducing corruption, improving accountability, decentralising government, managing public resources better and establishing equality before the law. Governance is also used in relation to restricting the influence of the civil service. Furthermore, many of the conditions of good governance are laudable goals, in and of themselves. Examples include the efficient management of resources, the effective delivery of goods and services, responsiveness to the poor and disadvantaged majority and participation in decision making (Grindle, 2004). From a governance perspective, the mobilisation of local communities in planning; implementation, monitoring; evaluation; and benefit sharing, ensures that there are lower unit costs, better quality work, greater transparency in fund utilisation and sustainable management and development.

Much has been written about the characteristics of efficient government, as well as successful and effective local institutions. But the principles and criteria of good governance, as defined in societal terms, remain elusive (see Box 3.3). All of the characteristics of good governance are interrelated and are mutually reinforcing, and cannot stand alone. For example, accessible information involves more transparency, broader participation and more effective decision making. Broad participation contributes both to the exchange of information, which is needed for effective decision making and for the legitimacy of those decisions. Legitimacy requires effective implementation and encourages further participation. Responsive institutions must be transparent and function according to the rule of law if they are to be equitable.

Brown, Malla, Schreckenberg and Springate-Baginski (2002) define forest governance as being a set of principles and rules by which power is exercised and practised in all spheres - public and private - regarding the management of forest resources. The definition includes the relationship between state and citizens in both civil society and the private sector. In this context, it can be said that good governance is one of the prerequisites for a successful partnership between a government and communities, for the sustainable management and utilisation of community forestry.
Box 3.3 A brief description of the principles and criteria of good governance

**Participation**: Participation, by all members (including men, women, rich, poor, elite and disadvantaged people) of a group or institution, is a key component of good governance. Each member should have a voice in decision making, either directly, or indirectly through legitimate institutions that represent their interests. This broad concept of participation is built on the principle of freedom of association, as well as on the right to be involved in the decision making and the benefit sharing mechanism. Each participant should be informed and organised.

**Adherence to the rule of law**: Good governance requires that laws be enforced impartially. It also requires that there be full protection of human rights, particularly those of ethnic minorities and poor members. The impartial and effective enforcement of laws requires that there be an independent judiciary.

**Transparency**: It means that decisions taken, and their enforcement, are done in accordance with rules and regulations. Transparency is associated with the free flow of information, and is easily accessible to those who will be affected by decisions and their enforcement. Processes, institutions and information are directly accessible to those concerned with them; and enough information is provided so that those elements can be understood and monitored. Enough information is provided in clear and easily understandable forms; as well as in the media.

**Responsiveness**: Institutions and processes serve all stakeholders within a reasonable timeframe.

**Consensus orientation**: Good governance mediates differing interests, so that there is a broad consensus as to what is in the best interests of the group, imbedded in policies and procedures. Good governance also requires that there be a broad and long-term perspective identifying what is needed for sustainable human development; and how such development can be achieved.

**Equity and inclusiveness**: All members of a society, including men, women, poor, and disadvantaged members, feel that they have a stake in it, and do not feel excluded from the mainstream of society. This requires that each person in the group, especially the most vulnerable, has an opportunity to improve or maintain his or her well-being.

**Accountability**: It is a key requirement of good governance. Not only governmental institutions, but also the private sector, and civil society organisations, must be accountable to the public and institutional stakeholders. Decision-makers are accountable to the members of the group, or to institutional stakeholders. Accountability differs, depending on the organisation and on whether the decision is internal or external to an organisation. To achieve accountability, transparency and the rule of law are required.

**Effectiveness and efficiency**: Processes and institutions should produce results that meet the needs of society, whilst making the best use of resources at their disposal. There should be sustainable use of natural resources, and protection of the environment.

**Subsidiarily**: This is a decision making process which takes into consideration the level most appropriate (usually the lowest possible level) regarding the issue.

**Sustainability**: The likelihood that the positive effects of an intervention will persist for an extended period of time after the intervention has occurred.

**Strategic vision**: Leaders and members have a broad and long-term perspective of good governance, human development; and a sense of what is needed for such development. There is also an understanding of the socio-economic and cultural complexities.

In relation to community forestry, good governance is one of the second generation issues (Kanel, 2004). Good governance is all about the effective management of forest resources and their equitable distribution to community CFUGs. The philosophy of community forestry is that a forest is to be managed in a democratic way and that the performance of selected institutions be improved in accordance with the principles of good governance and an equitable benefit sharing mechanism. Further, the benefits which are derived from community forestry should be distributed in both accountable and transparent ways to the local rural communities (Brown et al., 2002; Varughese, 2001).

Community participation, accountability of community CFUC members, transparency during resource collection and utilisation, community funds mobilisation and a pro poor policy, are all considered to be pre-requisites in relation to obtaining more effective socio-economic outcomes from community forestry (Paudel & Vogel, 2008). The current forestry policies in Nepal acknowledge good governance as being one of the genuine second generation issues for community forestry in that country. In relation to good governance practices, there needs to be equity in access to, and benefits from, forest resources. This especially applies in relation to women, poor, and other disadvantaged people. Forest productivity should be controlled by local management that is both transparent and accountable so that poverty reduction, rural development, and local economic development, can occur (Agrawal, 2001; Maskey, Gebremedhin, & Dalton, 2006).

**Inclusion of women and disadvantaged people in the management of common property rights**

The involvement of all user members, including women and disadvantaged people, in relation to the management of forest resources, is one of the most important ways that common property rights can be acknowledged (Gronow & Shrestha, 1991; Hobley, 1996). It is necessary that barriers be removed, and that poor people, women and disadvantaged groups be given access to development opportunities that will support their livelihoods. Social inclusion initiatives help to improve the capacity of weaker groups to become active, regarding their needs for forest products. In fact, involving these people in the design and implementation of a common property rights agenda is one of the best ways by which their rights can be protected.

Castillo (1983) and Korten (1987) argue that active participation by all users is one of the best ways by which the feeling of ownership of environmental resources can be increased. This is
useful for the sustainable and cost-effective management of forest resources. Furthermore, Gilmour and Fisher (1991) emphasise looking after poor and socially disadvantaged people. However, these researchers also indicate that the mere creation of forest wealth may benefit elites and the more powerful sections of communities. The inclusion of women and disadvantaged people not only empowers these people to play an active role in the management of forest resources, but it also helps them to understand the importance of protecting and developing forest resources so that poverty can be reduced (Hobley, 1996). Thus community forests can be better conserved because of better management of common property rights.

3.10 Government logic regarding community forestry in Nepal

The Community Forestry Development Program (Samudyak Ban Bikash Karyakram) in Nepal is regarded as being a world innovation in the field of participatory environmental governance, targeting the twin goals of conservation and poverty reduction. The World Bank (2001) has also mentioned that Nepal is a leader in relation to engaging the community in the protection and management of forests. In 2001 Otsuka and Tachibana (cited in Devkota, 2005) studied the evolution and consequences of community forestry in Nepal. They concluded that the scarcity of forest resources has encouraged people to form forest user groups (CFUGs), because subsistence farming in the hills of Nepal, without the assistance that forests provide, is virtually impossible. In addition, although Nepal's community forestry policy and legislation have been instrumental in shaping similar policies in other countries of the world, groups of policy makers and professional people from other countries have been coming to Nepal on study tours in order to learn about Nepal's community forestry programme (DoF & FAO, 1997).

Many authors (e.g., Pagdee et al., 2006; Budhathoki, 1987; Virgo & Subba, 1994) have agreed that shifting the role of community forestry, to one whereby the livelihoods and welfare of rural communities is improved, is needed; as is conserving natural forests through local participation, good governance and cooperation. As of now, rural conditions are such that any CFUG and government should assist each other, in order that livelihoods of local people and the sustainability of forests, receive full support.

Although there are still debates about how community forestry can improve the livelihoods of rural people in Nepal, it appears that the implementation of an equitable and sustainable CBFM approach is a viable option to stopping deforestation and helping the forestry sector
support the livelihoods of people, reduce absolute poverty and assist rural development in developing countries such as Nepal (Adhikari et al., 2004; Bhattarai, 2006; Karki, Tiwari, Badoni & Bhattarai, 2003). Therefore the results of this research would be useful, in relation to filling any existing gap in that knowledge. A summary of the underlying logic of the development of community forestry in Nepal is shown in Figure 3.2.

Figure 3.2 Government’s logic of community forestry development in Nepal

- **Implementation of CF**: (policies, legislation, resource ownership transferred to local institution or communities, community participation, plans & programs, community forestry process)
- **Good governance**: (enhancing capacity of local forestry institutions, equity in decision-making and benefits sharing, transparency, accountability)
- **Sustainable forest management**: (increases in terms of area and quality of forests, improvement regarding overall environmental conditions, e.g., soil, water, & biodiversity conservation)
- **Increased access to forestry products**: (increases in quantity & quality of forest products, increase in use of forests by different segments of community)
- **Socio-economic benefits from CF, whereby livelihoods of rural communities are enhanced**: (improved community participation/inclusion of women, poor and disadvantaged people, empowerment of poor people, networking, investment of CFUGs’ funds for community development and income generation, increased employment & income)
- **Increased quality of life**: (poverty reduction, improvements regarding food security, health, education, transportation, electricity facilities for rural communities)


The likely positive effects of the Community Forestry Programs in Nepal are; restoration of degraded forestland; improvements in plant growth; increased biodiversity; increased supplies of
forest products; empowerment of women, poor and disadvantaged groups; better income generation; community development activities; and improved livelihoods of people in rural communities (GON, 1989; GON, 2000; GoN, 2008).

3.10.1 Implementation of community forestry

Community forestry is one of the high-priority forestry programs (GoN, 1989 & 2000) and rural development initiatives in Nepal. The purpose of the implementation of community forestry is that sustainable forest management be achieved and that poverty in rural communities be reduced. The community forestry program has been designed by the government of Nepal not only so that forests can be conserved, but also so that the forestry needs of people in local communities can be met. The implementation of the program occurs via local formal forestry institutions called ‘Forest User Groups’- each of which possesses legal property rights and a governance structure and which is empowered to carry out certain processes (GoN, 1989).

During the 30 years that the community forestry development program has existed in Nepal, the protection and management of about 1.65 million hectares of forests (29% of existing national forests) have been allocated to more than 17,000 local forest user groups (CFUGs), whereby occupants of 2.18 million households (about 42% of the total population of the country) have been involved in the implementation of the community forestry program (DoF, 2011) (see Table 3.5).

<table>
<thead>
<tr>
<th>Geographical region</th>
<th>Number of CFUGs</th>
<th>CF area (ha)</th>
<th>No. of beneficiary households</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Mountain</td>
<td>2,830</td>
<td>266,007</td>
<td>291415</td>
</tr>
<tr>
<td>Middle Hills</td>
<td>12,812</td>
<td>1,090,398</td>
<td>1,405,286</td>
</tr>
<tr>
<td>Tarai/Inner Tarai</td>
<td>2,043</td>
<td>296,249</td>
<td>481,157</td>
</tr>
<tr>
<td>Nepal</td>
<td>17,685</td>
<td>1,652,654 ha</td>
<td>2,177,858 HH</td>
</tr>
</tbody>
</table>

Source: DoF, Kathmandu, Nepal, 2011 (September 1).

In order that the government of Nepal be supported in its quest, international donors are involved in the development of the community forestry program. The major donors are the United Kingdom, through its Department for International Development (DFID); Switzerland, through its Swiss Agency for Development and Cooperation (SDC); the United States, through its Agency for International Development (USAID); and Germany, through its German Agency for Technical Cooperation (GTZ).
Between 1978 and 2006, continuous assistance has been received from the Australian Government, through the various phases of the Australian Agency for International Development (AusAID). The Nepal-Australia Forestry Project has established community forestry programs in the Sindhupalchok and Kabhrepalanchok districts of Nepal. According to the DoF (2009), about 35 percent of the total development budget which has been allocated to the MFSC is spent on the community forestry program. About 60 percent of that community forestry program budget is funded by means of foreign assistance (DoF, 2009).

3.10.1.1 Community forestry policy and legislation

The past defective forestry policies of the government of Nepal led to the destruction of forest resources in the country. Those earlier experiences encouraged the government to experiment further, until it was eventually realised that local community participation is a crucial component for sustainable forest resources management (GoN 1989). Moreover, it is impossible for forest resources to be conserved without a practical sustainable forestry management plan being adopted. So the government of Nepal developed the existing community forestry policy and accompanying legislation.

Policy

Community forestry in Nepal evolved over a period of time. It involved a shift, in terms of attitude, toward natural resource management, as well as improving the livelihoods of people in rural communities. The first time that the participation of local rural people was thought necessary, for the protection of forests, occurred in 1976. This is outlined in the National Forest Policy 1976, which was published by the DoF in Nepal. The people's participation would be sought in relation to protecting forests from fire, theft and abuse. Thus the National Forest Plan 1976 was the first forestry document in which it was acknowledged, at least on paper, that there is a need for local people to be involved in combating deforestation. So degraded forests were to be placed in the care of local rural people so that those forestlands could be protected and properly used. Prior to the writing of that 1976 document, there was no mention in any official report that the participation of local rural people was required, for the protection of forestlands (Joshi, 1997). Previously, forest protection had been carried out by policing.

In recognition of the importance of engaging the community in forest management, a new forestry policy document, called the Master Plan for the Forestry Sector (MPFS), was
prepared with the assistance of the Asian Development Bank and FINNIDA in 1988. This policy document was approved by the government of Nepal in April 1989. That plan, which was intended to be effective for the next 25 years, provided the basis for a new forest scheme. The primary aim of the MPFS is that there be sustainable management of forests, whereby local people are involved. The MPFS lays out the plan, policies and resource needs, in relation to the development of the forestry sector of Nepal. Another aspect of the Master Plan acknowledges the basic needs of rural people, and what is required in order that those needs be met.

Of the six MPFS directives, the main one is that the ‘Community and Private Forestry Program’ be implemented, whereby forest resources would be developed and managed via the active participation of communities, in order that the basic forest product needs of people in those communities would be met (GoN, 1989). The strategy, in relation to achieving this, is that there would be a phased handover of all accessible hill forests to local communities which would be able and willing to manage those forest areas. The staff of the Forest Department would be reoriented, in accordance with this new priority.

This policy is different from earlier schemes, in that local communities would now be acknowledged as being users, and not village Panchayats. Of the budget associated with MPFS, 47 percent of it would be directed towards implementing the community forestry program (GoN, 1989). It is apparent that two important goals, regarding the Master Plan for the Forestry Sector, are:

- the improvement of the bio-physical condition of forest areas through increased protection; and
- increased access to forest products for rural people, whose livelihoods are dependent on them (GoN, 1989).

Although there are challenges in measuring the degree of improvement in the biophysical condition of forest resources, because of conceptual inconsistencies, lack of agreed criteria and scarcity of comparable data (Poteet & Ostrom, 2008), a number of researchers (e.g., Kanel, 2004; Malla, 1997; Yadav et. al., 2003) have indicated that there is a significant amount of evidence to suggest that there has been a decrease in deforestation, improved biophysical condition of forests and increased quantity and quality of forest products for rural communities. In addition, several studies, which have been conducted in different parts of Nepal, also indicate that there is ample evidence that the condition of forests has substantially
improved since the handover program began (Gautam, Webb, & Eiumnoh, 2002; Pokharel & Niraula, 2004). However, the DoF of Nepal does not have sufficient data to verify these findings (Kanel, 2004). So little is known about the socio-economic outcomes of the community forestry program, given that little in the way of extensive research has been conducted in the different geographical regions.

The government revised its forestry policy in 2000, whereby an increasing amount of attention was placed on community forestry. Moreover, the government now acknowledges that local people are the most important aspect in relation to conserving community forests. The intention, via the existing forestry policy, is that the management responsibility and user rights, regarding all accessible forests in Nepal, be handed over to the local CFUGs if they are willing to manage, and are capable of managing, those forests (GoN, 2000). The main objectives of the existing policy, in relation to community forestry, are that:

- Access to and availability of, forest products on a sustainable basis be improved for local communities;
- People be encouraged to take responsibility for the protection, management and utilisation of forests;
- The responsibility of management, be handed over to grass-root institutions (CFUGs);
- The decision making process be enhanced and improved;
- Communities be encouraged to develop self-sufficiency in forest products, through the implementation of community forestry and the development of private forestry; and
- The quality of life of people in rural communities, who are actively participating in sustainable forest management through community forestry, be improved.

The management of community forests is based on a partnership, involving people in the rural community and the government. That partnership exists in the sense that ownership of the community forestland remains with the government, whilst the users have to adhere to the forest operational plan, upon which the users and the government have mutually agreed (GoN, 1995). The revised Forest Policy 2000 relates to the sustainable management of forest resources in a participatory manner. It has also been formulated in order that a sustainable supply of goods and services be provided for the rural people, so that their livelihoods can be improved. In addition, one of the intentions, when the policy was formulated, was that tenure, of the forests, not be converted into any other form of property holding, unless there are no
demands for community forestry. Finally, that community forest policy is firmly supported by the government’s forest legislation.

**Legislation**

Learning from these community forestry practices, refining them, and legitimising them, have been the hallmarks, of the development of community forestry in Nepal (Kanel, 2004). For example, in 1978, two years after the publication of the *National Forest Policy 1976*, the *Forest Act 1961* was amended. This amendment came about with the adding of Clause 29, which gave the government the right to hand over part of a national forest to local people. This amendment was followed by the enactment of the Community Forest Rules 1978 (called *Panchayat Forest Rules 1978* or *Panchayat Protected Forest Rules 1978*). This enactment gave authority to the Conservator of Forests (now called the Regional Forest Directorate) to hand over a section of government forest to local *Panchayat*, - a small elected political unit which existed in villages. Thus, forest regulations have been amended several times (see Table 3.6).

<table>
<thead>
<tr>
<th>Type</th>
<th>1978 Regulations</th>
<th>1979 Amendment</th>
<th>1987 Amendment</th>
<th>1995 Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest management responsibility</td>
<td>Government</td>
<td>Government</td>
<td>CFUC</td>
<td>CFUG</td>
</tr>
<tr>
<td>(FMOP) preparation</td>
<td>DFO</td>
<td>DFO</td>
<td>CFUC</td>
<td>CFUG</td>
</tr>
<tr>
<td>% of benefits to the communities</td>
<td>40</td>
<td>75</td>
<td>100</td>
<td>100*</td>
</tr>
<tr>
<td>Use of communities fund</td>
<td>50% for forestry</td>
<td>50% for forestry</td>
<td>100% for forestry</td>
<td>At least 25% for forest development, and the rest for community development</td>
</tr>
</tbody>
</table>

*Note:* At present, 15% of total revenue from the auction of sal (*Shorea robusta*) timber outside the CFUG area goes to central treasury. This provision is applied only in relation to CF in Tarai districts.


The revolution in 1990 made the transformation to community forestry easier, as the *Panchayats* were replaced by new organisations called Village Development Committees (VDCs), which remained largely content with the authority they were given, even if that authority did not then include management of local forest resources. Thus, after the restoration of democracy in 1990, there were significant amendments to forest legislation. Forest policy now reflects the latest forestry legislation. The *Forest Act 1993*, and the *Forest
Regulations 1995, have been in operation since April 1995. They provide the legal basis whereby forest policy objectives are achieved.

Articles 25-30 of the Forest Act 1993 contain certain provisions for community forests. Accordingly, a government-managed forest can be handed over as community forest to a CFUG (GoN, 1993). The CFUG has to prepare an operational plan for managing the community forest which is to be handed over to them; and the plan can be amended as per needs or requirements, without the environment being adversely affected. Rules 32-35 of the regulations clearly provide for the collection, sale and distribution of forest products from a community forest, as per its approved FOP (GoN, 1995). The CFUG has to submit an annual report to the DFO. In this context, the DFO is the ‘gatekeeper’ of the forest, and can take various actions against the CFUG and its members if necessary. The existing forestry legislation is conducive to the protection and development of forests, through local community participation. The existing legislation acknowledges the importance of public involvement in relation to the sustainable management and utilisation of forests.

The handing over of local forest resources to actual users is thus facilitated. Moreover, in giving community forestry the highest priority, the government acknowledges that only when people feel secure about their access to forest, will they become committed to work for its improvement, and prevent deforestation. Another point is that the Forest Act 1993, and the Forest Regulations 1995, have made the implementation of community forest activities easier at the field level. Although forestland ownership remains with the government, the legislation provides CFUGs with full autonomy of the management of forests which have been handed over to them. The existing legislation gives CFUGs the right to sell and distribute forest products independently, by fixing their own price and using the income for forestry activities and overall community development (GoN, 1993; GoN, 1995). In Box 3.4 the main legal arrangements, for community forestry as it is managed by CFUGs in Nepal, are outlined.
Box 3.4 Legal arrangements for community forestry in Forest Act 1993 and Forest Regulations 1995 of Nepal

- Community forestry has first priority over any proposed conversion of national forest for any use, such as leasehold, or religious setting or protected area or production-oriented forest.
- District Forest Officers are authorised to register CFUGs and hand over community forest areas to the CFUGs.
- Any part of the accessible government-managed national forests can be handed over to a local community (forest user group) - the members of which are the traditional or real users of forests - if those community members are interested in managing, and are able to manage, the forest.
- Administrative boundaries of a village/municipality, district or zone have no effect on the handover of a community forest; but forest boundaries are fixed by traditional use practices and the real users of the forest.
- CFUGs are autonomous and corporate bodies, with perpetual succession.
- As per the approved forest management operational plan (FMOP) and constitution, a CFUG is responsible for the management, development and utilisation of forest resources.
- CFUG is authorised to sell and distribute forest products independently, by fixing prices according to its FMOP.
- CFUG has to issue a permit for the transportation of forest products outside the CFUG area.
- CFUGs have to invest at least 25% of total income for forest protection, management and development activities and at least 35% of total income is to be set aside for poverty reduction and other expenses, including any kind of community development work.
- CFUGs can establish forest-based enterprises.
- The users’ groups may make amendments to their constitutions and FMOPs.
- After having received approval from the respective DFOs, CFUGs can implement their decisions.
- CFUGs have the power to punish (or even reward) anyone who breaks (or perhaps honours in some way) the rules of their constitutions and FMOPs.
- Any government and non-government agency can help a CFUG to become organised, and to manage a community forest.
- DFO can take community forest back from a CFUG, if the CFUG operates in a manner which is contrary to the provisions in the OP. However, the DFO must give the forest back to a newly reformed CFUG as soon as possible, once the problem has been resolved.
- CFUGs have access to, and the right to withdraw from, management rights over national forests which have been handed over to them as community forests.


Enough provisions have been made in relation to forest legislation for forests to be properly managed and that there will be sustainable use of forest products, to meet the basic needs of local people. However, no concrete provision exists for the recognition of customary rights of indigenous people over forest resources. The current forest policies and legislation of Nepal form the basis for the handing over of government-managed forests to local communities. Those forest areas then become known as community forests.
3.10.1.2 Community forestry process

The *Forest Act 1993*, and *Forest Regulations 1995*, clearly acknowledge the community forestry process. The community forestry legislation empowers the DFOs to hand over any part of a national forest to a CFUG, so that it becomes a community forest. In order that the process be streamlined, *the Operational Guidelines 1995* documentation was revised in 2001 so that emerging second generation factors about community forestry could be incorporated. These factors include sustainable forest management, good governance, livelihood support, and poverty reduction. Stakeholders realised that there was a need for the guidelines to be revised, based on the experiences and problems that they faced at the field level (DoF, 2001).

The Community Forestry Division of the Department of Forests issued a revised version of the *Community Forestry Operational Guidelines 2001* in 2009. According to the *Community Forestry Operational Guidelines 2009*, the handover process for the establishment of a community forest, is comprised of five phases: (a) investigation, (b) negotiation, (c) implementation, (d) monitoring/evaluation and (e) review (DoF, 2009) (see Figure 3.3).

**Figure 3.3 Community forestry process**

![Community forestry process diagram](source)

**Source:** Adapted and modified from DoF, (2001) (revised in 2009). *Operation guidelines of the community forestry program*, Kathmandu: DoF.

The five-phase process begins when a group of people submit a written application to the appropriate District Forest Office (DFO), thereby seeking a handover. Upon receiving the application, the DFO assigns a staff member or a team of technical forestry staff, to the field
so that the applicants can be assisted, not only with the formation of a user group, but also in relation to writing their constitution and forest operation plan in accordance with the provisions in the Forest Regulations 1995. In relation to each phase, the projected roles and responsibilities of a CFUG are crucial. The local people are expected to participate in all stages of the community forestry process, with technical and legal assistance provided by the appropriate District Forest Office. Box 3.5 contains a summary of the major activities involved through the different phases of the community forestry process.

Box 3.5 Major activities involved in the different phases of the community forestry process

Investigation Phase:
This phase of community forestry includes the gathering of social and forestry information related to forest protection, management, utilisation, and identification of users and forest area.
- Submission of a written application by a group of potential local forest users to the DFO
- Technical staff of District Forest Office help collection of forestry and social information including user identification

Negotiation Phase: This is the second phase of the community forestry handover process. It includes the formation of the forest user group, discussion and resolution of forest management issues and problems, preparation and approval of the constitution and operation plan and the handing over of protection, management and utilisation responsibilities to the forest user group.
- Preparation of forest user group’s constitution as per guidelines provided in the Forest Regulations, 1995
- Approval of constitution by the DFO; certificate of registration of CFUG provided
- Written application submitted to the DFO for technical support regarding preparation of forest operational plan in accordance with Forest Regulations, 1995
- Preparation of forest operation plan, with technical support from forestry field staff and submission of this plan to the DFO for approval
- Approval of forest operational plan by the DFO and certificate regarding handover of community forest to the CFUG

Implementation Phase: It includes performing the necessary actions regarding approved forest management activities, as prescribed by the constitution and forest operation plan, with technical and legal input provided by the forestry field staff.

Monitoring and Evaluation Phase: This phase includes participatory monitoring and evaluation in the implementation of the community forest constitution and forest operation plan.

Review Phase: This phase includes the appraisal, revision and renegotiation of the constitution and operation plan with the forest users.

Source: adapted from DoF, (2001). Operation guidelines of the community forestry program, Kathmandu: DoF.
The handing over of the forest occurs after the identification of real users and negotiations between the DFO and the local users’ have been completed. The CFUG is comprised of the occupants of member households within a particular geographical area. The operation of the CFUG, in relation to the local forestland, is known as community forestry. Before the handover occurs, the CFUG has to prepare both its constitution (a compilation of rules and regulations which legally and formally bind the CFUG to its responsibilities and activities) and operational plan (a simple working guideline, for the protection, management and utilisation of community forest), in accordance with a framework outlining protection of the forests, the demand for timber and accountability for any funds which are generated (DoF, 2009). In Box 3.6, an outline, of both the CFUG constitution and operation plan is provided.

Box 3.6 Contents of community CFUG constitution and forest operational plan

A. Components of CFUG constitution
- Details of the forest user group – names, addresses, household number, population, occupations, literacy capabilities,
- objectives and responsibilities of the forest user group,
- formation of the user committee and its working procedures, functions, responsibilities and duties,
- methods to be adopted in order that forest crimes be prevented; and procedures in relation to punishment,
- use of funds, and how auditing systems are to be applied, and
- miscellaneous.

B. Components of community forest operation plan
- Details of forestland - name, boundaries, map, area, condition of forest and type, management objectives,
- block division and details - name, boundaries, areas, aspects and slope, soil type, main species of trees, useful species, age and situation of natural regeneration,
- methods of forest protection and development,
- forest promotion activities – thinning, pruning, cleaning, and other forest promotion activities,
- nursery, tree plantation, income generating program, and time schedule,
- details in relation to areas suitable for cultivation of plants and herbs, types and species of plants and herbs, cultivation program and time schedule,
- demand forecast of forest products and supply,
- details in relation to non-timber forest products, collection time procedures, and management,
- provisions for the use of income accruing from the sale of forest products; as well as income from other sources,
- provisions regarding penalties which may be inflicted on users, as per the Forest Act 1993,
- provisions in relation to the protection of wildlife, and
- other matters for which the Department of Forests has prescribed rules or procedures.

During the CFUG formation process, formal acknowledgement of who is entitled to be a member is based on; where a person lives; his or her proximity to the forest; willingness and capacity to protect the forest area; manage and properly use the community forest. Membership is comprised of the occupants of permanent households in the settlement area who use products from the community forest. Each household is the primary unit for membership of a CFUG - which is a general assembly of all members (DoF, 2001; DoF, 2009).

Households are included in a CFUG when their occupants notify the CFUG of their permanent residence in the village and pay an annual membership fee to the CFUG. All occupants of households, irrespective of their individual socio-economic status, who are customary users of the forest and who are willing to participate in the management of it, are regarded as being legal forest users. So the forest area adjoining the settlement is handed over to the occupants of virtually all households in the settlement as a group (Kanel, 2004). CFUG members prepare their own constitution and forest operation plan, which controls the functioning of the CFUG as well as the management of the community forest. An executive committee is formed from CFUG members and that committee is responsible for the implementation of the CFUG constitution and forest operation plan on behalf of the CFUG.

Once the CFUG constitution and forest operation plan have been approved by the District Forest Officer, the CFUG is legally obliged to protect, develop, use and manage the state-owned forest in the CFUG area (GoN, 1993; Pokharel & Niraula, 2004). The CFUG has the power to sell and distribute forest products and other benefits among its members and to independently fix the price of such items (GoN, 1995). Two certificates, namely the CFUG registration paper and the forest handover document, are signed by the District Forest Officer so that these rights are confirmed. Forest Users are responsible for regular implementation of their operation plan in the management of community forests (GoN, 1993). Indeed, the constitution and operation plan are the basic documents by which community forestry activities are implemented at the grass roots level. These two documents describe the roles and responsibilities of CFUG members, as well as the methods to be used in forest protection, development and utilisation.
3.10.2 Implementation of community forest plans by rural communities

A community forest operation plan is a contract between the CFUG and the DFO (the custodian representing the Department of Forest for a designated district). It forms the basis upon which sustainable conservation of forest resources occurs. It enables a 5 to 10 year community forestry scheme to be implemented and defines management objectives, rules and operations (DoF, 1992, 2009). It also describes the protection, development (or silvicultural treatment) and utilisation aspects of forest management.

Community participation plays an important role in the conservation of forest resources, through the successful implementation of each forest management plan. The overexploitation of forest resources can be controlled through the annual allowable forest product harvesting, which is prescribed by each forest operation plan (Gautam and Devkota, 1998). Moreover, the successful implementation of each forest management plan protects the community forest from unauthorised felling, poaching of wildlife, shifting cultivation, encroachment, forest fires, overexploitation of forest products and grazing (Branney, 1996).

Many authors (e.g., Branney, 1996; Gilmour & Fisher, 1991; Jackson, Tamrakar, Hunt & Shepherd, 1998; Tamrakar & Danbury, 1997) have reported that CFUGs have significant roles to play, regarding forests. Members of CFUGs can improve the condition of forestland by volunteering their labour, or by being paid for it. A CFUG can implement a forest management plan so that seedling production, plantation growth, pruning (and other silvicultural operations), harvesting, and logging properly occur. These activities lead to improvements in the condition of forest resources and wildlife habitats.

The existing community forestry policy of the government of Nepal ensures that adequate attention is given to socio-economic factors. So, community participation in the protection, management and utilisation of forest resources is legally acknowledged (Gilmour & Fisher, 1991). It is currently believed that the bio-physical condition of most community forests in Nepal is improving, as the amount of green cover in previously barren and denuded forest areas increases (GoN, 2002b). Legal arrangements have been put in place whereby forest products such as timber, fuelwood, fodder, medicinal plants and other non-timber forest products can be supplied by a CFUG. The CFUG has the legal right to fix the price of forest products at the local level, so that they can be afforded by all members of the CFUG (Hobley & Malla, 1996).
3.11 Theoretical perspectives on the socio-economic outcomes of community forestry

Community forestry is a complex nexus, comprised of forest resources and forest-dependent rural communities. In a general sense, community forestry has five different dimensions, namely (a) government forest policy, (b) socio-economic considerations, (c) markets or utilisation factors, (d) technical or physical elements and (e) institutional aspects. All of these dimensions are important, and are interrelated, regarding inputs, processes, outputs in relation to a successful community forestry process and the production of desired outcomes from community forestry. Because of limitations, of time and space in relation to the writing of this thesis, it is impossible for me to go into detail describing all these components. This research is directed at the socio-economic dimension and some of its links with policy and institutional components (see Figure 3.4).

**Figure 3.4 Dimensional analysis of community forestry (researcher’s interpretation of literature)**

The philosophy of community forestry, is that the implementation of the CFUG forest management plan and constitution not only help conserve forest biodiversity, but also help ensure that the forestry needs of all members of the community (local people) are met. During the early stages of community forestry policy development, it was assumed that all members of the community would benefit from improvements in the condition of forest resources. However, an increasing number of empirical studies indicate that community forestry schemes do not necessarily improve the access of the rural poor people to forest benefits (Beck & Nesmith, 2001; Shackleton, Campbell, Wollenberg, & Edmunds, 2002).
Whilst the prescriptive literature expresses optimism about community forestry, several studies, which have been undertaken in different parts of the world, have raised doubts about the outcome of the scheme, particularly in relation to poor and marginalised members of rural communities having access to forest products (Arnold & Bird, 1999; Berkes, 2004; Fisher et al., 2004). Results from some studies indicate that there are both negative and positive outcomes from community forestry.

The existing literature indicates that there have been a number of positive outcomes of community forestry. These include the active participation of local people in relation to forest conservation (Varughese & Ostrom, 2001). The formation of CFUGs, and the momentum surrounding the handover of responsibility for forestlands, is increasing rapidly. Tree stocks and greenery, both within and outside the forests, are being restored (Gautam et al., 2002; Kanel, 2006; Springate-Baginski & Blaikie, 2003). Furthermore, local funds for community development have increased (Dongol, Hughey, & Bigsby, 2002).

Community forestry development policies are perceived as being progressive and successful (Edmonds, 2003; Varughese & Ostrom, 2001). On the basis of findings of a study conducted by Pronyk, Harpham, Buza, Phetla, et al. (2008), it can be argued that all of the socio-economic aspects of community forestry can produce a synergy effect, whereby user communities reap full benefits in terms of empowerment, income, self-esteem and increasing amounts of knowledge (and ability), so that they can address priorities concerning their way of life.

On the other hand, some authors (e.g., Adhikari, 2003; Malla, 2000; Malla et al., 2003) have argued that community forestry in Nepal is not always effective, because even though the condition of forest resources has generally improved, the livelihoods of poor people in CFUGs in hilly areas have not significantly improved as yet. There are a number of problems regarding community forestry. The formation of CFUGs is often rushed. The only communication is with local elites. Forest boundary disputes sometimes remain unresolved (Springate-Baginski & Blaikie, 2003). Furthermore, these two researchers claim that the community forestry program relies on the concept of ‘community’ as being a homogenous entity, whereby there is no differentiation between social and economic groupings. This has, in some places, resulted in elites taking over the community forestry process; without the poorer and marginalised groups in the community being consulted. Furthermore, the decision-making process has tended to be dominated by elites and the middle classes. However, details,
regarding the socio-economic outcomes of communities, are yet to be documented. Although a wide range of socio-economic outcomes from community forestry, exist, this research mainly focused on participation, the social network, skills and knowledge of members, management capacity, empowerment and social outcomes; rather than on the supply of forest products and mobilisation of CFUGs’ funds as economic outcomes of community forestry.

3.11.1 Building social capital through community forestry

The term ‘social capital’ was first used by Hanifan in 1916, examining the importance of community engagement in relation to a successful schooling system (Pronyk et al., 2008). This term has been further developed in areas such as sociology, political economy, and public health (Stephens, 2008). Moreover, ‘social capital’ has been used in various ways by many different authors (e.g., Bourdieu, Krishna, 2004; Putnam, 1995; Woodhouse, 2006) since the late 1990s (Pronyk et al., 2008). Nowadays, there is a growing amount of literature linking this term to poverty reduction at a grassroots level. The term has also been used frequently in relation to local economic development, as well as community-based natural resource management.

The exact definition of ‘social capital’ is subject to debate (Nieminin, Martelin, Koskinen, Simpura et al., 2008). Definitions vary according to the framework and extent to which emphasis is placed on individuals or social groups (Wilson, 2006). Broadly speaking, ‘social capital’ refers to the system of networks, norms and trust relationships that enable communities to address common concerns (Putnam, Leonardi & Nanetti, 1993; Woolcock & Narayan, 2000). Social capital is a way of describing social relationships within communities or groups of people (Silva et al., 2006). Putnam (1995) defines ‘social capital’ as being “features of social organisation such as networks, norms and social trust that facilitate cooperation and coordination for mutual benefits” (p. 67).

According to the Organisation for Economic Co-operation and Development (OECD) (2001), ‘social capital’ is defined as being “networks together with shared norms, values and understandings that facilitate co-operation within or among a group”. This definition captures some important elements of social capital, such as networks and shared norms within or among groups, as well as bonding, bridging and linkages. Therefore, this definition is widely used by the Australian Bureau of Statistics (Australian Bureau of Statistics, 2002).
Furthermore, social capital is regarded as being a relatively new, multi-dimensional concept (Silva, Harpham, Tuan, Bartolini & Huttly, 2006). It is regarded as being a crucial asset, especially for poor people who can potentially draw upon it, in order that their way through an unpredictable and unforgiving world can be negotiated (Evans & Syrett, 2007). Many authors (e.g., Kawachi Kennedy, Lochner, & prothrow-Stith, 1997; Ojha, 2006; Putnam et al., 1993) have referred to social capital as being an attribute of a community or a property of groups that facilitates and promotes collective action for the mutual benefit of group members. However, Glaeser (2001) and Portes (1998) regard social capital as being a property of an individual, because decisions to invest in social capital are made by individuals, not by communities. Bourdieu has suggested that social capital has two elements, namely (a) the social relationship that enables individuals to gain access to resources which are possessed by their associates, and (b) the amount and quality of those resources (Wilson, 2006, p. 346).

Social capital is multi-dimensional. It is comprised of aspects of social organisation and integration that facilitate co-operation for mutual benefit (Silva et al., 2006). This includes both the quality and quantity of formal and informal social interaction and active participation in collective action. Social capital has structural (i.e., quantity of social relationships) and cognitive (i.e., quality of social relationships) components (Pronyk et al., 2008). Each component can refer to linkages, regarding people of the same socio-economic status. That is referred to as ‘bonding’ social capital, or ‘bridging’ social capital (Bain & Hicks, 1998).

Grootaert and van Bastelaer (2002) have distinguished two forms of social capital, namely (a) a structural form which is relatively objective, facilitates the flow of information, sharing, collective action, decision making through established roles, social networks and other social structures which are supplemented by rules, producers, and precedents; and (b) cognitive social capital which is a more subjective and intangible concept regarding shared norms, values, trust, attitudes, and belief.

The social capital formation process includes certain aspects of a community, such as association via group membership (whereby there is engagement in community-based activities), and informal networks of friends, neighbours and family (whereby trust, social sanctions and community cohesiveness exist) (Kozel & Parkers, 1998). However, there is no guarantee that social capital, which is formed through the interactions of members of a community-based natural resource user group, will always be positive about the socio-economic development of the community group and its members (Woodhouse, 2006).
Social capital is regarded as being a resource, which may be used so that a variety of ends can be achieved. Woodhouse (2006) claims, that resources which are generated by individuals or groups of individuals, through deliberate processes of accumulation, involve interaction with other people. Research has suggested that there are potential benefits, from social capital, in a wide variety of fields, including increased income, economic development (Woolcock & Narayan, 2000), and good governance (Evans, 1997). It is apparent that social capital resource is intangible and cannot be seen or touched. Thus it can only be measured by reference to those features of society with which its development is associated (Woodhouse, 2006). Furthermore, social capital can be used to lever or acquire other forms of capital. In other words, its potential impact depends upon the availability of other capital forms. Moreover, the levering of other forms of capital requires that there be growth in social capital (Evans & Syrett, 2007; Woodhouse, 2006).

There is a growing amount of literature in relation to economic development and good governance discussing social capital (Bouma et al., 2008). Most empirical studies indicate that there is a positive relationship between social capital, good governance and economic growth (Knack, 2002). Although the expected outcomes from social capital are context dependent, authors (e.g., Bouma et al., 2008) point out that it is crucial that trust and belief among individuals of the community exist, if social capital is going to produce desirable results in welfare. A study which has been conducted by Bouma et al. (2008) in rural India has revealed that trust and belief correlate with participation in community resource management.

Social capital, within CFUGs, is acknowledged as being a crucial contributing element, contributing to the livelihoods of people in rural communities. In general, the social capital of a CFUG has several components, such as community participation, empowerment, a social network, leadership quality, support for members, group cohesion, skills and knowledge for the preparation and implementation of forest management plans, confidence to engage outside expertise, organisation and the capacity to develop and manage community-based enterprises for the well-being of members of the group. In relation to this thesis, participation, social networking, and the capacity to develop social outcomes of community forestry for rural communities, are considered.
3.11.1.1 Community participation

Community participation is the central concept of political ecology. But community participation means different things to different people (Buchy & Race, 2001). So it is used in different contexts. In other words, there is no single clear and formal definition of ‘community participation’, because its meaning depends on its scope, objective and context. For example, Uphoff (1991) defines community participation as people being involved not only in decision making, but also in the production and management of sustainable local resources.

Ribot (1996) was one of the authors who defined community participation in terms of power and community development. According to Ribot (1996), community participation is about devolution of decision making power or control over resources that affect the community as a whole, such as forests and rangeland commons or community development from the authority to the community. According to this definition, decision making power is associated with participation, whereby all members of a community are actively involved, so that all are accountable to the community. This also encourages and empowers a community group to consider possible options in relation to solving their problems by themselves. Thus, devolution is a necessary condition for the creation of a proactive community, whereby there is equitable decision making and benefit sharing.

Literature, regarding community participation, indicates that Arnstein (1969) was amongst the first group of authors to develop a ‘ladder of participation’ model. In relation to this model, Arnstein outlined eight different levels of participation. The ladder begins with manipulation (non participatory) at the lower end; placation (tokenism) in the middle; and citizen control (real public participation) at the high end. These are three broad categories. Arnstein (1991) arranged them in an ascending order, with real or active participation at the top. This model also reflects the importance of power and empowerment, in a genuine participatory decision making process. In fact, this ladder of participation provides one with a general model for participation; and it can be applied in any development sector.

Furthermore, Buchy & Race, 2001 have identified two types of participation, namely (a) participation as a means to an end, and (b) participation as an end in itself. The first type of participation is ‘instrumental participation’, whereby the aims of a project are achieved more efficiently or effectively. The second type of participation is ‘transformative participation’, whereby control is given to a community or group.
According to Dugan (1993), the participation of a wide range of stakeholders is important for two main reasons:

- the involvement of a relatively large number of experienced and knowledgeable individuals helps people, or the communities involved, to obtain information and knowledge which is required for diagnosing and dealing with an issue or situation;
- it encourages other people to become involved in the planning and implementation of activities which deal with a particular situation.

The existing community forestry policy of the government of Nepal is focused mainly on community participation. It also relates to other matters, such as: Community management of forest resources in order that the needs of local communities be met (Gilmour & Fisher 1991): Limited rights to forest resources, and what are still officially regarded as being public lands, have been devolved to local communities so that they can manage and benefit from forests (World Bank, 2008): Revenue, from commercial forestry activities such as the auctioning of sal (Shorea robusta) timber which has been extracted from community forests, particularly in Tarai district, is shared with the government (GoN, 2007), whereby the government gets 15% of the profits.

At the initial stage, community forestry policy focused on the rural livelihoods of community members in general; and not specifically on the poor and marginalized segments which are even more dependent on the forest for survival (Gilmour et al., 2004). Therefore attention should also be given to the development of a new paradigm of participation, whereby the poor are involved in the sustainable management and development of forest resources. It is necessary that all users participate in the productive use of the community forest in order that the benefits be ensured.

So, definitions of community participation vary in terms of meaning. My research is based on the assumption that meaningful involvement by a local community is a sound platform for better forest management whereby the members of that local community benefit. Active community participation, whereby collective action is taken, is a precondition for the sustainable management and development of community-based natural resources for community forestry. Therefore, for the purpose of this study, participation is regarded as being a process whereby people take part in the decision making process, and implement, as a
result of their decisions, whatever is needed for efficient, equitable benefit sharing, as well as sustainable use and management of forest resources.

3.11.1.2 Community participation in forest management

Community participation is one of the main prerequisites for sustainable community forestry and better socio-economic outcomes for local communities (GoN, 2000). A sense of forest ownership by local communities and use rights to forests, are crucial in order that there be active participation in forest resource management by local communities (Ellsworth & White, 2004; Gilmour et al., 2005). Moreover, researchers such as Gronow and Shrestha (1991) argue that people participate when they believe not only that they have control of the security of forest resources, but will receive all of the benefits that flow from that control. So community participation is expected in relation to the overall planning and decision making processes, whereby there is benefit sharing based on equity. So, active participation by the local community is indispensable, for the sustainable development of community forestry.

Furthermore, Narayan (1995) and Uphoff (1991) have concluded that community participation is important in order that forestry development programs be efficient, equitable and effective. According to those researchers, community participation creates local level awareness, competence and capacity. During the participation process, as resources are being harvested and utilised, efficiency is increased. Whilst those people with less income and power actively participate, there is an opportunity for them to ensure that equity, regarding benefits, occurs, because participation redistributes power more democratically.

Community participation reduces costs and mobilises the most valuable of all underused forest resources, namely human energy and creativity (Harrison, 1983). Community participation provides the community with requisite social capital for decision making, governance and evaluation. Community participation also provides access to forest resources locally, at markets and possibly even at state level. In addition, active community participation is one of the best ways whereby the feeling of ownership of the forest resource, which is essential for sustainable and cost-effective forest management, can increase. However, community participation is not, in itself, sufficient for the sustainable management of forests to occur.

In theory, community forestry exemplifies social justice, through decision-making and benefit sharing. In principle, community forestry does not discriminate on the basis of gender, caste,
religion, interest groups, wealth or poverty. In theory, the participation of poor and marginalised members in decision making, benefit sharing, and conservation of forest resources processes, is encouraged. In fact, *Operational Guidelines of the Community Forestry Program 2001* of Nepal indicate that female members should be included on a CFUG executive committee (an administrative body which runs the CFUG), and that females should make up 25 percent of any such committee.

There are several CFUGs where females make up 50 percent of committees. There are even CFUG committees that are totally comprised of females (DoF, 2007). In the latter case, males are asked to assist female members. Representatives from lower castes and disadvantaged poor people are also sought for their involvement on the executive committee, so that the needs of the people whom they represent are met. When a household is in trouble as a result of a natural disaster such as a fire, landslide, or person’s death, then the occupants of that household are permitted to obtain timber or firewood free, or at a nominal charge (Nagendra, 2005). Thus social justice plays a vital role whereby user group cohesiveness is increased. Social justice is crucial, in order that there be conservation of community forest resources, and that socio-economic well-being exists in local communities.

However, in relation to a study by the Joint Forest Management (JFM) of India, Agrawal and Ostrom (2001) comment that, within communities, participation and allocation of benefits vary greatly according to caste, gender, class and occupation. For example, because of membership rules that specify the appointment of a single member from a household to the forest protection committee, women often have little in the way of rights and cannot influence the decision making and benefit sharing processes. Agrawal and Ostrom (2001) argue that an accurate assessment of the effectiveness of the JFM program in India is difficult, because there are conflicting objectives, in relation to people who regard it as a means whereby forests can be protected, versus users who regard the scheme as providing a solution for the shortage of fuelwood and fodder; or as a way whereby income can be improved.

A review of community forestry literature shows that community participation provides legitimacy in forest management and promotes commitment on the part of local people in relation to sustainability of forest products. However, some researchers argue that community participation has both positive and negative aspects. A large amount of community involvement can be difficult to control, which can lead to inefficient work being done, whereby development is impeded (World Bank, 1992). At the initial stage, participation is
generally expensive because it requires more external support, as well as time whereby participation can be accommodated. In addition, Gilmour and Fisher (1991) state that sometimes a participatory approach can favour local elites and those people who are better off, and that, consequently, problems can occur at the local level because of any such shift in power to the local elites.

3.11.1.3 Community empowerment

Many authors (e.g., Bromley, 1991; Narayan, 1995; Ostrom, 1999) have argued that in order that problems associated with community forestry be minimised, meaningful participation by local forest-dependent communities is essential. Community psychologists argue that empowering communities helps to bring all members of the community forest group together so that there can be effective decision making, as well as appropriate action subsequent to decisions having been made. In this context, Maton (2008) defines empowerment as being a group-based, participatory, developmental process, by which marginalised or oppressed individuals and groups gain greater control over their lives and environment; acquire valued resources and basic rights; achieve important goals; and experience less in the way of social marginalisation.

Empowerment at both an individual and group level is important, so that there can be effective socio-economic outcomes from community forestry, such as community betterment and progressive social change (Maton, 2008). Thus Maryudi (2009) states that empowerment is one of the most important prerequisites for creating awareness about the benefits of community forestry amongst all members of the forest group, including women and marginalised people. Empowerment can be important, for participatory decision-making and the implementation of forestry activities.

Although empowerment of a person is a multifaceted concept, any definition of it should at least encompass aspects such as self-control, independence, authority and self-determination. Empowerment often refers to an increase in the capacity of disadvantaged individuals to act; so that they can participate in matters which affect their livelihoods and their socio-economic well-being (Maryudi, 2009). Empowerment helps to increase the distribution of forest resources to local communities. It also helps motivate forest users to do what is necessary so that their forest needs can be met. Indeed, strong empowerment of forest communities implies that those communities are able to use the forest according to their interests and requirements.
None-the-less, other issues, such as local control; ownership of resources; motivation; awareness; knowledge; skills; and attitudes of people towards forest management, are essential in order that active and successful community participation occurs. In this thesis, participation; social networking; the capacity of community forest user groups to act; and economic aspects of community forestry (such as income generation, and the collection and proper use of community funds) are considered to be major factors, in any investigation into socio-economic outcomes of community forestry for rural communities.

People-centered or transformative participation relates to issues about power and control. This sort of participation refers to the nature of a community, and not simply to the technical and managerial aspects of organisations and participation in them. From this perspective, participation is about power; particularly about an increase in the power of disadvantaged people. This requires that weaker and disenfranchised individuals within a community be recognised, and that they be empowered through shared skills, knowledge and experience.

### 3.11.1.4 Social networks

The perspective which networks have, about social capital, has recently been utilised in development research (Campbell, Hughes, Hewstone, & Cairns, 2010). Social networks have commonly been regarded as a source of positive externalities (Putnam, 1993). It is argued that social networks help to increase the productive efficiency of society. Kozel and Parker (1998), in an analysis of poor communities in Northern India, have found that social networks play a key role amongst the poor for protection and solidarity. In relation to social capital, the concept, that an individual’s social network constitutes an important resource, is being explored in the social research field.

Springate-Baginski et al. (2003a) argue that CFUGs need to develop linkages and networks so that support can be given or received; experiences and learning can be shared; and interests and needs at local levels can be safeguarded. CFUGs can develop social capital through the strong empowerment of previously disadvantaged individuals and groups. The Master Plan, for the Forestry Sector of Nepal, incorporates empowerment through the implementation of organisational and technical training, as well as through extension programs, in the hope that community capacity will be increased (GON, 1988). Forest user groups constitute a reliable entry point for many different government and non-government agencies. This is useful for the marketing of timber and NTFPs, as well as sharing experiences of both the CFUG and
forest management for the betterment of rural communities (Blomley, Franks, & Maharjan, 2009).

Springate-Baginski et al. (2003a) have noted that community CFUGs are expected to participate in local government level networks, which provide support to CFUGs development activities and conflict resolution. User groups can establish local, district and national level CFUG networks, through the Federation of the Community Forestry User Groups of Nepal. The FECOFUN was established in 1995 (Shrestha & Britt, 1997) with the aim of linking forest users from all parts of the country to strengthen the role of users in the policy making process. It is an autonomous, independent, non-ethnic, non-political, non-governmental, non-profit, and purely social organisation. It is dedicated to promoting and protecting users’ rights (Blomley, Franks, & Maharjan, 2009). It has expanded its networks, and has become one of the largest civil society groups concerned with forestry and rural communities (Malla et al., 2004; Timsina, 2003).

Moreover, these networks might be useful in providing additional support functions for conflict resolution, capacity development, providing adequate feedback about forest policy to a government forestry authority and lobbying community forestry friendly policies and strategies for the socio-economic wellbeing of CFUGs.

3.11.2 Economic outcomes of community forestry

Researchers, such as Beckley et al. (2008), argue that economic capital is the first and most obvious form of capital. These researchers have classified economic capital as being one of two types: (a) physical or infrastructure capital which is sometimes referred to as being fixed assets or an asset; and (b) financial capital.

Physical capital consists of a number of resources (e.g., water, transportation, institutional buildings, and fixed assets of a community such as a school, community buildings, storage areas and productive machinery). Financial capital is comprised of the assets of a community (both private and public), such as individual and household savings, as well as community funds and savings (Springate-Baginski et al., 2003a).

Each CFUG has a fund, for the sale of forest products; as well as other funds that are used for forest management, livelihood promotion and community development (DoF, 2009). Economic factors require that consideration be given to the conservation of forest biodiversity. However, these factors should not jeopardise ecological considerations.
Community forests have both use and non-use values. The main economic aspect involves satisfying basic forest product needs, income generation and increasing useful goods and services. Attainment of these is indicative of good biodiversity and forest conservation.

### 3.11.2.1 Satisfying basic forest product needs

Warner (2000) argues that forest resources are important in order that the livelihoods of people in poor rural communities be sustained. A significant amount of timber and non-timber forest products are used by rural communities; with the amount varying according to the season, availability, access and options. An effective program of forest management looks after the basic forestry needs of local rural people. Firewood, fodder, timber and other NTFPs are the basic needs of rural people (Banjade & Paudel, 2008). Individual users receive products, such as firewood for cooking and heating, fodder for feeding livestock and timber for housing purposes, at nominal prices or perhaps free of charge, depending upon the decisions made by CFUGs (Bhandari & Bijaya, 2011). These basic needs for forest products for local people cannot be met through government-managed forestry programs (Blomley, Franks, & Maharjan, 2009).

One of the main objectives; the implementation of a community forestry program, is that timber be produced from species of higher economic value, and that this timber be supplied to local people (Yadav, Thakur, & Thapa, 2011). Thus community forests are managed not only in order that multiple products and services can be generated, but also so that the basic forest product needs of local rural people can be met (Gentle, Acharya, & Dahal, 2007; Kanel, 2007).

The forest operation plans indicate how forests or trees are to be managed so that various products can be produced. The plans also indicate how much can be harvested in a given year. The limit on the harvesting of forest products is also indicated in the operation plan. The harvesting criteria are generally based on estimates of the growing stock in the forest, and other biotic and abiotic conditions in relation to forest resources.

The successful implementation of a community forestry operation plan prevents overexploitation of forest resources and promotes biodiversity conservation (Tachibana & Adhikari, 2009). Moreover, the productivity of community forests is maintained or enhanced either by the establishment of new plantations or by different silvicultural treatments, so that the quality and quantity of forest products can be improved and the desired amount be
harvested (Yadav, Thakur, & Thapa, 2011). The protection and management of community forests leads to improvements in the quality of forest biodiversity (Oli & Kanel, 2006). Thus, systematic management leads to an increase in the overall productivity of community forests, whereby the basic forestry needs of local people and requirements for biodiversity conservation, are met.

3.11.2.2 Economic development

Earnings which are produced from forest resources are often important, in relation to complementing other income which people in rural communities obtain (Pokharel, 2010). CFUGs can generate funds, either from (a) within the CFUG via membership fees; fines and penalties which are levied on members who break the rules in forest operation plans and constitutions; revenue collected as a result of sales of timber and NTFPs such as leaf litter, fodder, forage, seeds, medicinal herbs, aromatic plants, resin, bamboo and cardamom; or from (b) outside the CFUG via governmental and nongovernmental organisations’ subsidies; initial grants provided to CFUGs for the establishment of nursery and seedling production; plantation activities; and the marketing of forest products (Pokharel, 2010; Springate-Baginski et al., 2003a).

Forest user groups can generate some of their income from selling forest products, often on a part time and seasonal basis (Warner, 2000). Some forest items can be collected only at a certain time. So income depends on the availability of products and local market demand. Forest user groups can sell their forest items in natural, semi-processed or processed forms. The prices of forest products are fixed by users themselves; and the income which is generated from the sales of those items helps to increase CFUGs’ funds.

Moreover, improved access to forest resources can help increase the availability of forest products for construction purposes and for other economic benefits (Yadav, Thakur & Thapa, 2011). The community forestry fund can be used to assist poor and disadvantaged members of CFUGs (Baral & Stern, 2011; Nath & Inoue, 2010; Pokharel, 2009). The existing Community Forestry Guidelines 2009 recommend that at least 35 percent of a CFUG fund be used for pro-poor activities. Furthermore, there are legal provisions whereby community forestland can be allocated to the poor; as well as provisions whereby construction can be conducted for poor and disadvantaged people. Provisions also exist whereby elites and others can be kept informed of pro-poor issues. There are also provisions whereby pro-poor research and
training, as well as livelihood improvement programs, based on wealth rankings of CFUG members, can be promoted (DoF, 2009).

3.11.2.3 Community development

The initial concept of CF was that there be sustainable use of resources for subsistence needs. The concept gradually began to relate to community development, social safety nets and helping the poor to combat poverty (Mahanty et al., 2006; NSCFP, 2007e). Researchers, such as Springate-Baginski et al. (2003a), regard community forestry in Nepal as being not just a onetime policy change, but also an ongoing and evolving socio-economic development process. The engagement of a CFUG in community development activities is regarded as being one of the indicators of a good CFUG. It is believed that as CFUGs carry out their basic operations successfully, they often move towards wider community activities such as the supply of drinking water, irrigation, the building of a school, and road and health post building (Adhikari & Adhikari, 2010; Springate-Baginski et al., 2003a).

It is believed that many CFUGs are now moving beyond merely meeting subsistence needs, and are considering a market-oriented scheme for their forest products (Chhetri, 2006). All community development activities should reflect the interests and needs of the rural communities concerned. These include the needs and interests of poor people, women and disadvantaged members. In order for involvement in community development activities to increase, meaningful participatory decision-making, as well as a benefit sharing mechanism and adequate networking need to be established by the CFUGs.

3.11.2.4 Increased well-being

The enhancement of human well-being is one of the most important aspects of community forestry. However, benefits which are produced as a result of community forest management are not well documented (Gilmour et al., 2004). These researchers claim that only some significant benefits from community forestry are being documented in countries where community forestry has been established and is well accepted. Indeed, socio-economic outcomes of community forestry may have several positive and negative effects on the livelihoods of people in rural communities.

In relation to positive outcomes, a sustainable livelihoods guidance sheet, put together by the UK Department for International Development (1999), indicates that increased income reduces the vulnerability of poor and marginalised people. Social sustainability increases
through the improvement of food security and through the sustainable use of community forest resources. Nath and Inoue (2010) argue that community forests provide an important safety net for rural poor and disadvantaged people, whereby their basic needs are met. That safety net would also apply to people who occasionally experience food crop failure or economic hardship. The use of forest resources determines the quality of livelihoods of rural people. However, the well-being or living standard of community forest user groups may depend not only on materials and services that are available to them as a result of community forestry, but also on the distribution mechanism and level of satisfaction and happiness in the lives of those members (Chettry, Francis, Gurung, et al., 2008; NSCFP, 2007f).

Forest-dependent communities can contribute to their livelihoods by enhancing their social and human capital (Warner, 2000). A sense of well-being is affected by several factors, such as self-esteem; a sense of being in control; health and education status; access to other goods and services; and political enfranchisement. The long-term objective of the existing forest policy of Nepal is that the quality of life of people in rural communities, particularly of those individuals who belong to lower income groups, be improved primarily through the successful implementation of the community forestry program. This can be done by increasing the availability of fuelwood for cooking and heating; making more feed available for livestock (which produces more milk, meat, hides and dung); making more timber available for the building of shelters; and better conserving and improving the quality of soil, so that security is provided from natural disasters (Chhetri, 2006; GoN, 1989; GoN 2000). In relation to this research, I believe that forestry initiatives should be comprised of meaningful participation; empowerment; participatory decision-making; equity; adequate social networks; proper collection and use of community forest user groups’ funds; and access to resources, promote socio-economic well-being of the poor and marginalised members of rural communities.

### 3.12 A framework for critically analysing the socio-economic outcomes of community forestry

A review of literature indicates that a government-managed forestry approach cannot stop deforestation and reduce poverty, in most developing countries. However, community forestry has been shown to be a viable alternative for stopping deforestation and reducing poverty (Chhetri, 2006). Several studies indicate that community forestry is successful in increasing the amount and quality of forest resources (Gilmour et al., 2004). Positive socio-economic
outcomes of community forestry can have a significant impact on the livelihoods of people in rural communities (Bijaya, 2011). However, there are many problems regarding distribution. Many of the benefits of community forestry flow to local elites. So, poorer people suffer because of the lack of equitable distribution of forest products and other benefits (Thoms, 2008). Community forestry has always involved poor people. However, only recently have there been, any specific strategies for addressing how poor people can access their basic needs from forest products. Indeed, the socio-economic outcomes of community forestry have not been adequately documented.

Several studies indicate that rural communities are capable of managing and controlling nearby forest because they live close to it; have a significant amount of knowledge of the potentialities and problems regarding local forests; and significantly depend on forests for their livelihoods (Roberts & Gautam, 2003). However, not all communities are equally capable. Nor are those communities comprised of people who have equal amounts of interest and capabilities. The major socio-economic outcomes of community forestry, which have been studied by me, are presented in the following conceptual framework (see Figure 3.5).

In this research, short-term outcomes, in terms of socio-economic benefits for rural communities in Nepal, are regarded as being those which community forestry has provided over the last 15 years. Medium-term outcomes are regarded as being those which have occurred during a period of 15 to 20 years. Long-term outcomes are regarded as being those which have occurred beyond 20 years. Short-term outcomes are regarded as providing the foundation for subsequent outcomes. Improved forest condition can be regarded as being both an outcome and an input (i.e., improving the business potential of forest products). Socio-economic outcomes from community forestry can also vary from one community to another. The following framework, which has been developed in accordance with the collection and analysis of data, provides answers to key research questions.
Figure 3.5 Expected socio-economic outcomes from community forestry for rural communities (researcher’s interpretation of literature)

Short to medium-term socio-economic outcomes of CF

Short and intermediate Social outcomes of community forestry
Progressive changes regarding
- Community participation and empowerment (Access, power and equity)
- Capacity (skill and knowledge of forest management, and leadership development)
- Social capital (group cohesiveness and networking)

Economic outcomes of community forestry
- Change in quality, quantity and types of forest products available for users (household & commercial uses)
- Fund collection and use (employment opportunities, poor households’ access to forest products at subsidised rate)
- Special provisions for poor households access loan/subsidy for income generation activities (IGA)

Community development activities initiated and supported by CFUG
- Fund allocation for community development activities

Focus for this research

Long-term socio-economic outcomes of CF on the livelihoods of people in rural communities
- Forest condition improved
- Education facilities improve
- Health facilities improve
- Transportation improves
- Agriculture and livestock increase
- Conservation of cultural and heritage sites
- Overall livelihoods improve
3.13 Summary

Historically, Nepal’s forestry sector was administered under a feudal system. All communal and private forests of the country were nationalized via the Forest Nationalisation Act 1957. Both the Government and authorised individuals overexploited forests for their personal benefit. Most forests were under the control of powerful people. Local people were only permitted to use forests if the local elite or landlords agreed. The government lacked the human and financial resources needed to properly manage the forests and protect them from overexploitation. Eventually, this situation led to massive amounts of deforestation throughout the country. Finally, the government acknowledged the importance of participation by local rural people in relation to the protection, management and proper use of forests.

The government eventually realised the importance of having local people involved in forest protection and management. Consequently, a forest management policy whereby a partnership agreement between the government and each local community has been in operation in Nepal since 1978. This is used as a tool for sustainable management and development of forest resources, as well as for poverty reduction.

In addition to this, community forestry is now regarded as being useful for sustainable development in Nepal. Community forestry is consistent with the global environmental agenda of climate change. Community forestry is dynamic and complex. Any assessment of socio-economic outcomes of community forestry for rural communities is a complex and difficult task, particularly when the majority of forest users are illiterate and unaware as to how outcomes of community forestry can be assessed. In the next chapter [Chapter 4], the research methodology and methods used for data collection and analysis will be examined.
Chapter 4

Research methodology

4.1 Introduction

In this chapter, there is an explanation as to how the research has been conducted so that key research questions can be answered. The objectives regarding the thesis [as outlined in Chapter 1] are also presented.

Research methodology is a broad term used to describe various approaches to research and data collection (Walsh, 2001). Different research methodologies are chosen for different types of social research in relation to particular requirements regarding the research topics (Cooper, 2010; Creswell, 2009). Community forest programs (CFP) are implemented in order that social benefits, be achieved that there be good forest management and that there be sound economic prospects at local levels.

It was decided that a post-structural, mixed methodology, comprised of a range of qualitative and quantitative research methods, would provide the information that can best describe the diverse socio-economic outcomes of community forestry presented in chapters 5, 6 and 7. Therefore, both qualitative and quantitative data have been collected in order that the issues in relation to community forestry regarding the three case studies be presented. Approaches and methods used in other investigations into socio-economic outcomes of community forestry in Nepal are summarised.

This Chapter contains the following information:

- an overview of associated research approaches;
- a review of quantitative and qualitative research approaches to establish the theoretical framework for this research. As has already been stated in this thesis, the methodology chosen for this research includes an explanation as to where, how and when the research fieldwork was conducted, and how the case study sites were selected regarding the collection of both qualitative and quantitative data;
- particular research techniques used to develop guidelines for in-depth interviews, and for designing checklists and questionnaires;
- methods used for analysing data and interpreting results; and
- reflections on my role as a researcher.
4.2 Associated research approaches

Depending upon the field situation and interdisciplinary nature of community forestry (for example, analysis requiring knowledge of forestry science and social science), I used both a positivist and a naturalistic approach for this research, which in my view gave me a deeper understanding of the complex socio-economic outcomes of community forestry. The exact nature and scale of the socio-economic outcomes from community forestry is highly contextual, in that there can be great variation in what is perceived and reported as ‘success’. Therefore, this research is based on a positivist-constructivist paradigm largely guided by a post-structuralist and political ecological approaches. The main research areas in relation to the use of this paradigm are: (a) the dynamics of the community forestry program; (b) the community forestry environment as a socially constructed reality, involving multiple perspectives; and (c) the perceptions and values of all participants (e.g., members of CFUGs, government forestry officials and other respondents) whereby a range of interpretations can be explored in order that key questions regarding this research can be answered. The approaches and methods which have been used in relation to this research are illustrated in Figure 4.1.
Constructivist-interpretive paradigm, incorporating:

- Post-structuralist approach
- Political ecological approach
- Actor-oriented approach

Research methods and type of data

- Qualitative
- Quantitative

Multiple methods of data collection

Data Collection Tools/sources

**Primary data**
- Participatory wealth ranking
- In-depth interviews
- Household survey
- Focus group discussion
- Participant observation

**Secondary data**
- CFUGs database (national & district levels)
- Unpublished documents (office records of CFUGs, DFOs and DoF)
- Publications: reports (CFUGs, FECOFUN, DFOs, DoF and other government offices), journals, books and newspapers
4. 2.1 Structural or positivist approach

Structural approaches are predominant in natural and social science research. The user of this method assumes an objective world of ‘reality’ and ‘truths’, and that these can be reliably measured by different observers so that virtually the same results are recorded (Bernard, 1995). However, the researcher and the observed environment are assumed to be independent of each other. The cultural background and the professional approach used by the observer, does not affect the way in which a single reality is grasped, interpreted and measured (Davies, 1994).

So, in relation to this notion, ‘reality’ can be understood empirically verified and explained by models of causal connections which generate hypotheses deductively and which can be tested, often quantitatively. A user of this approach regards ‘scientific’ interpretations of the environment as being the only form of ‘truth’. An ‘objectivist’ philosopher’s understanding of those interpretations is often based on measurement and quantitative modelling (Bernard, 1994).

According to Bernard (1995), scientific interpretations are regarded as being ‘facts’ which are observable, measurable, constant and stable. Results are objectively obtained and judged on the basis of sound experimental design and accuracy regarding perception and measurement. This approach is a generalized one, not a contextual one. Moreover, it attempts to present the external world as reality based on universal knowledge (Rosenau, 1991). The notion is that science confirms that there is an objective ‘truth’ and ‘reality’. This approach provides a rational, non-political basis, regarding normative policy-making in an environmental field (Davies, 1994).

So, in relation to this research, I have some distanced myself from a purely structuralist’s view. Furthermore, I have assumed that there are no ‘facts’ of a substantive nature in my topic which are fully accepted by all of the participants involved. I also disagree that there is one form of ‘truth’. The conventional notion regarding the natural sciences, is that the natural world exists as ‘experts’ see it. In other words, ‘knowledge’ is to be extracted by structured methods of enquiry. However, I have found that approach to be useful to some extent, regarding this research.

Instead, I argue that knowledge does not always come from books. Nor can it be acquired only from structured methods of enquiry. Knowledge can be created through direct
interaction between people. ‘Experts’ may have a form of knowledge; but rural people may have another. So, even though facts may exist, they may be understood in different ways by different individuals. Furthermore, there are many people who possess knowledge and each of those individuals may interpret the environment differently. Hence, serious attention has been given to understanding the views of different people. This has also been done by my adoption of a post-structural approach regarding this research.

4.2.2 Post-structural approach

The user of a post-structural method rejects approaches which are based on modern scientific epistemology and methodology. The followers of this post-structural method have little faith in hypotheses which are formulated by means of structural analysis. They also reject an independent external ‘reality’, as well as the use of modern scientific tools used in relation to social research. Additionally, the supporters of this post-structural approach reject any view of reality that assumes the independence of an individual mental process, and inter-communication (Rosenau, 1991, p. 110). Rosenau (1991) further argues that:

“….all knowledge claims (all facts, truth, and validity) are ‘intelligible and debatable’ only within their context, paradigm, or community. The knowledge claims are merely the result of agreement among professional communities. Reality is the social process accepted as normal in a specific context...” (Rosenau, 1991, p.111).

‘Truth’, according to this notion, is regarded as being a collection of subjective views. Thus a person who believes in this approach recognises that, where a multitude of views exists, none can claim superiority over any other. Post-structuralists also make use of linguistic theory in order that social variation and change be examined. Linguistic theory relates to the dynamic relationship between words and concepts, as seen in wordplay, pun and metaphor. Supporters of this approach argue that if language structures a person’s understanding, then it will also influence that individual’s responses (i.e., his or her choices as to how to behave, including how he or she responds to events).

Post-structural thinkers believe that behaviour and events cause people to respond according to how they feel, think about and describe situations. Commonly held overlapping mental frameworks interact with people’s socio-ecology, rather than merely providing words so that they can describe the world (Blaikie, 1996). So a believer in the post-structural approach acknowledges small community-based traditional versions of
‘reality’, such as folk wisdom, myth, popular stories and legends (Gare, 1995). Post-structural thinkers argue that, in the absence of truth, one must acknowledge multiple interpretations. So, the use of this method enables one to obtain great insights regarding social science literature (Blaikie, 1996; Gare, 1995). However, believers in the post-structural approach often fail to examine the undeclared assumptions regarding the use of this method (Blaikie, 1996).

This is relevant to my research because of my assumptions based on my more than 15 years professional career in forestry. So, my methodology is designed in such a way that my biases and any assumptions which I have that are associated with this topic can be explored. I have also been deeply involved with community forestry for several decades.

4.2.3 The political ecological approach

The political ecological approach has to do with concerns regarding ‘political economy’ and ‘ecology’. This combination requires that there be some sort of common ground between the natural and social sciences regarding research (Blaikie & Brookfield, 1987). According to Blaikie (1994), political ecology is associated with a number of established disciplines and approaches. In fact, a researcher, when exploring a political ecology issue, has to negotiate different scientific/positivistic assumptions and constructivist/naturalistic assumptions because of links between the natural and social sciences.

Walsh (2001) has pointed out that researchers, who adopt the political ecological approach, usually choose data collection methods such as questionnaires, structured interviews and observational checklists that allow them to collect ‘facts’ in a controlled way. These ‘facts’ can be recorded in or are reducible to a numerical or quantitative form. Furthermore, these researchers typically try to test and observe a relationship with different variables that can be easily manipulated. Yegidis and Weinbach (2009) say that political ecological thinkers believe that the environment can be interpreted differently by various participants because it is socially constructed. In other words, what we notice, interpret and give meaning to come from our experience and cultural values, norms, traditions, religious influence, educational backgrounds and so on. Therefore the main assumption regarding this approach is that ‘knowledge’ is something that people create continuously and that no fixed objective reality exists independently of people’s culture, values and experience (Yegidis & Weinbach, 2009).
Depending upon the type and objective of the research being undertaken, social scientists who adopt a political ecological approach may develop a data collection strategy by assuming that their main task is to understand reality from the ‘inside’ (i.e., from the perspective of the ‘researched’) (Blaikie, 1994). In adopting this approach, social scientists are interested in the real meaning of human behavior and relationships. They believe that this meaning can only be discovered and understood in the natural setting. So, social scientists generally use data collection methods that allow researchers to gain access to a wide variety of qualitative and quantitative data, such as participant observation and unstructured in-depth interviews (Blaikie, 1994; Denzin & Lincoln, 2011). Hence, these social science researchers make use of a social research method which is more of a social constructivist approach. This suggests that the environment can be interpreted differently by various participants, perhaps because it is socially constructed (Yegidis & Weinbach, 2009).

In this context, social scientists demonstrate that social research is not just based on scientific data which reflects only professional and bureaucratic value judgments. Some authors have argued that scientific formulations are often shaped by the culture and main institutions of scientific endeavour and that these formulations are therefore narrowly technical in concept, even though they are used in politics, and for manipulation by bureaucrats, academics and policymakers virtually everywhere (Giddens, 2006).

Structures of power and pre-attentive patterns of behavior, are constrained by space and time, but are profoundly important in explaining human behaviour. People often try to make sense of these structures through learning and experiences (Giddens, 1984). However, because of a number of weaknesses and difficulties, the political ecological approach regarding research is not devoid of criticism. The key assumptions in relation to this approach are not always sufficient regarding interpreting and measuring environmental and socio-economic outcomes (Walsh, 2001).

Community forestry is interlinked with the changing biophysical characteristics of forest resources, as well as with socio-economic and political factors at different levels. If the researcher does not sufficiently understand all of the components of forest ecology as well as the political complexities which affect those components, then it is almost impossible for the researcher to properly assess socio-economic outcomes, which occur as a result of a number of influencing factors. To a large extent, this research has been designed in accordance with apolitical ecological approach, which requires that certain assumptions be
accepted. However, it should be noted that people’s actions also affect and change physical and social structures which form and channel action.

4.2.4 Actor-oriented approach

This emerging dynamic approach, in relation to exploring and understanding social change within a development context, is gaining acceptance regarding social science research. An actor-oriented perspective entails “recognising the ‘multiple realities’ and diverse social practices of various actors, and requires working out methodologically how to get to grips with these different and often incompatible social worlds” (Long & Long, 1992, p. 4). Furthermore, according to Long and Long (1992), development is socially constructed within the daily lives of various participants. This explains the concept of social construction of knowledge specifically within the development process.

These authors suggest that development activity brings together a cast of actors or participants - each of whom has ‘projects’ or sets of objectives which he or she seeks to achieve through various strategies. The stage on which the actors perform is termed the ‘development interface’ (Long, 1989). Hence, this group of actors or participants is typically comprised of local people, government officials, politicians, scientists, development experts, development workers and landlords. Their power, influence, knowledge and efficacy shape the responses and strategies of different actors (Long & Villarreal, 1994).

So, in relation to this approach, members of local communities as social actors are not simply regarded as belonging to disembodied social categories (based on class or some other externally derived classificatory criteria). Nor are those members of local communities regarded as being passive recipients, in some sort of intervention. Instead, they are considered to be active participants, who process information and produce strategies in relation to their dealings with various local actors, as well as with outside institutions and personnel (Long & Ploeg, 1994).

Long and Ploeg (1994) also argue that different patterns regarding the way a society is organised can emerge as a result of these interactions, negotiations and social struggles, which involve not only people who are present in that community daily, but also other individuals who may be absent, or who may reside elsewhere; but who nevertheless, influence the situation. So this research approach can be used not only by researchers, but
also by forestry agents, in their capacity as implementers of community forestry policies, to explore problematic aspects regarding the community and the forest environment.

There is also a need for interaction with people of a very different world (Long, 1989). Bryant and Bailey (1997) have argued that the actor-oriented approach is suitable for one to understand the actions of different participants who are operating at different levels of socio-economic structures. However, users of this approach have been criticised for concentrating upon the minutiae of social life, rather than attempting to understand the nature and impact of the large-scale social structure and processes. This leads to what Esman and Uphoff (1984) have termed ‘intermediate structures’, such as social networks which are based upon criteria such as kinship or patron-client ties and groupings of households (community forest user groups). A study of these structures can be used to produce more general statements about policy as a social process.

### 4.3 Reflection of research paradigms

I recognise that research paradigms help one to understand the complexities or nature of the ‘world’, as well as the range of possible relationships to that world. Therefore research paradigms, like theories, cannot be judged in terms of whether they are true or false. To a certain extent, they can be assessed on the basis of relative usefulness for a particular research purpose (i.e., in terms of strengths versus weaknesses).

As noted above, the positivist research paradigm sees the world as objective, there are facts, truths and realities and the researcher can extract them independently. On the other hand, the constructivist paradigm emphasises contextual construction of meaning and the validity of multiple perspectives. However, both paradigms are not free from criticisms as discussed in Section 4.2.

The literature in relation to social research approaches indicates that there is no single commonly accepted paradigm for investigating socio-economic outcomes of community forestry. The rise of social science research in community forestry is generally linked with a change in dominant development paradigm and resultant impacts on the development of forestry sector. Moreover, a number of disciplines within social science have now made important contributions in the study of indigenous techniques and knowledge, social values, peoples’ attitudes and community participation in community forest management and reality are multi-perspectival. Therefore, I used a combined positivist-constructivist approach for this research. I found that the post-structural approach was very useful to
collect different views and perceptions of CFUGs’ members and government officials regarding community forestry process as well as to examine social variations and changes in case study sites.

4.4 An overview of research methods

In a general sense, research methods can be classified as being qualitative, quantitative or multiple methods (Creswell, 2009).

4.4.1 Qualitative methods

The use of qualitative research has been expanded in recent decades across a wide range of disciplines and applications; whereby multiple methods and theoretical paradigms and perspectives have been produced. The goal regarding the use of qualitative research is to understand issues or particular situations by investigating perspectives and the behavior of the people in these situations, as well as the context within which they act (Hesse-Biber, 2010).

Qualitative research methods have been widely used over the last 25 years (McMurray, Pace & Scott, 2004, p. 187). They have been developed in the social sciences field to enable researchers to study social and cultural phenomena (Yegidis & Weinbach, 2009). Many researchers (e.g., Denzin & Lincoln, 2011; Rudestam & Newton, 2007; Taylor, 2000) believe that quantitative research on the other hand, often has the effect of constraining what is inferred by data in ways that misrepresent the phenomena which the researcher wishes to understand. So, qualitative research methods offer an alternative way of understanding people’s experiences or qualities, so that meaning is provided regarding their social lives (Neuman, 2003).

Qualitative methods involve collecting data from a range of sources such as in-depth semi-structured or unstructured interviews and questionnaires, documents and texts, the observing of events, human interactions, the study of life histories and case studies and the researcher’s impressions and reactions in order that social phenomena be understood and explained. Qualitative methods allow the researcher to study concepts in depth and in detail and provide information-rich data (Gray, 2004; Minichiello, Aroni & Alexander, 1990; Patton, 2002; Shank, 2002; Walter, 2006). This type of research is mainly based on open-ended, exploratory and answerable research questions (Shank, 2002).
Qualitative methods regarding social science might be chosen so that issues which for ethical, practical or epistemological reasons are difficult to measure can be investigated (Griffith & Marinker, 1996). But an examination of the researcher’s assumptions regarding the use of these methods to answer research questions may also be required (Yegidis & Weinbach, 2009). However, Griffith and Marinker (1996) have argued that the use of qualitative research increases our understanding of the forces which shape personal experience, political constraints and academic acceptability. Qualitative methods are also being used increasingly, regarding evaluation or impact studies (Kaplan & Maxwell, 2006).

However, on the basis of the underlying research epistemology, qualitative research may or may not be interpretive and it depends upon the underlying philosophical assumptions of the researcher (Lee, Liebenau & DeGross, 1997; Neuman, 2003). The choice of a specific qualitative approach, such as the case study method may depend on underlying philosophical assumptions (Yegidis & Weinbach, 2009). In fact, case study research can be positivist (Yin, 2002), or interpretive (Walsham, 1993). But qualitative research techniques have been favoured because they allow the researcher to gather comprehensive data that provides in-depth understanding and uncovers complex subjective views (Shank, 2002). Qualitative researchers can conduct research by using a wide range of approaches, methods and techniques.

However, despite the various strengths of qualitative methods, Sarantokos (1998) pointed out the main weaknesses of these approaches as:

(a) problems regarding reliability which is caused by extreme subjectivity;
(b) the risk of collecting meaningless and useless information; (c) problems concerning representation and generalisation of findings; and
(d) that they are time consuming.

Overall, qualitative methods are useful and relevant when one conducts social science research, particularly in relation to community forestry in rural areas of developing countries such as Nepal, where the majority of people are illiterate and lack the capacity to keep adequate records of CFUGs. In that situation, it is impossible to get current updated information either from government forestry offices or from concerned CFUGs. Therefore, for the purpose of this research, qualitative methods have been applied so that information be collected about the implementation of community forestry, its socio-economic
outcomes for rural communities and an understanding of human responses. Qualitative methods on the other hand, are best suited to discovery tasks such as describing and understanding people’s experiences, perceptions, knowledge and feelings as well as the meanings which are derived from such events or descriptions.

4.4.2 Quantitative methods

Quantitative research methods were originally developed in the natural sciences so that natural phenomena could be studied (Neuman, 2003). These methods are useful for gaining standardised information from a large sample population so as to enable statistical analysis, comparison and generalization.

Researchers, who accept the basic assumptions of positivism, tend to choose quantitative data collection methods. Quantitative methods generally deal with numerical measurements of factors such as quantities. Moreover, quantitative methods are more useful regarding empirical and experimental research and for identifying numerical differences between groups (Hesse-Biber, 2010). Researchers use quantitative research methods in order that data can be collected and analysed by statistical techniques. Quantitative research methods are often used by researchers to identify and establish relationships between dependent and independent research variables and to test hypotheses (Neuman, 2003; Walsh, 2001; Walter, 2006). These methods include the collecting of data; perhaps as a result of simply conducting a survey.

According to Guba and Lincoln (1994), quantitative data are usually regarded as being of the highest scientific quality and useful, in relation to reducing the personal judgment factor regarding researchers. However, in recent years there has been increasing criticism regarding the validity of using only quantitative methods (Yegidis & Weinbach, 2009). This has raised an important epistemological issue. One of the persistent critiques in relation to the quantitative research approach is the lack of limited reliability regarding an assessment of social and cultural values, norms, tradition and beliefs of inhabitants of rural communities, because there may be a gap between what the quantitative research approach measures and reality (Krenz & Sax, 1986; Sarantkos, 1998).

4.4.3 Using multiple methods

Qualitative and quantitative approaches of inquiry are not only based on specific paradigms but they reflect different underpinning epistemologies and these are regarded by
some people as being incompatible (Jennings, 2001). So it can be inferred that neither of these two research approaches is always appropriate or adequate or that one is superior to the other regarding an analysis of relevant data when interdisciplinary social research is being conducted (Creswell, 2009).

Although most researchers do either quantitative or qualitative research work, some researchers have suggested that two or more research methods be combined for the purpose of conducting a study (Hesse-Biber, 2010). Such an approach, involving multiple methods, could strengthen one’s capacity to understand and explain phenomena. One could gather different types of data; use triangulation and approach communities in order to record different perspectives (Gable, 1994; Hesse-Biber, 2010; Lee et al., 1997; Mingers, 2001).

Qualitative and quantitative approaches of inquiry are based on specific paradigms and reflect different underpinning epistemologies and these have been seen by some to be incompatible (Jennings, 2001). It can be inferred that neither research approach is always appropriate, adequate and superior to the other approach to collect relevant data for interdisciplinary social research (Creswell, 2009). A researcher, who uses either a qualitative or quantitative research approach, is basically concerned with discerning similarities and/or differences regarding what he or she chooses to observe regardless of whether those similarities and/or differences are measured in numbers or are described in words (Griffith & Marinker, 1996; Hesse-Biber, 2010).

For proponents of a multiple methods research approach, these methods are not mutually exclusive. Instead, different degrees of mixing of the methods can occur. Therefore, whenever it is possible and relevant, a combination of both quantitative and qualitative methods may be more effective when one is conducting explorative evaluation research regarding social science disciplines. This method is an iterative approach to inquiry, an emphasis on the research question and a focus on signature multiple method research design and analysis strategies - (qualitative/quantitative): parallel, sequential, multilevel, sequential multiple, and so on’ (Denzin & Lincoln, 2011a). However, the choosing of any approach depends more on the research problem, nature and objective of the study rather than on the underlying theory regarding the approach (Creswell, 2009; Punch, 2005).

The multiple methods research approach regarding the collecting of both qualitative and quantitative data leads to the production of a rich body of information whereby words,
pictures and narrative can be used to add meaning to numbers (Onwuegbuzie & Johnson, 2004).

Triangulation involving multiple sources of data seems to be most commonly used in social science research, because a researcher who adopts a multiple methods research approach is using more than one method by which he or she may be able to provide an answer to a key research question (Neuman, 2003). Therefore, triangulation is a useful approach by which a researcher can not only collect data to provide an answer, but also make the data more acceptable to advocates of both qualitative and quantitative methods (Hesse-Biber, 2010).

In relation to this research, the multiple method approach has been selected in order that key research questions be answered. The two main assumptions regarding the selection of a multiple method approach are that no single method is (a) appropriate and (b) adequate by itself. For example, replies to a questionnaire which has been constructed and administered by the researcher, can depend upon how the questions are phrased; how they are asked; and by whom. Sometimes rural people respond with idealised answers or repeat what they have heard from other people. Furthermore, rural people may provide information that they feel is expected of them or reveal what least damages their interests or respond in a way that they think is appropriate in order to ensure that they receive what non-local organisations have to offer them. How local people react is also influenced by their memories of past interventions (Long & Ploeg, 1989). So their responses may vary considerably depending on who is present and how often questions are asked. Furthermore, what people say sometimes differs from what they really do. All of these factors justify the use of a multiple methods research approach.

4.5 My selected methodology and research process

This is an inductive type of research which is based on observations or data, from a variety of sources including quantitative factors, CFUGs’ office records, interviews, group discussions, observations and household surveys. This research has been based on the belief that empirically observed socio-economic realities are more important than testing or constructing a theoretical model. Since this research is based mainly on a qualitative research approach econometric and complex quantitative tools have not been used in relation to data analysis and any interpreting of results. Although it has not been possible in this study, to explore all socio-economic outcomes of community forestry,
some social and economic outcomes as well as contributions of community forestry in relation to local community development have been noted. So changes in community participation and the capacity for building social networks, particularly in relation to forest management and local leadership have been explored.

Economic outcomes, such as changes in quality and quantity of forest products that have been harvested by rural communities have also been noted in the study. The collection and use of community funds regarding forest protection and management, income production and local community infrastructure development, have also been noted. So, a pragmatist philosophical framework and a multiple methods methodology have been used to research this thesis.

Depending upon the field situation and interdisciplinary nature of community forestry (e.g., forestry science and social science), I have mostly used a constructivist-interpretive-paradigm regarding my research. The experience regarding the implementation of CFP was also incorporated as a research finding because community forestry differs from place to place. A relevant and useful theory regarding socio-economic outcomes of community forestry in the context of this research does not appear to be available in published literature. Consequently, a ‘best practice’ approach investigating different aspects of CFP has been implemented by me as the foundation regarding the analysis of data, in order that key research questions can be answered. So the process, of understanding community forestry has been through ‘learning by doing’. Participants involved in community forestry tend to be concerned not only with forest management, but also with socio-economic aspects of CFUGs. So, research about community forestry is considered to be an applied social science study, given the fact that issues at a local community level need to be addressed. So, a combination of participatory, qualitative and quantitative research methods, which complement each other are used (Frost, Campbell, Luckert, Mutamba, Mandondo, & Kozanayi, 2007; Nagendra, Karmacharya, & Karna, 2005).

The qualitative aspect is useful regarding the collecting of information such as expressions of opinions, feelings and attitudes from various respondents (Creswell, 2009). Therefore in relation to this study, a qualitative ‘field research’ approach has been used to allow primary data about the perceptions and attitudes of respondents be collected. These perceptions and attitudes are in relation to the implementation of community forestry; equity in participation by the users; decision-making; benefit-sharing as a result of community
forestry; changes regarding skills and knowledge of CFUGs’ in relation to forest management; leadership development; social cohesion; networking; trust; and so on.

A quantitative approach usually involves collecting information in the form of numbers (Creswell, 2009; Punch, 2005). Hence, this approach is useful for describing a situation or phenomena in a systematic and comparable way. In relation to this study, quantitative data have been collected to enable socio-economic outcomes of community forestry to be determined and that changes in the bio-physical condition of community forests be assessed. The required quantitative data relates to the CFUGs’ activities and have been collected from existing CFUGs’ records. The data relates to the number of male and female members who have participated in the CFUCs’ meetings; other activities in relation to the implementation of community forestry; as well as details regarding the CFUGs’ fund; the distribution of forest products; the contribution of community forestry to local community development; and so on.

The overall monitoring and capacity-building responsibility lies with the District Forest Office (DFO). Data, concerning the implementation of the community forestry program in the study districts, and issues, problems and challenges in relation to the implementation of community forestry, have been collected from the existing office records and annual DFO and ‘Range Post’ (RP) publications. An administrative unit of the Department of Forests (DoF) has been in direct contact with members of local CFUGs. Apart from these, relevant secondary information has been available and has been obtained from various published and unpublished documents in the final phase of the NAFP, which is called the ‘Nepal-Australia Community Resource Management and Livelihood Project’ (NACRMLP). In addition, AusAID, DoF, and FECOFUN resources have been used in this study. Figure 4.2 shows the steps which have been followed for this research.
Figure 4.2 Steps in my research process

Note: Iterative steps employed for data collection, analysis, verification and interpretation of results and literature review throughout this research.
The general steps regarding the conducting of fieldworks, are summarised in Box 4.1.

**Box 4.1 General steps for conducting my fieldwork (stage 1), 2009**

1. The research proposal and fieldwork scheme, including methods used for data collection, were approved by the Human Research Ethics Committee, Office of Academic Governance, Charles Sturt University, on 5 August 2009.

2. Pre-field testing, of the data collection process and tools was done in the first case study site. On the basis of the experiences gained from pre-testing, the fieldwork schedule was revised and applied, to allow data to be collected from three villages accordingly.

3. A general CFUG meeting was held in each study site, so that the nature and objectives of the research could be explained and the researcher could be introduced.

4. A participatory wealth-ranking exercise in each site was carried out by which the CFUGs households were divided into four categories - (a) very poor; (b) poor; (c) medium; and (d) rich; by using criteria which had been established by the community CFUG members (see Section 4.4.5.1).

5. Key informants were selected from the selected community forest user groups on the basis of their socio-economic status; interests; numeracy or literacy. These key informants provided estimates regarding the collection; labour use; quantity of each forest product and other essential information, about their CFUGs and forests.

6. In-depth interviews were conducted with selected CFUG members; committee members; forestry staff and FECOFUN representatives. Household surveys were conducted with purposefully selected household residents. In addition, a participant observation method was used so that information about forest user group meetings; forest market conditions; community development activities which are supported by the CFUGs fund and so on could be collected. This method enabled the researcher to gain a better understanding of the objectives and priorities of the stakeholders and the role of community forestry in the farming system and household economy.

7. The collected data were summarised, compiled and analysed by using tables; figures; charts; line graphs; and statistical tools.

A case study approach has been useful for the collecting of details, regarding perspectives of community forestry participants. This approach has been widely used for exploring issues in relation to community forest management, as well as activities regarding the implementation of community forestry (Banerjee, Macpherson, & Alavalapati, 2009). Thus, a case study research approach has been employed in relation to this thesis, in order that socio-economic outcomes of community forestry for rural communities in the study sites can be explored.
Information that has been collected at the local level is linked with the wider socio-economic issue. Furthermore, the overall effect, regarding the process which has been adopted by each CFUG, given that each has been presented with a different set of circumstances, is a key issue to be identified in relation to each district. For this study, three sample CFUGs have been used, regarding an analysis of geographical and socio-economic data. There are several reasons that the case study approach is considered to be the most appropriate, regarding this research.

Firstly, there is a desire to move beyond a simple description of socio-economic outcomes of community forestry and instead examine the broader context, so as to understand the reasons for matters and events to have arisen or occurred as they have. By becoming familiar with the details regarding each study site, primarily through the views of respondents in each of the case study areas, there has been an opportunity to learn not only about particular approaches that people in community forest areas have adopted, but also about the main factors that have influenced or produced success. In order that socio-economic outcomes including the factors that influence them, in the use of community forestry, be examined, three districts were selected for this study, and each district presented with a different set of circumstances. In summary, multiple sources of data have been used in this research.

4.5.1 Selection of case study areas

According to Tellis (1997), and Yegidis and Weinbach (2009), a case study is a research approach whereby not only multiple sources of data are employed, but which is designed to highlight details from the perspective of participants. However, these authors state that case study research is not the same as sampling research. The testing of the selected cases has to be carried out in order that what can be learnt in the available time frame is maximised. Pawar (2004) has argued that, in relation to social research methodology, a ‘case study’ is used both as a research design and as a data-collecting approach.

The selecting of an appropriate case study area as well as an appropriately adequate and flexible research approach, are important steps in social science research (Abbot, 1995; Bordens & Abbott, 2011; O'leary, 2006; Pawar, 2004). Tellis (1997) too, emphasises the importance of the case study approach given the multiple perspectives that can be examined, not only of those people in the study area, but also those of other parties who
interact with the actors. It may also be possible to study in depth, any factors that make the
case unusual (Babbie, 2007).

According to Yin (2002), the case study approach is a research strategy that enables one to
learn about a complex issue. This is done not only through an extensive description and
contextual analysis, but also by examining why issues have arisen as they have what one
might expect in any similar situation and what might be important for any further research.
So one purpose of the study is to establish parameters, whereby even a single case may be
considered acceptable, provided that it is purposeful research. However, whilst ‘soft’
qualitative data, acceptable if we are seeking a descriptive account and can be collected in
a case study, is not so good if we are also interested in obtaining ‘hard’ factual data that
enables us to make statistical comparisons (Walsh, 2001). The possible drawbacks in the
case study approach can be avoided if a case is chosen carefully (i.e. without bias, meeting
objectives of research, not because it is researcher’s favourite site) (Jones, 2004; O’leary,
2006).

Furthermore, triangulation can also be used, in relation to case studies, so that results can
be confirmed. None-the-less, according to Yin (1994), the need for triangulation arises for
ethical reasons, regarding confirming not only that the results are correct, but also that the
processes which yield those results are appropriate. Concerning case studies, triangulation
can be carried out when data is collected from multiple sources. For the purpose of this
research, the case study sites have been chosen from three main geographical areas of
Nepal, namely the High Mountain area (Sindhupalchok); the Middle Mountain area
(Kabhrepalanchok); and the Inner-Tarai area (Chitwan) of the Central Development
Region of Nepal.

Reasons for selecting these three districts include:

- A community forestry program has been implemented in these districts for more
  than 15 years, whereby community forestry experiences there have provided the
  researcher with sites that can not only be suitably analysed, but where socio-
  economic outcomes of community forestry can be compared. The three study sites
  are in very different areas of Nepal, allowing further comparisons to be made.

- In each of the three chosen districts, community forestry is in a different stage of
development, such as the different number of CFUGs formed and socio-economic
  outcomes of community forestry.
This researcher has previously been involved in various community forest management activities in these three districts which has helped him to establish good rapport with CFUG members and DFO staff. This facilitates accessibility to information as noted by several authors (e.g., Heltberg, 2001; Johnson & Turner, 2003), the positive effect of a researcher having good rapport with respondents, particularly in relation to the data-gathering process.

According to the DoF database (2011), Chitwan, is part of the Inner Tarai District, and has 62 CFUGs. Since the late 1990s, Chitwan District has been administered by the community forestry program. Kabhrepalanchok, in the middle hill district, has 522 CFUGs. Sindhupalchok, which is in the High Mountain district, has 495 CFUGs (DoF, 2011). The last two of these three areas are considered to be pioneer districts, for community forestry programs in Nepal. These three districts, in which various socio-economic outcomes of community forestry have been examined, are largely representative of the different rural communities in Nepal, in terms of socio-economic conditions, ethnicity, culture, religion and forest types.

Community forestry policy has been implemented in all three of these districts by the same forest administration body. This makes it easy to access information, collect field data and minimise variability regarding research in relation to the socio-economic outcomes of community forestry. The Nepal-Australia Forestry Project (NAFP) and (the AusAID funded bilateral forestry development project), were implemented in the Sindhupalchok and Kabhrepalanchok areas between 1978 and 2006. Chitwan District has not received any funding support from the AusAID projects.

Although the CFP has been implemented for quite a long time in these districts, no study has been done, regarding the socio-economic outcomes of the program in relation to local rural communities. Any such study is a challenge, because of the heterogeneity of CFUGs, in terms of the forest type in areas where people live; forest area; CFUG size; CFUG fund size; remoteness from markets; degree of experience of CFUGs; social composition and characteristics of the community forests regarding type, age and altitude at which they can be found. By being granted access to the district level and community forestry database, which is updated annually by staff in district forest offices, I have been able to select sample CFUFs. I felt that the case study would help me to understand how different socio-economic outcomes are produced within different communities, despite the fact that the same government community forestry policy is implemented in each area. I also felt that
the case study would help me to understand the complex real life situations, regarding different members of the selected CFUGs.

Most of the previous studies, regarding community forestry in Nepal, have been conducted in the hill districts. For this reason, the three areas involved in my study have been selected from a different geographical region of Nepal as indicated in study Map 4.1. A summary of each of the selected districts is presented in Table 4.1, with a more detailed description of each district provided in Appendix 2.
Map 4.1 Location of the study Districts
**Table 4.1 A summary of the case study districts**

<table>
<thead>
<tr>
<th>Description</th>
<th>Chitwan District</th>
<th>Kabhrepalanchok District</th>
<th>Sindhupalchok District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical location</td>
<td>Inner-Tarai</td>
<td>Middle Hill</td>
<td>High Mountain</td>
</tr>
<tr>
<td>Altitude (m)</td>
<td>141 to 1945</td>
<td>280 to 3018</td>
<td>747 to 7083</td>
</tr>
<tr>
<td>Area (km²)</td>
<td>2239 (1.5% of the total area of the country)</td>
<td>1396 (1% of the total area of country)</td>
<td>2542 (1.7% of the total area of the country)</td>
</tr>
<tr>
<td>Major market centres</td>
<td>Bharatpur, Ramnagar, Munglin, Meghnauli, Rampur, Saradangar, Gitanagar, Tandi, Parsa, Sauraha, Bhandara, Birendranagar, Lothe</td>
<td>Banepa, Panauti, Nala, Dhulikhel, Nagarkot, Khopasi, Panchkhaal, Dolalghat</td>
<td>Chautara, Melamchi, Barhabise, Jalbire, Tatopani</td>
</tr>
<tr>
<td>District headquarters</td>
<td>Bharatpur</td>
<td>Dhulikhel</td>
<td>Chautara</td>
</tr>
<tr>
<td>Average annual rainfall (mm)</td>
<td>2319</td>
<td>1923</td>
<td>1615</td>
</tr>
<tr>
<td>Climate</td>
<td>Tropical to sub-tropical</td>
<td>Sub-tropical to temperate</td>
<td>Sub-tropical to Himalayan (alpine)</td>
</tr>
<tr>
<td>Land use</td>
<td>Agriculture: 26%, forest: 63%, pasture: 6%, other: 5%</td>
<td>Agriculture: 44%, forest: 52%, pasture: 3%, other: 1%</td>
<td>Agriculture: 30%, forest: 36%, pasture: 23%, other: 11%</td>
</tr>
<tr>
<td>Forest area (hectares)</td>
<td>141060</td>
<td>72595</td>
<td>101600</td>
</tr>
<tr>
<td>Initiation of CFP</td>
<td>1995</td>
<td>1986</td>
<td>1986</td>
</tr>
<tr>
<td>Number of CFUGs till July 2011</td>
<td>62</td>
<td>522</td>
<td>495</td>
</tr>
<tr>
<td>Total area of CFs (ha)</td>
<td>18561</td>
<td>19895</td>
<td>29192</td>
</tr>
<tr>
<td>Total number of households involved in CFP</td>
<td>34070</td>
<td>37097</td>
<td>55938</td>
</tr>
<tr>
<td>Number of CFUGs having all women executive members in CFUCs</td>
<td>0</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Number of CFUGs members till July 2011</td>
<td>810 (Female: 219 or 27%, Male: 591 or 73%)</td>
<td>5250 (Female: 1155 or 22%, Male 4095 or 78%)</td>
<td>4440: (Female 809 or 18%), Male 3631 or 82%</td>
</tr>
<tr>
<td><em>Market accessibility</em> (Scale: High, medium and low)</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td><em>Socio-economic condition (literacy, wealth) of CFUG members</em> (Scale: good, medium and low)</td>
<td>Good</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

*Note: Assessment made by researcher based on ordinal data in District Profiles and DFOs records.

**Source:**
Selection of community forest user groups within each district

For this thesis, the selection of a CFUG within each district has been more important than the selection of districts. Compilation reports regarding CFUGs have been obtained from the District Forest Office in each district. Three community forest user groups (one from each district) have been selected, on the following criteria (Box 4.2).

Box 4.2 Criteria for selecting case study CFUGs

<table>
<thead>
<tr>
<th>To be selected for in-depth research in this study, each CFUG needed to have:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• been implementing a community forestry program for at least ten years;</td>
</tr>
<tr>
<td>• completed at least one revision of its community forest operational plan;</td>
</tr>
<tr>
<td>• had a high level of dependence on the community forest and its products, to allow for each household’s needs;</td>
</tr>
<tr>
<td>• a range of socio-economic factors (e.g., population size, increase/ decrease in CFUG members, literacy, wealth, reliance on community forestry);</td>
</tr>
<tr>
<td>• experienced different forest types and market situations within the 10 years of its operation;</td>
</tr>
<tr>
<td>• had government/NGO investment, for community forestry;</td>
</tr>
<tr>
<td>• experienced either success or failure, in community forestry; and</td>
</tr>
<tr>
<td>• been accessible and secure during the period of data gathering, in order that the research process be possible.</td>
</tr>
</tbody>
</table>

On the basis of the above criteria, and with the assistance of DFOs in the three selected districts, I decided which CFUGs would be the most suitable, for this research. A summary of the characteristics of the three CFUGs (one from each district), chosen in relation to this research, is presented in Table 4.2.
4.5.2 Units of analysis

In relation to social research, the setting of clear goals, regarding units of analysis, is crucial. Those units, regarding a study, relate to what we investigate for creating summary descriptions, and for providing reasonable explanations for differences (Cooper, 2010).

These can also be called units of observation (Babbie, 2007). These units vary according to the scope, purpose and nature of the research (e.g., individual people, groups, organisation, social interaction, and social artifacts). Bernard (1994) has argued that the first thing to do,
in relation to any research project, is to choose an appropriate and clear unit analysis approach, in order that the research questions be answered.

In Nepal, a community forestry program is usually implemented by two forestry institutions – the District Forest Office and the Forest User Groups. The District Forest Office (DFO) is the principal government authority for all forestry activities in the district. CFUGs are the major actors at the local level (GoN, 1993 & 1995). The selected forest user groups (CFUGs) and individual household residents (members of the CFUGs) provide the basic units of analysis for this research.

Households and family are often used interchangeably in the literature (Agrawal, 1997). However, in this research, a household is regarded as being a residential unit or unit with joint property ownership, whereby a group of relatives live in the same dwelling, and/or share a common kitchen and other essentials for daily living (CBS, 2003). Households vary in terms of composition, from a unit of one person, to dwellings containing parents and children; or even homes with additional relatives such as siblings or grandparents. The family can be comprised of a network of people, who may or may not live in the same household. The literature, regarding the household economy is directed at production, consumption and investment (Horwitz, 2005). When I got conflicting information from the groups, I had cross-checked and verified the information through triangulation, and adding more respondents for in-depth interviewing till I got comfortable confirming information. I had also used multiple data collection methods and sources.

4.5.3 Ethical considerations

Ethics are regarded as being crucial, regarding this research, because the researcher is involved in the study, by interacting with people in their homes. There are also ethical considerations regarding safety. The safety of the researcher is one such consideration. The application includes; seeking approval to use human participants; the research proposal; the methodology; the consent form; an information sheet and a fieldwork scheme. That application has been reviewed and approved by the Human Research Ethics Committee of Charles Sturt University (see CSU Ethics Committee’s approval letter in Appendix 4). There are three major elements, regarding compliance with the standard of research ethics expected by CSU’s Human Research Committee.
The first is that the participants in relation to this study, be given by the researcher, information about the type, nature and objective of this research. Prior to the collection of data, I translated and read to the participants in Nepali language; the contents of the standard CSU Consent Form and Information Sheet (see Appendix 5). That enabled those people to fully understand the purpose and nature of their involvement in the research. My understanding of the Nepali language - the participants’ language - provided me with invaluable insights which I could reflect on, when interpreting data. This would not have been possible for a non-Nepali researcher, who would have had to hire an interpreter. Furthermore, my awareness of the participants’ customs and traditions enabled me to form a relationship with those people, based on trust, in a relatively short period of time.

The second element is that participants provide information voluntarily. Prior to the collection of data, the participants were consulted so I could find out whether they were interested in providing information, about the socio-economic outcomes of community forestry. As a result of that consultation, I obtained the consent of all participants, prior to conducting interviews and meetings.

Finally, the third element is being; to minimise the chance that the participants and researcher suffer harm. I used an approach that has ensured privacy, dignity and confidentiality for all informants and have subsequently analysed the data without identifying anyone.

4.5.4 Field work for data collection

The fieldwork for this research has been done in two stages. The first stage commenced in September 2009, and was completed approximately three months later in December (Table 4.3). Prior to beginning my first stage of fieldwork, I contacted key DoF staff members in Kathmandu, to discuss potential case study sites, and to find out if they were willing to assist, in relation to this study.

Information regarding site selection was collected from the National CFUG Database of the DoF, where records for all CFUGs in Nepal, are kept. Those records are updated annually. The office records of District Forest Offices also provided me with information. Other relevant details and data were collected from CFUGs during the fieldwork.
Once the draft interview guidelines and checklists had been prepared in relation to data collection, and prior to my conducting the fieldwork, the guidelines and checklists were pre-tested during the third week of September 2009. This was done with the assistance of the District Forest Office staff and members of the KCFUG in Chitwan District.

Pre-testing was done in relation to what would eventually be in-depth interviews with key informants from the DFO, CFUG and CFUC. Pre-testing was also conducted in relation to household surveys, CFUG profile checklist and feedback from DFO field staff. Initial interview questions in each category, were refined following pre-testing. Thus the feedback, obtained from the pre-testing process, was incorporated into the research methodology, as well as the guidelines, questionnaires and checklists for the real fieldwork [see Appendices 6, 7, 8 and 9].

A snowball sampling technique was applied in order that key informants be selected for the interviews. According to Bouma (2000), the snowball (a kind of purposive) sampling technique is useful when researchers need to interview certain types of people, but know only a few individuals who fit the criteria when there is no public listing of such people. In relation to this technique, researchers first interview those individuals whom they know,

### Table 4.3 First phase fieldwork timetable, 2009

<table>
<thead>
<tr>
<th>Date (2009)</th>
<th>Location</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 September</td>
<td>Kathmandu</td>
<td>Meeting with Department of Forests (DoF) staff; and secondary data collection</td>
</tr>
<tr>
<td>19 Sep -21 Oct</td>
<td>Chitwan</td>
<td>Meeting with District Forest Office (DFO) staff; pre-test of interview guides; planning for field work and secondary data collection; 6 in-depth interviews; Field work in KCFUG (Field observation; wealth ranking exercise; 20 in-depth interviews; 50 household surveys; 2 group discussions); secondary data collection</td>
</tr>
<tr>
<td>23 Oct-17 Nov</td>
<td>Sindhupalchok</td>
<td>Meeting with District Forest Office (DFO) staff; secondary data collection; 5 in-depth interviews; Field work in SDCFUG (Field observation; wealth ranking exercise; 14 in-depth interviews; 53 household surveys; 2 group discussions); secondary data collection</td>
</tr>
<tr>
<td>18 Nov-12 Dec</td>
<td>Kabhrepalanchok</td>
<td>Meeting with District Forest Office (DFO) staff; secondary data collection; 5 in-depth interviews; Field work in HJCFUG (Field observation; wealth ranking exercise; 13 in-depth interviews; 37 household surveys; 2 group discussions); secondary data collection</td>
</tr>
<tr>
<td>19-29 Dec</td>
<td>Kathmandu</td>
<td>DoF, MFSC, FECOFUN Central Office (8 in-depth interviews; and collection of secondary data)</td>
</tr>
</tbody>
</table>

**Source:** Researcher’s field work diary, 2009.
and then ask them to identify others who might be useful. Those others in turn, might be able to direct the researchers to more individuals.

A purposive sampling technique has also been applied in selecting interviewees for participatory wealth ranking; focus group discussions and household surveys. Triangulation techniques have been used so that data could be collected at different levels. The different tools and techniques that have been used are described below. The initial stage of the fieldwork has been conducted so that an understanding of the local situation regarding the implementation of community forestry and its socio-economic outcomes could be obtained. Before attempting to sample CFUGs, I sought advice from local forestry staff involved with community forestry at the ‘grass roots’ level. On several occasions, I went to villages for day-visits, before staying there continuously in order to experience the everyday life of community forest users. Whenever possible, I made contact prior to my visits to explain the nature of them, the objectives and also set up a timetable to interview the respondents. I met participants from all walks of life, at all levels. I also visited the DFOs and Range Posts. I encountered people from different socio-economic backgrounds in local tea shops, meeting places, and local markets.

Informal meetings and discussions were organised, with the assistance of CFUC members, so that participants could be introduced to each other. The main purpose of the research was explained at such meetings and invitations were issued there to all members of the community to share their experiences and ideas about community forestry. This type of meeting was useful also because I could explore the history and characteristics of the local community. Information was provided at those meetings about community forestry process and procedures; the flow of information; keeping of records; decision-making; the benefit-sharing processes and building capacity of CFUG members. Such meetings also helped build rapport and enabled me to verify data using the triangulation method.

The problem regarding the distribution of resources is that a patriarchal social system still exists in rural communities in Nepal; as in religious and ethnic matters (Whelpton, 2005). Therefore, information has been collected, not only about the implementation of community forestry, but also about CFUG members in relation to class and gender differences. Gender, class and caste not only determine who has the power to make decisions, but who has access to and control over forest resources.
Whilst exploring the socio-economic outcomes of community forestry in the three selected CFUGs, the researcher ensured women and poor people participated in the interview and focus group discussions. Focus group discussions were held in order that obstacles, regarding the participation of women and the poor; equity; benefit-sharing; and decision making have been minimised, regarding the collecting of data.

I spent about three weeks in each study site for collecting information. The best way information was generated, was through informal talks with different sections of the communities in the morning and evening. These discussions not only enabled me to discuss relevant topics freely, but also to gain a deeper understanding of the key issues. These talks also provided the respondents with a better opportunity to share their experiences, views and values openly. These talks were advantageous, in that they allowed ideas and concepts to be understood by me in ways that they could not have been comprehended through the use of household surveys and in-depth interviews. In other words, those talks provided me with an opportunity to gather more information, to acquire a detailed understanding of certain situations and the participants’ perspectives of community forestry.

Secondary data were collected from a number of different sources, including CFUGs’ constitutions; FOPs; meeting minutes; office records and published and unpublished documents. Primary data were collected through a number of activities, such as participatory wealth ranking; in-depth interviews with key informants; focus group discussions; household surveys and participant observations (Table 4.4).
Table 4.4 Methods for data collection

<table>
<thead>
<tr>
<th>Key research question</th>
<th>Data</th>
<th>Method for data collection</th>
</tr>
</thead>
</table>
| **1. What are the main socio-economic characteristics and forest management practices rural communities involved in CF (i.e. CFUGs)?** | Location of CFUGs; Forest management history; population and number of HHs; ethnicity/caste; local language; religions; landholding; trees on private land; occupation; institutional arrangements; CFUG formation; and forest handover | • Review of CFUG constitution and forest operational plan, office records  
• Participatory wealth ranking  
• In-depth interviews with CFUG and CFUC members  
• Household survey  
• Review of relevant literature |
| **2. What have been the socio-economic outcomes for rural communities from community forestry?** | Social outcomes  
Community participation in community forestry processes  
Participation regarding:  
- executive committees, according to gender and caste  
- protection and management of community forests  
- decision making and benefit-sharing  
Potential regarding CF  
- changes in literacy and numeracy; increased status; leadership development; empowerment; social awareness of women and poor; social capital; social cohesion; social networks and service providers; changes in skills and knowledge regarding CF management and development  
Environmental and economic developments regarding  
- Forest protection and development (seedling production, plantations, silvicultural operations)  
- Change in bio-physical condition of CF  
Economic outcomes  
- Forest utilization (timber, fuelwood, grass, fodder and leaf litter)  
- Collection and mobilisation regarding CFUGs’ fund (forestry and non-forestry sources of income)  
- Mobilisation of funds (income generation and poverty reduction, community development) | • Review of CFUGs’ constitutions and FOPs; meeting minutes  
• Household surveys  
• Group discussions and participant observations  
• In-depth interviews  
• Review of FOPs, field observations  
• Review of relevant literature |
| **3. What are the most influential factors that shape the socio-economic outcomes of CF for local communities?** | Power relationships; social inclusion; political stability; governance (Tenure over land/forest and/or forest products, compliance with forest policy, transparency and accountability of executive committees, equity issues); government bureaucracy; accessibility; and condition of local forest markets  
- Communication | • In-depth interviews with CFUG members including women, poor, CFUC members, DFO staff,  
• FOPs, forest policy  
• Progress reports, meetings’ minutes  
• Review of relevant literature |

The second phase of fieldwork was conducted so that feedback could be provided to the CFUGs, and that the preliminary results regarding the research in June-July, 2011, could be verified (Table 4.5). In fact, this second phase of fieldwork enabled me to verify the major findings from the first period of fieldwork. In order to obtain information on various actors’ experiences and views regarding the aim of this study, altogether 12 key informants from senior governmental and non-governmental forestry professionals, policy makers and
CFUC members were selected purposively for interviews to verify and confirm the preliminary findings of the research.

Table 4.5 Timetable of second phase fieldwork, 2011

<table>
<thead>
<tr>
<th>Date (2011)</th>
<th>Location</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-13 Jun</td>
<td>Kathmandu</td>
<td>Meeting with Department of Forests (DoF) staff</td>
</tr>
<tr>
<td>14-17 Jun</td>
<td>Sindhupalchok</td>
<td>Discussion about preliminary findings of the research with DFO staff and SDCFUG (one group discussion and two in-depth interviews)</td>
</tr>
<tr>
<td>18-20 Jun</td>
<td>Kabhrepalanchok</td>
<td>Discussion about preliminary findings of the research with DFO staff and HJCFUG (one group discussion and two in-depth interviews)</td>
</tr>
<tr>
<td>22-26 Jun</td>
<td>Chitwan</td>
<td>Discussion about preliminary findings of the research with DFO staff and KCFUG (one group discussion and two in-depth interviews)</td>
</tr>
<tr>
<td>28-29 Jun</td>
<td>Pokhara</td>
<td>Discussion about preliminary findings of the research with IOF Faculty member, Regional Director, Western Regional Forest Directorate (two in-depth interviews)</td>
</tr>
<tr>
<td>1-8 Jul</td>
<td>Kathmandu</td>
<td>Visit to DoF, MFSC and FECOFUN for collection of secondary data, and in-depth interviews (four in-depth interviews with community forestry experts)</td>
</tr>
</tbody>
</table>

*Source*: Researcher’s field diary, 2011.

One group discussion with CFUGs in each study site was also conducted for field verification and reconfirmation of preliminary results of this study. The expressions and views of the interviewees and respondents of group discussions were recorded by using an IC recorder and translated into English language. Furthermore, I had received useful feedback in relation to my preliminary findings, and this feedback was incorporated into various chapters of this thesis. Missing information was gathered on the socio-economic aspects of CFUGs.

4.5.4.1 Wealth ranking

Participatory wealth ranking is an established method by which a researcher can identify economic groups in Nepal (Koirala, Baral, Paudyal & Shahi, 2004; Maharjan, Acharya, Lamichhane, Sharma, Pradhan, & Paudel, 2004). This method is widely used in relation to development projects which are implemented at community level, for the purpose of identifying the poorest households.

In relation to this research, the main purpose for conducting a participatory wealth ranking exercise in each site has been to identify the economic status of households of participants in the various CFUGs (Table 4.6).
Table 4.6 Criteria developed by the CFUGs regarding wealth ranking

<table>
<thead>
<tr>
<th>Wealth categories</th>
<th>Landholding size and other criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very poor</td>
<td>Landless / area of land &lt; 0.26 ha (5 ropani); no food, or less than 3 months food supply from own land; livelihood depends on labour wage (e.g., farm worker, porter) for basic needs regarding food, clothes and shelter; debts; have no other sources of income; average annual per capita income is less than NRs 15,000 (US$ 200)</td>
</tr>
<tr>
<td>Poor</td>
<td>0.26 -&lt;0.36 ha (5 to 7 ropani) of land; less than 6 months food supply from own land; livelihood depends on labour wage; average annual per capita income is less than NRs 25000 (US$ 333)</td>
</tr>
<tr>
<td>Medium</td>
<td>0.36 -&lt; 0.51ha (7 to 10 ropani) of land; up to 9 months food supply from own production; cow; buffalo; goat; simple farming and business; debt level is no higher than income; small job holders; average annual per capita income is less than NRs 35000 (US$ 467)</td>
</tr>
<tr>
<td>Rich</td>
<td>&gt; 0.51 ha (10 ropani) of irrigated land; food supply for 12 months; cow, ox, buffalo, goats; service; business; some other income resources; remittance; houses and land in cities; average annual per capita income is more than NRs 35000 (US$ 457)</td>
</tr>
</tbody>
</table>

Note: Ropani is a unit of measurement of area of a land commonly used in Nepal. (19.96 ropani = 1 hectare). (Exchange rate used as 1 US$ = NRs 75 in 2009).

Source: Fieldwork, 2009 (participatory ranking exercise).

The wealth ranking exercise was done on the basis of criteria which had been commonly agreed upon by the local people, in relation to classifying users into four different groups regarding wealth. However, the ranking criteria were not the same in all three villages. None-the-less, they were similar. The criteria for wealth ranking, which had been developed by local people, are presented in Table 4.6. This categorisation, together with social mapping, was used to help select a number of households for the purpose of conducting household surveys, as well as for conducting in-depth interviews and group discussions. Table 4.7 presents the total number of households under four different wealth categories.

Table 4.7 Wealth rank regarding households in the CFUG study

<table>
<thead>
<tr>
<th>Study CFUGs</th>
<th>Total households and categories (HH)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very poor</td>
</tr>
<tr>
<td>KCFUG</td>
<td>330</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>21</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>391 HH</td>
</tr>
<tr>
<td>Percentage</td>
<td>17%</td>
</tr>
</tbody>
</table>

Source: Researcher’s field diary, 2009.
The rest of the research program was planned at a special meeting, with the assistance of CFUC members. The main purpose of selecting a sample regarding the research was to make a valid inference in relation to the population under study. Sampling in this sense, is the most economical and adaptable method of research. Sampling enables the researcher to make a reasonably accurate generalisation through the study of a small, but representative sub-set of the population. It is also important that the finer details regarding local knowledge be understood, so that data can be properly collected and interpreted (Casley & Lury, 1987).

4.5.4.2 In-depth interviews

In-depth interviews are a regular part of data collection (Walsh, 2001). Semi-structured interviews have been used to ensure that the second and third key research questions, be answered. However, in relation to the in-depth interviews, guidelines were developed so that the qualitative data could be collected (Appendix 6).

In order that the wider historical perspective, as well as socio-economic outcomes of community forestry, be properly understood, policy makers, service providers, CFUGs’ members, and major actors regarding community forestry at national and district levels, were interviewed. During the first and second stage fieldworks, a total of 71 respondents (47 were members of CFUCs and CFUGs; whilst 24 were from government forestry offices or from FECOFUN or were local forest products traders) were interviewed in depth (Tables 4.8, and 4.9, and Appendix 8). The time taken for each interview ranged from a minimum of 45 minutes to three hours, depending upon a respondent’s interests, availability and knowledge regarding community forestry.

<table>
<thead>
<tr>
<th>Table 4.8 In-depth interviewees who are members of CFUGs (n=47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent categories</td>
</tr>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
</tr>
<tr>
<td>SDCFUG</td>
</tr>
<tr>
<td>HJCFUG</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
</tr>
</tbody>
</table>

Source: Researcher’s field diary, 2009 and 2011.

In relation to the in-depth interviews, CFUG respondents were selected on a number of criteria, if they were not simply designated (as were executive members and some CFUG
members). Those criteria included gender (male or female), wealth (very poor or poor or medium or rich), caste (upper or middle or lower) and literacy (literate or illiterate). Respondents, other than members of the CFUGs, were government forestry staff, FEDOFEN representatives, traders and other community forestry experts, if their workloads did not prevent them from being interviewed in depth (see Table 4.9 and Appendices 7 and 11).

Respondents of the in-depth interviews from CFUGs were selected on the basis of designation (executive members and CFUG members), gender (male and female), wealth (very poor, poor, medium and rich), caste (upper, middle and lower) and literacy (literate and illiterate). Based on working responsibility and their availability for in-depth interviews, the respondents other than the CFUGs were government forestry staff, FEDOFEN representatives, traders and other community forestry experts.

<table>
<thead>
<tr>
<th>Respondent categories</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>District level government staff</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Central level government staff</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>District level FEDOFUN representatives</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Central level FEDOFUN representatives</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Traders</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Other community forestry experts</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>21</strong></td>
<td><strong>3</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Source: Researcher’s field diary, 2009 and 2011.

In-depth interviews were conducted separately, with men and women members of the sample CFUGs, in order that community forestry outcomes, particularly in relation to community development, be understood in detail. In all three sites, I often had to make arrangements to talk to women and Dalits separately, so that men and other elite people would not interfere.

One limitation, regarding the use of in-depth interviews, was that they were very time-consuming. Another was that sometimes it was difficult to focus on a specific topic. Interviewees often expressed opinions in relation to unrelated issues. Listening to those opinions required patience on my part, and acceptance of the slow process, regarding data collection.
4.5.4.3 Household surveys

Household surveys were conducted face to face, in order that primary information be collected. A number of issues were dealt with by my holding informal discussions in an open-ended way. The main purposes for conducting household surveys have been:

- to investigate the perceptions of household occupants in relation to forest management; and
- to understand the socio-economic outcomes of community forestry at a household level.

The household survey process was one of the best ways to gather information, not only in relation to identifying important issues, but also regarding acquiring an understanding of conflicting interests between various actors. None-the-less, the interview process required that interviewers be hired. Most (80%) of the respondents from poor and Dalits households (n=65) refused to provide answers in written form because they were worried that the information would be used against them by government officials. Therefore, two field assistants were hired from each CFUG so that they could help in relation to the household surveys. Those field assistants were selected not only on the basis of their experiences regarding the implementation of CFP, but also because the CFUG members felt that they could trust them.

The field assistants were trained, to conduct the household surveys, by attending demonstration sessions where they interviewed each other in role-playing situations. That provided the interviewers with an opportunity to comment on the household survey terminology and to suggest any changes regarding the survey questionnaire. The hiring of those field assistants from the CFUGs, enabled:

- a certain amount of rapport to be created in a short period of time;
- me to understand the real situation locally; and
- the collected data to be validated by triangulation.

Although the household survey questionnaires were designed in such a way that they were very easy to understand (Appendix 9), this survey method had to be abandoned, not only because some villagers were illiterate, but also because quite a number of local people felt that any written answers by them could be used against them. So, informal in-depth interviews were conducted instead. Each interview lasted for a minimum of 40 minutes;
but sometimes lasted up to two hours, depending upon the respondents’ available time and interest. Some interviewees wanted to elaborate.

The structure of rural society in Nepal is influenced by economic class, caste and ethnicity (Whelpton, 2005). According to Whelpton (2005), the higher caste people still have domination over the lower castes. The rich and elite are dominant. Furthermore, men are more powerful than women. Literate people dominate those who are illiterate. Consequently, in relation to this study, wealth (economic class), caste, ethnic identity, gender and literacy are major variables, regarding CFUGs’ households being representative of different socio-economic groups. Family names have been used to classify people according to caste and ethnic groups.

A caste is a group of people that one would identify with the Hindu religion. In relation to this study, Brahmin and Chhetri are regarded as being ‘upper caste’ (UC); Vaishya and touchable Shudra are ‘middle caste’ (MC); and the untouchable Shudra are ‘lower caste’ (LC). The notion of caste hierarchy and purity of castes and foods characterises the caste system (NTG, 2006). However, National Code 1854, which is also known as Muluki Ain, incorporates indigenous ethnic groups or Janajati into the middle rank, even though they were not originally part of the system.

Purposive sampling is not representative of the total population (Yegidis & Weinbach, 2009). None-the-less, this sampling technique is used to represent particular groups, or diversity in the population (Silverman, 2005). So, occupants of up to 7 percent of households in each wealth category were selected for interviews. A total of 138 households (53 of which were from the SDCFUG; whilst 50 were from the KCFUG, and a minimum of 35 were from the HJCFUG) were selected, so that all wealth and caste categories could be represented (Table 4.10) (also see detail in Appendices 10 and 12).

<table>
<thead>
<tr>
<th>Study CFUGs</th>
<th>Sample households and categories</th>
<th>Very poor</th>
<th>Poor</th>
<th>Medium</th>
<th>Rich</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td></td>
<td>9</td>
<td>11</td>
<td>23</td>
<td>7</td>
<td>50</td>
</tr>
<tr>
<td>HJCFUG</td>
<td></td>
<td>7</td>
<td>11</td>
<td>10</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>SDCFUG</td>
<td></td>
<td>10</td>
<td>17</td>
<td>14</td>
<td>12</td>
<td>53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>26</strong></td>
<td><strong>39</strong></td>
<td><strong>47</strong></td>
<td><strong>26</strong></td>
<td><strong>138</strong></td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td></td>
<td><strong>19%</strong></td>
<td><strong>28%</strong></td>
<td><strong>34%</strong></td>
<td><strong>19%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Researcher’s field diary, 2009.
The household survey covered all aspects of the household, including income from various sources, costs/benefits regarding various activities, knowledge of community forestry policies, skills required for forest management, changes in both the quality and quantity of forest products collected, livestock numbers, economic status, distance of the forest from the house, labour availability in relation to community forestry, livestock holdings, as well as the fodder situation. During the time that the household survey was conducted, I was involved in informal conversations with forest users, visiting their houses, and noting their views and attitudes regarding the socio-economic outcomes of community forestry. In addition, I discussed, with various respondents, sources and uses of forest products for household needs, including fuel wood, timber, fodder, grass and bedding and materials for composting.

I also asked about the availability of forest products in the past and sought information as to what strategies have been used to cope with limited amounts of forest products. I also asked about the specific impact of community forestry on the community. Finally, the interviews provided information regarding the household participants’ knowledge of community forest activities, as well as their views regarding community needs and what constituted a successful CFUG.

4.5.4.3 Focus group discussion

Focus groups constitute a qualitative data collection tool (Neuman, 2003). So, groups of 6 to 20 participants, who have agreed to meet to discuss amongst themselves, issues which have been raised by a researcher, can provide a forum for community interaction and a further collection of required data in relation to a study (Pawar, 2004). Focus groups provide a useful way for a researcher to understand CF issues. Such groups can even clarify issues raised during the conducting of a household survey. Information regarding the socio-economic outcomes of community forestry was obtained through focus group discussions. Altogether, six focus group sessions (i.e., two in each CFUG) occurred during the two periods of fieldwork (Table 4.1, for detail see Appendix 1III).

Whilst the first three discussions (i.e., one in each CFUG) were conducted with poor and disadvantaged members of forest user groups, the other three sessions were held with multiple groups of people, including rich, medium and poor classes. These discussions were useful in providing a common understanding about the rate of forest product use, real needs of users, and what they expect from community forestry and the CFUG fund.
The various groups were briefed in relation to the objectives of the study, before the sessions were held. The discussions were directed primarily at the socio-economic outcomes of community forestry, factors affecting socio-economic outcomes and suggestions regarding any further improvement of community forestry, in order that its contribution to rural livelihoods and community development be optimised.

### Table 4.11 Composition of participants regarding the focus group discussions

<table>
<thead>
<tr>
<th>Study group</th>
<th>Number of focus group by gender and wealth category</th>
<th>Number of participants</th>
<th>Age (Years)</th>
<th>Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VP P M R</td>
<td>VP P M R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
<td>8 5 3 2</td>
<td>9 4 3 2</td>
<td>36</td>
<td>20-75</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>6 4 3 2</td>
<td>10 5 4 1</td>
<td>35</td>
<td>20-70</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>11 8 5 1</td>
<td>8 7 3 2</td>
<td>50</td>
<td>24-80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25 17 11 5</strong></td>
<td><strong>27 16 10 5</strong></td>
<td><strong>121</strong></td>
<td><strong>20-80</strong></td>
</tr>
</tbody>
</table>

Note: V P- Very Poor, P- Poor, M- Medium and R- Rich

**Source:** Focus group discussions (researcher’s field work diary), 2009 & 2011.

Focus group interviews were preferred, so that personal bias could be reduced, and a true picture of virtually all CFUG issues could be obtained. This method was found to be effective in obtaining reliable information within a reasonably short period of time. However, there were some shortcomings. In some of the groups, one or two people tended to dominate discussions early, so intervention was required by me so that others could express their views.

None-the-less, I discovered that many people, particularly women, the poor and Dalits, did not feel comfortable about expressing their views in front of other members. Even though the women and poor people were encouraged to participate in the discussions and to give their views, they were hesitant to spell out their feelings, because of cultural norms and barriers. Therefore I had to organise individual meetings at their places of work, so that I could properly understand the power factors and their influence in relation to how CFUGs function. I often conducted individual interviews, to collect data and to share my observations and experiences in order to explore gender and social equity issues, regarding CFP.
Whilst this method of securing information was effective, there were some shortcomings. For example, when the question of transparency and misuse of CFUG funds were raised, not all participants wanted to discuss the matter, or to disclose information in a group session for fear of being targeted by executive members who were either currently involved, or had been involved in the collection process and mobilisation of the fund. Similarly, it was not possible to obtain reliable data and information about income and expenditure in relation to the forest harvest, because no proper sale prices and distribution records had been kept.

### 4.5.4.4 Participant observation

Participant observation is a highly effective method for studying small communities in depth. The observer forms a part of that which he or she is studying, and participates as much as possible, keeping detailed notes of what he/she hears, sees and feels about the subjects under study (Nichols, 1991). The researcher enters the group or situation, and tries to ‘get to know’ the group or situation from the ‘inside’. Indeed, participant observers need to understand the motives and meanings of the people whom they are studying, from the point of view of those people (Bordens & Abbott, 2011).

The main aim regarding participant observation, is that the researcher gains a deeper insight into the beliefs, traditions, values, norms and activities of the group in their ‘natural setting’ (Walsh, 2001). It is believed that this will provide the researcher with ‘real life’ data, which might not otherwise be revealed in a questionnaire or interview or focus group discussion (Pawar, 2004). However, participant observation is closely associated with the naturalistic approach to research and so it may not always produce objective data. So researchers often use other methods such as interviews, in order that complementary data be provided and can be used for triangulation (Babbie, 2007; Walsh, 2001).

None-the-less, in relation to this research general insight regarding activities, behaviour and the social relationships of participants, has been gained during focus group discussions. Some of these insights could not have been obtained through the use of other techniques. I was a participant-observer of all CFUGs activities during my fieldwork. In addition, CFUG records including assembly and committee minutes, income and expenditure, the distribution and sale of forest products and other records, were examined prior to the group discussions. I also visited all three community forests with some of the respondents. During the course of these visits, I observed the condition of the forests, as
well as technical matters regarding the plantation, pruning, thinning, singling and harvesting operations which are carried out by the CFUGs.

I observed these operations primarily in order to assess whether or not they were being carried out according to set procedures. I also noted matters such as encroachment and grazing when I saw them. So the observations provided a substantial amount of information, regarding the quality of technical skills and knowledge of CFUGs in relation to community forest management. I also observed community development activities which were financed by CFUGs’ funds. In addition to recording participants’ answers to my questions, I noted their curiosity, inspiration, commitment and participation, particularly in relation to CFUGs meetings, the decision making process, and the collection and distribution of forest products to poor households.

My observation of field sites was not intended to generate primary data regarding my research. Instead, my intention was that I obtain a general appreciation regarding the village setting, the market conditions and the forest itself, especially when conducting interviews and during my focus group discussions.

4.5.5 Secondary data collection

The collecting of secondary data is equally important, in conducting meaningful research (Pawar, 2004). Published and unpublished documents are good sources of information for qualitative case studies because problems that are mentioned in those documents can help establish what should be investigated (Merriam 1998). Policy and planning documents are useful sources of information on forest areas and the implementation of government strategies. Documents which I collected from government offices and NGOs contain useful information for understanding social, economic and political situations at a national and district level. Likewise, CFUGs’ constitutions and forest operational plans contain detailed information about the formal rules, CFUGs’ and CFUCs’ member rights regarding forest management, development and utilisation. So, in relation to this research, secondary data as well as primary data were collected. The National CFUG database, annually updated by staff at the Department of Forests and the district level CFUG records at DFOs, were collected to provide secondary data during the initial stage of the fieldwork.

The information from the DFOs included annual progress reports, annual reports from CFUGs, data from the District level CFUG database and general information about the
districts. Most of the secondary information was collected prior to the interviews with users. Whenever the information which I obtained from the interviews varied, then the details provided in the CFUG records, minutes from meetings, progress reports, CFUG constitutions and forest operational plans, were used as the main sources of qualitative and quantitative secondary data. In addition, data, maps and specific information which is relevant to this thesis, were collected from other government and non-government organisations. So the secondary information which I obtained from various sources was extremely valuable and it contributed substantially to the study.

4.5.6 Data analysis

My strategy for analysing the data, included data reduction, data display as well as drawing and verifying conclusions. Descriptive, contextual and comparative analyses have been employed in relation to this research. Data collected from the respondents were coded for processing and analysis (Reddy, 1987). The quantitative data collected from respondents were tabulated. Descriptive statistics were used to summarise the data pertaining to personal characteristics of the respondents. Qualitative data however, were unstructured and required open coding (Cooper, 2010; Strauss, 1987) before they could be analysed.

4.5.6.1 Qualitative data analysis

In relation to this study, the data analysis has largely been based on qualitative methods within the realistic evaluation framework, whereby transcribed interviews are categorized under the different themes and outcomes of community forestry and the categorization process is then refined through multiple iterations. An attempt was made to bring the same core themes to each interview and group discussion and to triangulate findings by interviewing a diverse array of community forestry stakeholders who bring different perspectives to the same theme.

As a first step, regarding the qualitative data analysis process, I saved in-depth interviews by using an IC recorder and a computer. I subsequently translated them into English and summarised them. Then I read each translated note thoroughly and identified the themes and categories. Data which had been collected from in-depth interviews and household surveys were coded for thematic analysis (Stake, 1995). In terms of coding, categorical aggregation was used to organise the interview data. This involved identifying main themes in the text by means of a word or a short phase. The thematic categories were oriented towards the three main research aspects, namely social outcomes, economic
outcomes, and community development through the implementation of community forestry. But it branched out from there and covered important contextual issues. The categories were not all static, but changed during the course of the coding process. However, the three main themes remained as the core concept, in terms of the coding and analysis.

The varieties of qualitative data, which were obtained from household surveys, focus group discussions and participant observation, were compiled using a computer. I did not use the Nvivo program for coding and analysis, because I had interviewed only 71 respondents. So, I prepared a database manually by using Microsoft Word and Microsoft Excel.

4.5.6.2 Quantitative data analysis

Quantitative data, on socio-economic aspects of community forestry, gathered from household surveys and CFUG records, were coded and tabulated into Microsoft Excel spreadsheets. The values of income and expenditures of CFUGs were calculated in 2009/2010 at 10 per cent inflation and interest rate. Statistical tools, such as ‘Paired T Test’ and ‘Chi Squared Test’ (Gravetter & Wallnau, 2007), were used for analysing household data and characteristics, before and after the implementation of the community forestry program.

‘Fishers Exact Test’ (Gravetter & Wallnau, 2007) was used for analysing the perception of respondents, to the household surveys about socio-economic outcomes of the community forestry program. In addition, the ‘Kruskal Wallis Rank Sum Test’(Gravetter & Wallnau, 2007) was used for the purpose of ranking the significance of perceptions of the respondents, about the changing roles of women in relation to the decision making process at household level, before and after the implementation of community forestry. This enabled me to prepare an outline of key findings from the case study, which, are presented in Chapters Five, Six and Seven.

4.6 Reflections on my role as a researcher

This brief resume, of some of the relevant epistemological debates, highlights some problems in relation to both the natural, as well as social science research methodologies. I have been working in community forestry for more than 15 years, particularly in relation to developing community forestry procedures and implementing practices in the field. At a personal and professional level, there are both advantages and disadvantages regarding this
research. I was born into a middle class family and I grew up in a middle hill village in Nepal. I was educated at the Tribhuvan University (BSc & BSc Forestry) of Nepal and also at the Australian National University (Post Graduate Diploma and Masters in Environmental Management and Development). I am a professional forester and an employee of the Department of Forests, Government of Nepal, with about more than 17 years experience.

Whilst I expected to gain insights into Nepalese rural communities and the tradition of Nepalese bureaucracy, there have been some disadvantages for me. For example, as a past student of natural science, it has been somewhat difficult for me to understand social science theories. I have tried to reorient myself, from one perspective where reality is regarded as being a universal truth, to another, by which not only the physical environment is considered, but also the relationship which rural communities and forestry officials have with that environment, through a range of different perspectives. Those multiple views have to be analysed as part of the process regarding the social construction of knowledge.

At the initial stage of this research, many problems arose, because even though I had been trained to regard the positivistic approach to inquiry as being truly scientific, I was now attempting to implement a different kind of research method – one which would enable me to obtain a deeper understanding of social issues - rather than an objective understanding of the bio-physical processes involved.

In order that I could make the transition, I read some of the development literature during the initial period of my research. I also sought guidance and obtained useful information from my research supervisors, regarding concepts and the importance of social science research approaches and paradigms. All of this input helped me to become clear, in my own mind, that positivistic assumptions were, by themselves, inappropriate for solving the type of research questions for which I sought answers. Several issues went deeper than an objective evaluation could solve regarding socio-economic outcomes of community forestry. I therefore had to use a multiple methods approach, which allowed me to examine social and natural systems subjectively, from the perspective of rural communities; rather than view those systems objectively. So, I became progressively influenced by some of the social science research methods and discovered the importance of observing the social world as an area of diversity, in relation to which different interpretations are possible.
None-the-less, conducting research in rural areas of Nepal is a challenging task, because houses are not only scattered, but you can only reach them by walking. Lack of sufficient education, health, transportation and communication facilities makes rural life hard and sometimes miserable. The livelihoods of the majority of rural people in Nepal depend on subsistence farming. Therefore, most household occupants are agricultural labourers. They are busy, in relation to their agricultural endeavours, most of the year. So it was difficult for me to arrange appropriate meeting times and discussion times during the fieldwork. Another difficulty which I faced was a lack of well-written records or data. Not all respondents are literate. So the time which it took for me to conduct in-depth interviews with illiterate respondents, was relatively longer.

Furthermore, arranging times for interviews with senior government forestry officers and executive members of the FECOFUN central office was very difficult because of their work responsibilities. Moreover, a few interviewees (in particular, high government officials and FECOFUN representatives) interrupted the interviews making unnecessary phone calls to colleagues. I could manage this difficulty by reiterating the main concerns and discussions with interviewees. I was not able to interview some senior officials, in the Ministry of Forests and Soil Conservation and FECOFUN, during mid-December 2009, because many had travelled to Copenhagen to participate at the COP 15 Climate Change Meeting. However, based on working experience, interest and availability, other senior government and FECOFUN officials were selected for in-depth interviews.

Although security is not a serious issue in the study areas, the call for a general strike by some of the political parties disturbed the entire country for a few days during my first fieldwork period. However, I made adjustments by planning some flexible fieldwork activities with the help of CFUG members and other respondents.

4.7 Summary

Research methods employed in relation to this study are explained in this chapter. My thinking was framed by a positivist-constructivist paradigm and I used a mixed-method approach for my data collection and analysis. I used qualitative data collection methods in order that respondents’ diverse perspectives be understood and reflected in the research findings. A collective case study design has allowed deep insights to be gained, regarding not only the experiences and opinions of forest users, but also in relation to the reasoning
behind those views, when one attempts to understand the socio-economic outcomes of community forestry. Three CFUGs were studied in order that a proper understanding, regarding the collective case study, be obtained.

Qualitative and quantitative data were collected and analysed to answer key research questions. The field data were collected in 2009 and 2011. The techniques used for primary data collection were participatory wealth ranking, face to face in-depth interviews, household surveys, group discussions and participant observation. Secondary data were also obtained from a number of relevant documents, which were available at various agencies, regarding CFUGs. A manual method of qualitative data analysis was employed with care to minimise researcher’s bias when raw data was collected from field notes and recordings and during any translation of that data by the researcher into English. The analysis process involved going backwards and forwards between the data and the emergent explanations, by questioning the data in a number of different ways. The results of that analysis are reported in Chapters 5 to 7. Socio-economic characteristics of the CFUGs and their forest management are presented in the next chapter.
Chapter 5

Socio-economic characteristics of community forestry user groups and their forest management

5.1 Introduction

In this chapter, the major socio-economic characteristics of the three case study community forest user groups are examined. An overview, of the rural socio-economic contexts in which the CFUGs exist and function today, is provided. The three CFUGs, which have been selected, are explored in-depth, given that they are very experienced regarding the implementation of community forestry programs. In essence, the results which are presented in this chapter answer the first key research question, which is: ‘What are the socio-economic characteristics and forest management practices of rural communities involved in community forestry?’

This chapter draws on a review of the literature in relation to community forestry in Nepal; discussions with key informants and forestry officials; and an analysis of secondary data to present a number of factors that may influence socio-economic performance of case study groups in response to community forestry. These factors include: the locations of CFUGs and community forests; settlement and forest management history; socio-economic characteristics; institutional arrangements of CFUGs; and the implementation of FOPs in the study areas.

In relation to this research, CFUGs are regarded as being the most important local institutions responsible for protection, management and utilisation of community forests. Community FUGs are increasingly being recognised as autonomous local community forestry institutions, as well as being foundations for grass roots development and democratisation. It is believed that they can sustainably and equitably meet the basic needs of rural communities (Kunwar & Parajuli, 2007).

The data, regarding this chapter, are comprised of in-depth interviews with village elders and key informants; group discussions; household surveys; reviews of constitutions and forest operational plans; office records of CFUGs; published and unpublished documents; and field observations. Furthermore, in this chapter a socio-economic context, as well as
institutional arrangements regarding the three case study groups, is provided. This is followed by a summary of the chapter.

5.2 Community forest user groups

5.2.1 Case study group 1: Kankali Community Forest User Group

The Kankali Community Forest User Group (KCFUG) is located in the Chainpur Village Development Committee Wards 1-9 of Chitwan District, 18 km east of Bharatpur Municipality, the headquarters of the District, and 164 km south-west of Kathmandu, the capital of Nepal. The CFUG’s office is just 4 km north of the East-West Highway of Nepal and relatively close to Parsa, Tandi and Narayangad. The total area of the VDC is 16 square kilometres (1538 hectares) (DDC Chitwan, 2008). Because the East-West Highway passes by the southern part of this village, the northern section of the settlement is more rural than the southern part of the village. The northern part is comprised of people mainly from the hills districts - Gorkha, Lamjung, Tanahun, Kaski, Gulmi, Baglung, Syangja, Kabhrepalanchok, Rammechhap and Dolakha. The village is divided into 12 toles (hamlets). The Toles are connected with each other by narrow gravel or dirt roads (Appendix 3).

In terms of infrastructure, the village is comprised of the Chainpur VDC office, the Kankali CFUG office, one vegetable collection centre, five milk collection areas, seven big poultry firms, three secondary schools, nine primary level schools, one post office, and one health post (DDC Chitwan, 2010). Because the VDC is connected with the highway, access to the Tandi and Narayangarh markets is relatively easy. However, there is no regular bus service from the northern part of the village to the local markets. So push-bikes constitute the most common form of local transportation, although people also use motorbikes.

According to the district profile, prepared by the DDC in Chitwan, nearly 95 percent of households have electricity. About 40 percent of them have piped drinking water. There is a two kilometres of sealed, bitumen-topped road in the southern part of the village; and a rural network of motorable gravel or dirt roads exists, so that all hamlets in the village are connected.

During the rainy season, flooding from overflow of the Ladari creek overflowing occurs in Wards 3-9. However, conditions during the rest of the year are good (DDC Chitwan,
Telephone services and irrigation systems have improved. The irrigation is a surface-type one in the northern part of the village, and a tube-well-type controlled by electric motors, in the southern part of the settlement. The KCFUG is responsible for the management and development of 737 hectares of natural Sal (*Shorea robusta*) and Sissoo (*Dalbergia sissoo*) plantation in the Kankali Community Forest.

The village was established relatively recently, when compared to settlement in the hills. Malaria was endemic in the area until the mid 1950s, but indigenous groups (e.g., the Tharu, Darai, Bote, Mahij and Kumal), who had a natural immunity to malaria were the only people to settle there. As has occurred in other parts of the district, the village changed dramatically after the 1950s when the state launched the National Malaria Eradication Program, and encouraged hill migrants to clear the forest for farming, in accordance with the resettlement schemes.

During the resettlement, two types of people migrated to the village from the adjacent hills. Firstly, there were those who migrated to Chitwan in search of more opportunities, and more comfortable lifestyles. Chitwan had a better development infrastructure than was present in the hills. So, migration by this group not only led to commercial farming, but also non-farming economic activities, within, and outside the village. Other migrants were mainly labourers who came to the area for the purpose of constructing the East-West Highway between 1971 and 1975. Dalits came to the village, either to provide services, or to search for jobs, for which they would receive wages. The rural settlement was established by the clearing of a section of national forest land. The village continues to expand, with an estimated three percent population growth per annum (DDC Chitwan, 2010). A brief history of forest management is presented in Box 5.1.

Data collected from in-depth interviews with key informants, have indicated that the KCFUG was formed by the DFO (Chitwan) in accordance with the government’s community forestry program. The demand, for the user group formation, did not come from the community itself. The initial idea, regarding the formation of the group, was initiated from above. Because of the low level of awareness regarding CF concepts, and the roles and responsibilities of CF users, the participation of local people in the formation of the CFUG, was passive. So, the process was initiated by DFO staff and a number of elite individuals.
Box 5.1 Management history of Kankali Forest

Prior to the handover of the forest, the area was ostensibly under government control. So the overwhelming feeling within the community was that overall ownership of the forest remained with the government. Consequently, the DFO obtained royalties, by granting numerous licenses “Purjee” to outsiders who wished to extract timber from the forest.

The DFO, however, had imposed restrictions on the local people, regarding the use of forest products. The forest had been a vital source of products for poor farmers. It had also been a source of timber for outsiders and larger land owners. Obviously, the area was being subjected to enormous pressure, from both local people and outsiders, until some sort of licensing system was implemented by the DFO.

During the late 1970s, the forest was subjected to further pressure after the building of the East-West Highway. Parsa and Tandi had grown rapidly, as local market centres. There was an influx of migrants and extensive construction. Many new shops were established.

Consequently, there was a rise in demand for commercial timber and fuelwood, not only for the fast-developing commercial centers of Parsa, Tandi and Narayangad, but also for other major settlements, both inside and outside the district. At that time, the forest began to deteriorate rapidly. In addition, illicit harvesting and logging, encroachment, and over-grazing inside the forest, were responsible for accelerating deforestation. After the restoration of democracy in 1990, the forest was protected by the formation of a nine member local protection committee, under the control of the DFO in Chitwan. The next stage was for the DFO to hand over the forest.

One important formality involved the preparation of a CFUG constitution, as well as a forest operational plan. The DFO instructed a Forest Ranger, of the Amilepani Range Post, to prepare both the constitution and forest operational plan; after the local village leaders had been consulted in 1993. The Ranger asked the VDC to form a ‘task force’ to draft the CFUG constitution and FOP. A task force was subsequently formed. A couple of meetings were held; and finally drafts of the constitution and FOP were prepared, along with plans for the formation of an ad hoc Users’ Committee.

There were a few attempts to hold a General Assembly to endorse the drafts; but none of these meetings had a full quorum. Ultimately, the draft constitution, and FOP were accepted at a meeting of the DFO representatives, ad hoc Committee members, and some general members of the community. The DFO registered the first User Group in Chitwan District, and also approved the FOP. The handover of the forest occurred in 1995.

Field work (Group Discussion), 2009.

The official process, regarding the formation of the CFUGs, was comprised of three distinct stages (KCFUG, 1995). Firstly, a Forest Ranger, of the Amilepani Range Post, who had assistance from Tarai Community Forestry Project officials, visited each household. Secondly, small group meetings, which were comprised of various interest groups and people from of the area, were held. The actual users of the forest were identified and acknowledged during this process. Moreover, most of the users participated at the meetings. Finally, the user group received formal recognition at the General Assembly.
5.2.2 Case study group 2: Hilejaljale Ban ‘Ka’ Community Forest User Group

Hilejaljale ‘Ka’ Community Forest Group (HJCFUG), in the Tukuchanala Village Development Committee, Ward 6 and 7, is located seven kilometres away from the local commercial centre, Banepa, in the north-west corner of Kabhrepalanchok district (Appendix 3). HJCFUG is connected to a small local market, Nala bazaar, by a five kilometre dry-season dirt road. However, that road can be used by vehicles only for six months of the year. Nala bazaar can be reached by bus in about 35 minutes; and the village can be reached from both Banepa and Kathmandu.

According to key informants, before the implementation of the community forestry program, local people had to walk for many hours to find timber, fuelwood and fodder suitable for their household needs. They also faced difficulties regarding agricultural farming and the rearing of livestock, because of the lack of adequate fodder, grass, compost, and water for irrigation and drinking. The scarcity of forest products made people realise the value of forest conservation; and they began exploring ways of protecting the forest (Box 5.2). According to information provided by key informants, the demand for the formation of a user group came from the community itself, after people realised the importance of the Hilejaljale Forest area, regarding the supply of forest products for a subsistence level livelihood.

Prior to the handover of the forest, users had unofficially protected the forest area. This was acknowledged by the DFO in Kabhrepalanchok. Moreover, DFO staff were involved in the official handover of the forest to the community. In 1998, in accordance with the Community Forestry Program, the HJCFUG was legally formed, and 118 hectares of forest was handed over to the local community by the District Forest Office (DFO) of Kabhrepalanchok. This occurred with the assistance of the NAFP, and ever since then the community has been conserving, managing and utilising the forest resources. Almost all of the members of this CFUG reside in the Ghimire Gaon area (HJCFUG, 1998).
Box 5.2 Management history of Hilejaljale Ban ‘Ka’ Forest

The Hilejaljale Ban ‘Ka’ Forest has a long and varied history, regarding forest management.

Before the 1850s, forest products had been relatively abundant, and the traditional methods of exploiting the forest had posed no severe problems. The main factor that limited the amount of deforestation was the relatively small population. There was also an absence of commercial exploitation.

In 1895, the Ranas, who were increasingly being influenced by the British East India Company, registered the common land as ‘government property’. To facilitate control, the Ranas established a forest office, called ban goshwara, in Kathmandu, and appointed forest guards (Dittha). The forest guards restricted the movement of local people in the area which had been demarcated as government forest, thereby also restricting their access to forest products. But the rulers of the country harvested large numbers of trees in order to construct Kasthamandap and many other palaces in the Kathmandu valley. However, despite the restrictions, people evaded the forest guards at night in order to collect fuelwood and timber.

Forest degradation occurred most rapidly in 1933, after an earthquake had destroyed most of the buildings in the Kathmandu valley. The Rana rulers then decided to open up all of the forest area for the public reconstruction of houses. Local people were also allowed to harvest timber for the reconstruction of their damaged houses. This policy continued until the 1950s.

Before nationalisation in 1957, the local community managed the forest as a common property resource; over which everybody in the village had equal rights. But, following nationalisation, the forest was theoretically under government control. However, the overwhelming feeling of people within the community was that the DFO had ‘stolen’ the forest. Not only did the DFO impose restrictions on local people using forest products, but it failed to become involved in any active forest management. Consequently, the villagers felt that the forest no longer belonged to them. So ultimately, any interest which they’d had in protecting the forest, and managing it, was lost. Obviously the forest was being subjected to an excessive amount of pressure, in order that the needs of both the local people and outsiders be met. Because the DFO did not have sufficient staff to look after the forest, the destruction continued unabated.

Apart from anthropogenic activities, natural disasters, such as heavy snowfalls, were other causes of forest destruction. Ground-holding trees were disappearing fast; so landslides occurred more frequently; with top soil being washed away. The increase in population encouraged people to harvest forest products. But within a decade or so, (1951-1960s), the availability of forest products had decreased, which resulted in hardship for the local people; even in relation to the availability of fuelwood and fodder for use at a household level.

By the end of 1970’s, the forest had almost completely been reduced to barren land; with massive soil erosion, and some degree of encroachment. The Department of Forests initiated a plantation project in 1974. Because the site was degraded, Khote salla (Pinus roxburghii) and Pate salla (Pinus patula) were planted, primarily as pioneer species. However, it was almost impossible for the limited number of DoF staff to effectively protect the plantation area. Thus, any efforts by local people to protect and manage the forest were wasted in the short term. It became almost impossible for local needs to be met, regarding forest products. In 1989, the government, realising the disastrous consequences of nationalisation, decided on a change of policy, and enacted legislation that favoured community forestry. The government was moving away from its traditional roles as administrator and forest policeman, to being a supporter and guide for communities who were willing to take responsibility for local forests, plantations and natural resources.

Whilst the change was occurring throughout the country, the local users of Hilejaljale Ban ‘Ka’ grasped the opportunity to take their forest area back, and to manage its use. The real users of the forest were acknowledged; the forest was surveyed; and a forest OP was prepared, with the help of a Ranger. During the forest survey, about three hectares of land, which had been encroached upon by eight villagers, were confiscated and returned to the original forest area. In 1998, the OP was approved by the DFO, and the forest was handed over to the Hilejaljale Ban ‘Ka’ CFUG. The CFUG members are now implementing their approved community forest operational plan and constitution.

Group Discussion, 2009.
The official process, regarding the formation of the CFUG, was comprised of three distinct steps (HJCFUG, 1998). Firstly, a Forest Ranger, of the Janagal Range Post, together with NACRMP staff, visited each household. Secondly, small meetings of various interest groups, and people from the community, were held in order that there be agreement over the use of the forest area. None-the-less, it was the elite members who dominated the decision-making process. The majority of women, the poor, and Dalits in the community did not express their views. Finally, the user group was formally established.

5.2.3 Case study group 3: Shreechhap Deurali Community Forest User Group

The Shreechhap Deurali Community Forest User Group (SDCFUG) - the third case study group - is located in the Thulosirubari VDC, Ward 6 of Sindhupalchok District, about two kilometers west of the Chautara-Dolalghat Road (Appendix 3). The SDCFUG is in a relatively remote area with limited access to a local market. In 1996, the villagers and the Area Ranger, of the Chautara Range Post, began formulating a forest survey and inventory; and two years later, in 1998, the CFUG was officially formed and registered (SDCFUG, 1998). The data collected in November, 2009 showed that there were 247 households in the CFUG.

According to the FOPs, the forest covers 81 hectares, and contains mainly two species of pines - the local Khote salla (Pinus roxburghii), and the exotic Pate salla (Pinus patula). There are also natural broad-leaved species of trees, namely the Uttish (Alnus nepalensis), Chilaune (Schima wallichii) and Sal (Shorea robusta) (Appendices 14.1 and 14.2). The forest was degraded when it was handed over to the users. So there was a lack of forest products for daily household use by the local people. The reasons that the deforestation occurred were: (a) population increase; (b) the lack of awareness by local people of forest ecology factors; and (c) the government’s weak forestry policy (SDCFUG, 1998).

According to the respondents in the group discussion, there were serious problems, regarding encroachment from outsiders who illegally logged in the forest; whilst the poorest people were excluded from using the forest. A summary of the management history of Shreechhap Forest is presented in Box 5.3.
The Shreechhap Deurali Forest has a long history of forest management. Prior to 1957, the local villagers managed the forest as a common property resource, and everybody in that community had equal rights. The villagers were free to collect forest products at any time.

After nationalisation, the forest was theoretically under government control. The overwhelming feeling within the community was that the DFO had ‘stolen’ the forest. Moreover, because the trees officially belonged to the DFO (government), people were felling them with little thought for the future. The DFO gained royalties, by granting numerous licenses to outsiders for the extraction of timber from the forest. However, at the same time, the DFO not only imposed restrictions on local people using forest products, but it failed to engage in any active forest management. The forest had been the primary source of all forest products for the poor farmers. So it was being subjected to excessive pressure in order that the needs of both of the outsiders and local people be met. Consequently, a large amount of forest was destroyed, whilst local needs were a lower priority and was virtually ignored.

There were acute shortages of timber, fuelwood and fodder. People of this village faced hunger, and the loss of their livelihoods. The rural community lifestyle and traditions almost collapsed. Over a number of decades, the hill sides were stripped of fuel and feed, on which the upland villagers depended. In the fragile mountain environments, soil loss, floods and landslides occurred regularly. One of the older members of the CFUGs explained that it was very difficult and time consuming to collect forest products. He said that the women had to walk to Handikhola Ban, more than 4 kosh (about 8 miles) from the village, in order to collect what they needed. Most of the women used to leave their houses at 4am in a group, and return home in the evening with one head load of fuelwood or fodder. They were also harassed frequently by the forest guards. Cooking with maize stalk and other agricultural residues was a very difficult and time-consuming task. Scarcity of forest products made the local people realise the value of forest conservation. So they started exploring ways of protecting and developing the forest. The Plantation Division of the DoF not only initiated the planting of pine trees, but it also employed forest watchers to help the local villagers protect the plantation area from grazing and other forms of damage.

The DoF initiated a plantation program in 1974. Over a period of about three years, and with the financial and technical support of the Nepal-Australia Forestry Project, Pinus roxburgii, Pinus wallichiana and Pinus patula were planted as the main pioneer species, on barren and degraded forest land.

After the introduction of community forest policies in 1989, the local people of Thulosirubari-6, who lived near the forest, got an opportunity once again to use and manage the forest area. The community forestry process started in 1995, and the local people invited a Ranger from the DFO to assist in the process. The real users of the forest were identified and acknowledged; and so a forest OP was prepared with the help of the Ranger, regarding the protection, development and management of the forest.

In 1998, the OP was approved by the DFO, and the forest was handed over to the Shreechhap Deurali CFUG. This encouraged the local people to improve the condition of the degraded forest, by implementing the community forest OP.


This CFUG had been formed with the support of the DFO Sindhupalchok. Chautara Range Post staff were also involved in the formation. Unlike the establishment of the HJCFUG, the formation of the user group, and the handing over of the forest, were facilitated by the Area Forest Ranger, as part of the responsibility associated with the Rangepost. Thus, the initial idea regarding the formation of the user group, had originated from the government forestry staff, not from the local people. However, there were a number of processes
involved, such as the raising of awareness; user identification; the establishment of a clear forest boundary; and the preparation of the constitution and FOP.

The official process, regarding the formation of the CFUG, included four distinct stages (DoF, 1995). Firstly, a forest Ranger visited each household in order to motivate local people to actively participate in the protection, management and utilisation of the forest. Secondly, meetings, of various interest groups, as well as local residents, were held. Thirdly, in accordance with the recommendation of the general assembly, and with the support of the Ranger, the user group was officially formed as part of the constitution. Finally, the constitution was given legal status, by being officially approved by the DFO Sindhupalchok.

5.3 Socio-economic characteristics of the CFUGs

Rural households in the study sites are characterised by socio-economic variables such as population and household size, ethnicity/caste, language, landholding size and primary occupation (Table 5.1). These variables can influence the outcomes of community forestry in relation to such aspects as community participation, implementation of FOPs, income generation and the conservation of forest biodiversity.
Table 5.1 Socio-economic characteristics and other basic statistics regarding the case studied CFUGs

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Case study 1: Kankali CFUG</th>
<th>Case study 2: Hilejaljale ‘Ka’ CFUG</th>
<th>Case study 3: Shreechhap Deurali CFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total households in 2009</td>
<td>1832</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest area per HH in handover year</td>
<td>0.57 in 1995</td>
<td>0.53 in 1998</td>
<td>0.39 in 1998</td>
</tr>
<tr>
<td>Distance from local forestry office</td>
<td>5km, linked with permanent &amp; graveled roads</td>
<td>12km, linked with a seasonal dusty road</td>
<td>8km, linked with a seasonal dusty road</td>
</tr>
<tr>
<td>Caste/ethnicity*</td>
<td>UC – (Brahmin and Chhetri)</td>
<td>UC – (Brahmin and Chhetri)</td>
<td>UC – (Brahmin and Chhetri)</td>
</tr>
<tr>
<td></td>
<td>MC– (Tamang, Gurung, Magar, Newar, Tharu, Kumal, Majhi, Darai, Dhami, Chepang), LC– (Damai, Kami and Sarki)</td>
<td>MC– (Blujel)</td>
<td>MC– (Newar and Tamang), LC– Kami</td>
</tr>
<tr>
<td>Average household size in handover year</td>
<td>5.8 in 1995</td>
<td>5.9 in 1998</td>
<td>6.1 in 1998</td>
</tr>
<tr>
<td>Average household size (in 2009)</td>
<td>6.6</td>
<td>6.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Number of CFUG executive committee</td>
<td>21 (male: 17; female: 4)</td>
<td>11 (male: 11; female: 0)</td>
<td>13 (male: 9; female: 4)</td>
</tr>
<tr>
<td>representatives in the handing-over year</td>
<td>(UP: 14; MC: 7; LC: 0) in 1995</td>
<td>(UC: 11; MC: 0; LC: 0) in 1998</td>
<td>(UC: 4; MC: 9; LC: 0) in 1998</td>
</tr>
<tr>
<td>Number of CFUG executive committee</td>
<td>17 (Male: 11; female:6)</td>
<td>11 (male: 7; female: 4)</td>
<td>11 (male: 7; female: 4)</td>
</tr>
<tr>
<td>representatives in 2009</td>
<td>(UC: 12; MC:4; LC:1)</td>
<td>(UC:10; MC: 0; LC:1)</td>
<td>(UC: 4; MC: 6; LC:1)</td>
</tr>
<tr>
<td>Literacy (%) (after CF)</td>
<td>72 (male: 79; female: 65)</td>
<td>70 (male:74; female:65)</td>
<td>69 (male:72; female:65)</td>
</tr>
<tr>
<td>Main occupation of users (%)</td>
<td>agriculture: 78%; service: 5%; small business: 3%; labour: 14%</td>
<td>agriculture: 80%; service: 4%; small business: 5%; labour: 11%</td>
<td>agriculture: 70%; service: 7%; small business: 4%; labour: 19%</td>
</tr>
</tbody>
</table>

*Note: UC: Upper caste; MC: Middle caste; LC: Lower caste.

Compilation of office records of the CFUGs, 2009 ;( as viewed by researcher in 2009).
According to the National CFUG database, regarding the community forestry program until 2010 which has been established by the DoF, the ratio of group size to forest, is, on average, nationally, 115 households for every 85 hectares (0.74ha per household) (DoF, 2010). The population in each of the three case study areas is increasing annually. Moreover, the number of families or households in each of those three areas is greater than the national average per forest. So, the forest area per household in each of those three areas is less than the national average of 0.74 hectares.

5.3.1 Population and households

Population growth rates, in relation to the three case study CFUGs, increased before and after the implementation of community forestry. Among the studied CFUGs, KCFUG had the highest population size, both before and after the implementation. In fact, the population size of KCFUG increased dramatically. In 1995, the KCFUG area had a total population of 7711 (males: 3839 and females: 3872). After the implementation of community forestry there in 2009, the population increased sharply to 12172 (males: 6070 and females: 6102) (Figure 5.1). Discussions with respondents revealed that the main reason for the sharp increase in population was the migration of people from different places in Chitwan District, as well as from other hill areas and Tarai districts.

![Figure 5.1 Population and households in the KCFUG](image)


KCFUG households are located in 12 settlement areas of the Chainpur VDC, namely Gaidaahal, Jyamire, Ladaritole, Chainpur, Sudhar tole, Gotheshor, Kunaghari, Unnatitole,
Sidhipur, Srijana tole, Simal ghar, and Shivalaya. The total area of the CFUG, including the community forest is, 1538 hectares. According to the constitution and office records of the CFUG, the total number of households in the area in 1995 was 1318. That number rapidly increased to 1832 by 2009. Users were identified according to the administrative boundary of the VDC, and all of the households in the Chainpur VDC were automatically included as members of the CFUG. Because of the boundary factor, some traditional users of the Khairahani and Pituwa VDCs were excluded from having membership, whilst non-traditional users of three of the wards of Chainpur VDC were included. In contrast to the rate of population increase, in the KCFUG area, the population in the areas in which the other two study groups were situated was increasing relatively slowly.

The second study group - HJCFUG - was comprised of 1321 residents in 1998, (654 males and 667 females). That population then slightly increased to 1550 (males: 773 and females: 777) by 2009 (Figure 5.2). The average annual population growth was about 1.6% in 2009. This lower population growth than in KCFUG, can be explained by a lower flow of people into and out of the area, either before or after the implementation of community forestry. In 1998, there were 223 households registered in relation to that CFUG. After the introduction of community forestry into the area, the number of households had increased to 250 by 2009.

**Figure 5.2 Population and households in the HJCFUG**

Office records of the HJCFUG and fieldwork, 2009.
The third study group - SDCFUG - was registered as comprising 209 households in 1998, increasing to 247 by 2009 (Figure 5.3). The population size of the area in which that CFUG is situated, increased gradually from 1286 (645 males and 641 females) in 1998 to 1490 (748 males and 742 females) by 2009. The average annual population growth in that area was the smallest (i.e., approximately 1.44%) of those of the three groups.

![Figure 5.3 Population and households in the SDCFUG](image)

SDCFUG, 1998. CFUG constitution, Sindhupalchok.
Office records of the SDCFUG and fieldwork, 2009.

The statistics, regarding the populations in the three CFUG areas, show that the rate of increase in population size of the KCFUG area was the highest. This occurred because of migrants and new births. There were more females than males in the KCFUG area, as well as in the HJCFUG area, but more females in the SDCFUG area.

The respondents in the group discussions were aware of the trends, regarding population in the study sites. According to the respondents (n=30), there are many factors which have influenced changes, regarding population in the study areas. After the implementation of the community forestry program, members of the CFUGs were aware of the impact that cash crops, and other sorts of crops, had, regarding their livelihoods. Labour-based agriculture requires a large workforce and, therefore, people prefer to live in a joint family system, and to give birth to more children. Other major factors that affect population growth and family size are illiteracy; poverty; continuous improvements regarding public health; the inadequate use of contraceptives; the lack of appropriate family planning facilities; and traditional social norms, values and taboos.
There are a number of statistically significant differences, regarding household size in the sample CFUGs, before and after the implementation of community forestry. Analysis of Paired T Test showed that there is a significant difference (p<0.05) in the overall average household size of all three CFUGs between the first year of initiation of the CFP and in 2009 (see Table 5.2).

Table 5.2 Change in average household size of CFUG - before and after CF

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Test</th>
<th>Average values Before CF</th>
<th>After CF</th>
<th>Statistic</th>
<th>Degree of freedom (df)</th>
<th>p-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>Paired T Test</td>
<td>6.5</td>
<td>7.1</td>
<td>-3.0963</td>
<td>49</td>
<td>0.003238</td>
<td>Yes</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>Paired T Test</td>
<td>6.6</td>
<td>6.7</td>
<td>-5.0964</td>
<td>34</td>
<td>1.29E-05</td>
<td>Yes</td>
</tr>
<tr>
<td>SCFUG</td>
<td>Paired T Test</td>
<td>6.0</td>
<td>8.1</td>
<td>-11.754</td>
<td>52</td>
<td>3.33E-16</td>
<td>Yes</td>
</tr>
<tr>
<td>Overall</td>
<td>Paired T Test</td>
<td>6.4</td>
<td>7.4</td>
<td>-9.7764</td>
<td>137</td>
<td>0</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.


Before the implementation of community forestry, the average number of residents in each household in the KCFUG area in 1995, and in the HJCFUG area in 1998, was 5.9 people. By comparison, the number of residents in each household in 1998 in the SDCFUG area was higher, at 6.15. However, by 2009, the KCFUG area had the highest number of households (1832), as well as the largest number of residents per household (6.6). This was not only larger than the district average of 4.99 residents (DDC, 2006), but also larger than the national average of 5.3 people per household (CBS, 2007). This is characteristic of all the study sites, where people prefer to live in joint family groups. None-the-less, the household size of 6.6, in relation to the KCFUG area, is slightly smaller than the average household size of 6.7 people in Tarai areas (NPC, 2004). In relation to all of the case study groups, there was a significant increase in households between the first year of implementation of CFP, and 2009.

According to respondents in the District Forest Offices in the study sites (n=12), the general rule, in relation to all three of the CFUGs being studied, is that, in the absence of strict policy guidelines regarding forest product utilisation, there be an equal share for each household in each community, but not an equal share for each person in that area. This policy adversely affects residents in the large homes. So conflict regarding benefit-sharing, which arises within each CFUG, is mostly related to the size of households, because occupants of large dwellings demand a greater share of the benefit, on the basis that the people in those large homes have a greater need of forest products, such as fuelwood and
other NTFPs, when compared to the needs of occupants of small dwellings. Such conflicts disrupt the proper functioning of the CFUG, as well as its harvesting schedule. Consequently, the implementation of FOP is adversely affected; as is CF management.

Large household size sometimes affects the decision-making process within the CFUG. Although each household is entitled to have one member in the local CFUG, this is not what occurs in practice at meetings. Often more than one occupant of a large household will attend the general assembly, which is convened once or twice a year so that important decisions can be made regarding the implementation of FOP. So, during the voting, occupants of large households can often have an unfair or disproportionate effect regarding decisions which are made.

5.3.2 Caste and ethnicity

My field investigations have indicated that there is a certain amount of social discrimination in rural society, regarding caste and ethnicity. This was brought to the attention of the public, not only after the constitution had been implemented in 1990, but, more importantly, after there had been a decade of insurgency by Maoists (1996–2006) in the country, as well as the people’s movement of 2006. But very little has been done to correct the situation. The caste or ethnic compositions of the three CFUGs are different. Three distinct groups can be identified in the CFUG areas (Figure 5.4).

![Figure 5.4 Caste composition of the CFUGs](image)

The KCFUG area is inhabited by various heterogeneous caste groups. Approximately 96 percent of the population in that area is comprised of people who have migrated and settled there over the last four decades. These include upper caste people (Brahmin and Chhetri), middle caste residents (Newar, Tamang, Gurung and Magar), and lower caste people (Kami and Damai). Native or Indigenous residents, such as Tharu, Darai, Majhi, Bote and Kumal people, constitute four percent of the population. The migrant households are located in the northern section of the village, near the community forest. The Indigenous people live much further away from the community forest. Overall, 40 percent of the homes in that area belong to the middle caste groups (Newar, Tamang, Gurung, Magar, Tharu, Darai, Kumal and Bote), 40 percent belong to upper caste people (Brahmin and Chhetri), and 20 percent belong to the lower caste groups (Damai and Kami) (Figure 5.4) (KCFUG, 2006).

The higher castes are found in all of the studied CFUGs. The highest percentage of upper caste people (90% of the local population) reside in the HJCFUG area. Next is the SDCFUG area (in which 43% of the local population is comprised of upper caste residents); followed by the KCFUG area (in which 40% of local residents are upper caste groups). The middle castes, which include Newar, Tamang, Gurung and Magar, are most numerous in the SDCFUG (57%) and KCFUG (40%) areas. The percentage of middle caste people in the HJCFUG area is only about one percent of the population there. The KCFUG area has the highest percentage of lower castes, (Damai, Kami and Sarki, 20%); followed by the HJCFUG area (8%). The SDCFUG has the lowest percentage of lower caste people (1%) (HJCFUG, 2006; KCFUG, 2007; SDCFUG, 2006).

As well as contributing to high population growth in the KCFUG area, migration also affects the socio-economic structure of that community. The people who have settled in the northern part of the village near the community forest are mostly upper castes (Brahmin/chhetri), middle castes, hill ethnic groups (for example, Tamang, Newar, Gurung and Magar), and Dalits (Damai, Kami and Sarki), who migrated to the area after the eradication of malaria in the 1950s. Although these people have traditionally used forests, their migration from the hill areas has tended to push traditional forest users in this area away from the forest.

Data regarding different wealth categories and caste compositions of the CFUGs are presented in Table 5.3. All three CFUGs are comprised of households of four wealth categories and three caste compositions. Across the three CFUGs, 45 percent of
households belong to the upper caste groups, 38 percent belong to middle caste and 17 percent belong to the lower caste groups. Likewise, medium wealth category households are the highest (36%); followed by poor wealth category (28%). The rich wealth category households are 22 percent whereas the remaining 14 percent households are very poor.

In contrast to the people in the KCFUG, most of the members of the HJCFUG have a long history of settlement. The majority of people (90%) in the HJCFUG are upper castes (Brahmin and Chhetri), and lower castes (Kami and Damai) (8%), with middle castes (Newar and Bhujel) making up the remaining 2% of members (HJFUG, 2009). The settlement is comprised of several hamlets (toles Nepali). There are six toles, each containing between 10 and 30 households. All of those households are on the lower slopes, below the community forest.

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Wealth categories</th>
<th>Total number of HHs</th>
<th>UC</th>
<th>MC</th>
<th>LC</th>
<th>Total</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kankali CFUG</td>
<td>Very poor</td>
<td></td>
<td>74 (10%)</td>
<td>109 (15%)</td>
<td>147 (41%)</td>
<td>330</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td></td>
<td>147 (20%)</td>
<td>148 (20%)</td>
<td>110 (30%)</td>
<td>405</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
<td>400 (55%)</td>
<td>330 (45%)</td>
<td>105 (29%)</td>
<td>835</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Rich</td>
<td></td>
<td>110 (15%)</td>
<td>152 (20%)</td>
<td>0 (0%)</td>
<td>262</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>731</td>
<td>739</td>
<td>362</td>
<td>1832</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Percent (%)</td>
<td></td>
<td>40%</td>
<td>40%</td>
<td>20%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Shreechhap Deurali CFUG</td>
<td>Very poor</td>
<td></td>
<td>8 (8%)</td>
<td>31 (22%)</td>
<td>1 (33%)</td>
<td>40</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td></td>
<td>21 (20%)</td>
<td>58 (41%)</td>
<td>2 (67%)</td>
<td>81</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
<td>61 (59%)</td>
<td>17 (12%)</td>
<td>0 (0%)</td>
<td>78</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Rich</td>
<td></td>
<td>13 (13%)</td>
<td>35 (25%)</td>
<td>0 (0%)</td>
<td>48</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>103</td>
<td>141</td>
<td>3</td>
<td>247</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Percent (%)</td>
<td></td>
<td>42%</td>
<td>57%</td>
<td>1%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Hilejaljale CFUG</td>
<td>Very poor</td>
<td></td>
<td>14 (6%)</td>
<td>2 (40%)</td>
<td>5 (25%)</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td></td>
<td>57 (26%)</td>
<td>3 (60%)</td>
<td>9 (45%)</td>
<td>69</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td></td>
<td>70 (31%)</td>
<td>0 (0%)</td>
<td>5 (25%)</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Rich</td>
<td></td>
<td>84 (37%)</td>
<td>0 (0%)</td>
<td>1 (20%)</td>
<td>85</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>225</td>
<td>5</td>
<td>20</td>
<td>250</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Percent (%)</td>
<td></td>
<td>90%</td>
<td>2%</td>
<td>8%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Grand total</td>
<td></td>
<td></td>
<td>1059</td>
<td>885</td>
<td>385</td>
<td>2329</td>
<td></td>
</tr>
<tr>
<td>Total percent (%)</td>
<td></td>
<td></td>
<td>45%</td>
<td>38%</td>
<td>17%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

*Note: UC: Upper caste; MC: Middle caste; LC: Lower caste.
Source: Researcher’s participatory wealth ranking exercise, 2009 (fieldwork).
The majority (57%) of members of the SDCFUG are middle castes (mainly Newar and Tamang); followed by upper castes (Brahmin/Chhetri) (42%) (Table 5.2). The remaining 1% is lower caste (Kami) members (SDCFUG, 2009). That settlement is comprised of five toles. Each ethnic group resides in a separate tole. For example, the Newar households are located mainly in Harretoles and Junglechhaptole. The Tamang are in Kandetole, and the Brahmin/Chhetri are in Dulaltole and Jalkinetole. Each tole is comprised of 15 to 50 households. All settlements are located just outside the community forest. The results of the data analysis show that, in relation to each CFUG area, caste compositions have not changed significantly since the community forestry program was implemented there.

5.3.3 Language and religions

The inhabitants of all three study areas speak the national Nepali language. None the less, the communities are comprised of heterogeneous groups, regarding religious beliefs and traditional languages (Table 5.4). Even people of certain ethnic groups, such as the Tharu, Majhi, Magar, Newar, Rai, Gurung and Tamang speak their own traditional languages.

Table 5.4 Composition of CFUGs, on the basis of mother tongues and religions (in percentages)

<table>
<thead>
<tr>
<th>Description</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother tongues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nepali</td>
<td>65</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Newar</td>
<td>10</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>Tamang</td>
<td>8</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>Tharus/Mahji</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gurung/Magar</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Religions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hindu</td>
<td>80</td>
<td>95</td>
<td>79</td>
</tr>
<tr>
<td>Buddhists</td>
<td>15</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>Christians</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

SDCFUG, 2006. Community forest operational plan, Sindhupalchok.  
Office records of the CFUGs; and Fieldwork, 2009.

The religion of the bulk of the inhabitants (85.33%) of the three study sites is Hinduism. Buddhists (12.33%) are the next largest group. Christians (1.33%) are third; whilst followers of other religions make up the smallest percentage (1.01%) (KCFUG, 2006; HJCFUG, 2007; SDCFUG, 2007). Hindu devotees celebrate festivals such as Dashain, Tihar, Maghesakranti, Janaipurnima and Chaite Dashain. Followers of Buddhism
celebrate Lhosar and *Buddha Jayanti* with great delight. The Christians celebrate Christmas and Easter (DADO, 2006).

In all three study areas, the respondents in group discussions reported that various types of trees and their products are useful when people are celebrating their religious and cultural events. For example, banyan (*Ficus benghalensis*) symbolises life and fertility for many Hindu groups. Likewise, peepal (*Ficus religiosa*) is considered sacred by the followers of both Buddhism and Hinduism. It is a symbol of happiness, prosperity, longevity and good luck. The branches of the *Shorea robusta*, and the leaves of both the *Maginiera indica* and *Ficus bengalensis* trees, are considered to be very holy. They are used by Hindus during most of their religious and social ceremonies. Thus community forests not only have ecological and economic value, but they also have important roles to play, regarding preserving the religious and cultural values of various people in the rural communities. The social and cultural diversity in communities has implications for the dynamics of CFUGs, as discussed in Chapter 8.

**5.3.4 Landholding**

Land is one of the most important economic factors, regarding production in the rural economy. One’s control of land determines one’s wealth, opportunities and power. Land also serves a socio-psychological purpose. It provides opportunities for involvement in other schemes (Khan, 1998). As Das (2001) claims, rural social structure is comprised of classes, their relations, and the ways in which these relations inhibit or promote production within the community. So, the smaller a rural family’s landholding is, the greater their dependence is on communal resources, such as community forests (Regmi & Garforth, 2010).

The vast majority of members of CFUGs depend on agriculture, because its products are a major contribution to household income. Agriculture also provides employment for the majority of people (see Figure 5.6 page 188). Land in the KCFUG area is suitable for rice production, because of the presence of alluvial grasslands. These rice lands are found along the banks of the Kair Khola and Chainpur streams. Consequently, irrigation channels are highly valued by the local people. Cash crops, such as rice, wheat and mustard, are the main commodities. Income from these crops is a major part of the rural economy.

Land suitable for rice production is limited in the HJCFUG and SDCFUG areas, because there is not much in the way of irrigation and productive flat land. Changes in landholding
size before and after the introduction of community forestry in the study sites are shown in Figure 5.5. According to the results of the household survey, all member households in the CFUGs areas (except for the KCFUG area) have some form of landholding, but the amount varies from one CFUG to another, and from caste to caste. The majority of households have less than 0.5 hectare of land (Figure 5.5; Table 5.4).

In the KCFUG area, approximately eight percent of households are landless, and are categorised as having been very poor before the implementation of CF. This percentage dropped to seven percent in 2009, after CF was implemented. So the occupants of those households have to supplement their earnings mainly by working as labourers. The percentage of households having less than 0.5 hectare of land has decreased from 66 percent to 57 percent, but households having between 0.5 hectare and one hectare of land increased from 17 percent to 23 percent. Households having more than one hectare increased from eight percent to 13 percent.

In the HJCFUG area, landholding sizes have not changed significantly with implementation of community forestry. However, in SDCFUG, changes were observed in all three categories of landholding size after the implementation of community forestry. Landholdings of less than 0.5 hectare increased from 53 percent to 56 percent. Landholdings of more than 1.0 hectare increased from 19 percent to 21 percent. Landholding of 0.5 hectare to 1.0 hectare was decreased from 28 percent to 23 percent. Table 5.5 shows the average size of a household landholding in the CFUG areas.

**Figure 5.5 Landholding sizes regarding the CFUG areas**

![Bar chart showing landholding sizes in different CFUG areas before and after community forestry implementation.](chart.png)

**Note:** ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘after CF’ denotes the year 2009.

**Source:** Researcher’s household survey, 2009.

In the HJCFUG area, landholding sizes have not changed significantly with implementation of community forestry. However, in SDCFUG, changes were observed in all three categories of landholding size after the implementation of community forestry. Landholdings of less than 0.5 hectare increased from 53 percent to 56 percent. Landholdings of more than 1.0 hectare increased from 19 percent to 21 percent. Landholding of 0.5 hectare to 1.0 hectare was decreased from 28 percent to 23 percent. Table 5.5 shows the average size of a household landholding in the CFUG areas.
Table 5.5 Average landholding size by caste (hectare/household)

<table>
<thead>
<tr>
<th>Category</th>
<th>KCFUG</th>
<th>% change</th>
<th>HJCFUG</th>
<th>% change</th>
<th>SDCFUG</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>before CF</td>
<td>after CF</td>
<td>before CF</td>
<td>after CF</td>
<td>before CF</td>
<td>after CF</td>
</tr>
<tr>
<td>Upper caste</td>
<td>0.53</td>
<td>0.74</td>
<td>40</td>
<td>0.83</td>
<td>0.83</td>
<td>0</td>
</tr>
<tr>
<td>Middle caste</td>
<td>0.7</td>
<td>0.8</td>
<td>14</td>
<td>0.18</td>
<td>0.18</td>
<td>0</td>
</tr>
<tr>
<td>Lower caste</td>
<td>0.19</td>
<td>0.26</td>
<td>37</td>
<td>0.2</td>
<td>0.2</td>
<td>0</td>
</tr>
<tr>
<td>Total average</td>
<td>0.47</td>
<td>0.6</td>
<td>28</td>
<td>0.4</td>
<td>0.4</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.


In the KCFUG area, the average size of a household landholding increased, after the implementation of the community forestry program, from 0.47 hectare to 0.60 hectare, when compared to what the average holding was prior to the implementation. Analysis of Paired T test showed that this change in landholding size is statistically significant (p<0.05) (see Table 5.6). This result was unexpected, because this area has had the highest population growth (compared to the other two study sites) after the community forestry program was implemented.

Table 5.6 Landholding size - before and after implementation of community forestry

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Test</th>
<th>Average values</th>
<th>Degree of freedom (df)</th>
<th>p-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before CF</td>
<td>After CF</td>
<td>Statistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
<td>Paired T Test</td>
<td>0.52</td>
<td>0.67</td>
<td>-4.23454</td>
<td>49</td>
</tr>
<tr>
<td>HCFU</td>
<td>Paired T Test</td>
<td>0.50</td>
<td>0.50</td>
<td>-3.14258</td>
<td>137</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>Paired T Test</td>
<td>0.73</td>
<td>0.76</td>
<td>-0.70571</td>
<td>52</td>
</tr>
<tr>
<td>Overall</td>
<td>Paired T Test</td>
<td>0.59</td>
<td>0.66</td>
<td>-3.14258</td>
<td>137</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.


However, 80 percent of the respondents of household interviews in the KCFUG area explained that this increase in size of the average landholding has occurred because a part of the forest, which had previously been encroached upon, has since been taken back and registered. Furthermore, occupants of wealthy households have purchased land in nearby villages. Yet there has been little change in the average landholding size in the SDCFUG
area, as a result of the introduction of community forestry, decreasing only slightly from 0.68 hectare to 0.67 hectare after the implementation. Statistically, this change is not significant (see Table 5.6). Finally, the average size of a landholding in the HJCFUG area has remained unchanged with the implementation of community forestry.

Overall, the higher average landholding size occurs because of larger holdings of land by the upper and middle castes. Information collected during the focus group discussions and household interviews in all three sites, indicates that as the overall amount of landholding decreases in an area, fewer trees can be grown there, and hence there is an increased dependency on the CF for fuelwood, timber and other products. Moreover, the chances that those people with smaller amounts of land will break the CFUGs’ rules (for example, by unauthorised harvesting) increase, if such products are not provided to them from CF, according to their needs.

A respondent from one of the poor households in the HJCFUG area said:

“... I think ...those who have trees on their private land have no shortage of forest products ...; but those who don’t have enough private land to plant trees face a big problem” (KBR7, October, 2009).

Data in Table 5.3 show that the average size of a landholding in the KCFUG area increased between 1995 and 2009. However, the average size of a landholding in the HJCFUG area has remained unchanged, even after the implementation of community forestry. In the SDCFUG area, the average size of a landholding of a lower caste person has remained unchanged, whilst the average size of a landholding of an upper caste individual has increased slightly from 0.86 ha to 0.88 ha. The average size of a landholding of a middle caste person has decreased from 0.74 ha to 0.69 ha. Overall, analysis of Paired T Test showed that after community forestry had been implemented, the change in the average size of a landholding, of any member of a caste in the HJCFUG and SDCFUG areas, was not statistically significant (p>0.05) (Table 5.6).

My field observations of the three study sites indicate that a CFUG, which is situated further away from a local market, tends to have more landholdings; a larger allotment of kharbari\(^2\); and less productive land, when compared to a CFUG which is nearer to a

---

2 Kharbari is private land which is used for growing thatched grass and trees, so that a household’s needs for grass, fodder, fuel-wood and timber can be supplemented, especially when the demand cannot be met by community forests. The size of any such landholding varies according to the economic status of a household. Generally, ‘rich’ households have relatively more Kharbari land than ‘poor’ households have; as is explained in Chapter 4.
district centre. If the size of a community forest is small, and the quality of the forest is not good, users cannot get enough fuelwood, fodder and timber to meet their needs. So, those people have to grow trees on their own land. However, the number of trees grown depends on the availability of land and the need for certain types of forest wood. People usually grow fruit, fodder and timber trees on their private land. The data collected from the study sites indicate that the number of private trees per household is highest (55 trees) in the KCFUG area, and lowest (30 trees) in the HJCFUG area (Table 5.7).

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Percentage of households (%)</th>
<th>Average number of trees/HH*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fewer than 25 trees</td>
<td>25-50 trees</td>
</tr>
<tr>
<td>KCFUG</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>60%</td>
<td>30%</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>50%</td>
<td>35%</td>
</tr>
</tbody>
</table>

*Note: The average number of private trees per household, per CFUG, is calculated by dividing the total number of trees on the sample households’ landholdings by the total number of households.


My field observation indicates that the number of trees on private land is related to the availability of forest products in the CF of that area. Although the forest is large in the KCFUG area that forest does not contain enough mature Shorea robusta (sal) trees to meet the demand for construction timber. So, the local people grow proper species of timber trees on their private land. On the other hand, the SDCFUG and HJCFUG areas each have enough forest so that sufficient amounts of timber and fuelwood can be provided. But, on average, landholders in those two areas have fewer trees on private land; and that will eventually put more pressure on the local community forest areas. This situation will be further aggravated if the average area of forest per household is small. Consequently, forest management could be negatively affected, as more forest products have to be extracted in order that the needs of users be met.

5.3.5 Occupation

Members of the CFUGs have various occupations or sources of income. These occupations involve agriculture; service in a government department or for a private employer; business dealings; and labouring jobs. But farming is the main occupation for the members of each CFUG. According to a number of key informants in the study groups, approximately 78 percent of households in the KCFUG area, 80 percent in the HJCFUG area, and 70 percent in the SDCFUG area are dependent on farming and the rearing of livestock (Figure 5.6).
The major crops grown are paddy, maize, wheat, millet, mustard, lentils, black gram, and soybean. The majority of people grow cereals. Some grow cash crops and green vegetables; and some are involved in bee-keeping. An increasing number of people are growing cash crops and engaging in vegetable farming, because they not only have easy access to a market, but also possess the knowledge and technology to successfully grow vegetables.

Apart from agriculture, labour work is the biggest source of income for occupants of households in all three CFUG areas. Occupants of approximately 14 percent of households in the KCFUG area, 11 percent in the HJCFUG area, and 19 percent in the SDCFUG area earn their income as labourers. Other people earn income as porters, construction workers, household servants, and ploughing other people’s land. Occupants of some households are occasionally involved in vegetable and cash crop selling; or as traders in the nearby local markets. The third most common source of household income is from work done as a government employee, or as a non-government worker, or as a small business owner (Figure 5.6).

![Figure 5.6 Primary occupation of CFUGs](image)

Source: Office records of CFUGs and DFOs and researcher’s household survey, 2009.

In addition, caste is the predominant factor in relation to the primary occupation of people in each of the three study sites (Table 5.8). For example, upper and middle caste people are more likely to be employed in government organisations, business centres, teaching, and non-government organisations; either within or outside the village.
Table 5.8 Primary occupations of CFUG members by caste (in percent) (n=138)

<table>
<thead>
<tr>
<th>CFUGs/category</th>
<th>Primary occupation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agriculture</td>
<td>Service</td>
</tr>
<tr>
<td>1. KCFUG</td>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>Upper caste</td>
<td>34</td>
<td>2</td>
</tr>
<tr>
<td>Middle caste</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Lower caste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total percentage (%)</td>
<td>78%</td>
<td>5%</td>
</tr>
<tr>
<td>2. HJCFUG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper caste</td>
<td>77</td>
<td>4</td>
</tr>
<tr>
<td>Middle caste</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Lower caste</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total percentage (%)</td>
<td>80%</td>
<td>4%</td>
</tr>
<tr>
<td>3. SDCFUG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper caste</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Middle caste</td>
<td>41</td>
<td>4</td>
</tr>
<tr>
<td>Lower caste</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total percentage (%)</td>
<td>70%</td>
<td>7%</td>
</tr>
<tr>
<td>Average total percentage (%)</td>
<td>76%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: CFUGs’ office records and researcher’s household survey, 2009.

The most marginalised people are the lower caste Dalits, who are often land-poor. These people have three options regarding survival: (a) providing seasonal agricultural labour within and outside the village; (b) working in traditional occupations (such as tailoring for the Damai, and iron-working for the Kami); and (c) seasonal migration to other cities such as Kathmandu, Pokhara, Birgunj (or even Indian cities on the border) where they work as construction labourers. Among indigenous ethnic groups, the majority of Tharus are farmers, though some work as labourers for land-rich farmers. Similarly, Dalits particularly poor adult males from the HJCFUG and SDCFUG areas go to Banepa, Bhaktapur and Kathmandu for seasonal employment every year. One of the respondents of the KCFUG area commented that:

“….some people go to Kathmandu to work in the carpet industries,….to India to do other sorts of labour work….nowadays it is difficult to get workers for agriculture,…other labour intensive activities.” (CHI17, October, 2009).

Virtually all interviewees in the study sites said that after CF had been implemented, those who used to earn their livelihoods by stealing fuelwood, and selling it, had to stop doing so and find an alternative source of income. Nevertheless, the CFUGs help the poor by providing support in various ways to improve their living standards.
5.4 CFUG institutional arrangements for forest management

As discussed in Section 5.2, the FOPs and constitutions have been prepared by the CFUGs, with the support of forestry field staff of the Range Posts. The CFUGs’ constitutions and FOPs include operational rules and conditions regarding collective choice. They also provide for external arrangements (see Section 3.5.1).

Each CFUG has certain procedures regarding the formation of an executive committee, in accordance with its constitution. In relation to the KCFUG, there are election procedures regarding the positions of Chairperson, Vice-chairperson, Secretary and Treasurer. Those four positions are usually filled in accordance with the wishes of people belonging to political factions. The other 13 members of the executive committee are selected by consensus, after people from different toles or hamlets representing different interest groups in the community, have been nominated for the positions. In the SDCFUG, 13 people are elected (and three women are appointed as reserve committee members). All of the executive committee members, who represent the different ethnic groups from different hamlets in the SDCFUG area, are appointed by consensus. In case of HJCFUG, 11 executive committee members are selected by consensus, from nominated people representing different interest groups in different toles or hamlets.

In relation to all three CFUGs, the operational rules which regulate the protection, management and utilisation of the community forest resource, have been written into the Forest Operational Plans (FOPs). A FOP is a document which is prepared and presented as part of the constitution of the CFUG and forest management. Both a CFUG’s constitution and FOP are legal documents, comprised of various rules regarding a forest area being controlled by a group.

The constitution outlines roles, responsibilities, and authority; as well as the power of CFUG members, executive committee members, and the DFO, regarding management of the community forest. An examination of the existing CFUGs’ constitutions and FOPs reveals that the institutional arrangements of the CFUGs include operational rules, collective choice, and external arrangements. The major provisions and rules, which are written into the FOPs of the CFUGs include:

- instructions regarding forest management;
- a progress review, as well as problems regarding previous FOPs;
- a list of CFUG members; as well as the biophysical condition of the forest;
provisions regarding seedling production, the planting of multipurpose tree species, and weeding;
provisions regarding the protection of rare and endangered species;
provisions regarding the management and development of NTFPs, as well as medicinal plants;
provisions regarding silvicultural operations such as pruning, thinning, singling, loping, and cleaning, in order that forest conditions be improved;
rules regarding harvesting systems, so that subsistence income and benefits can be provided;
rules regarding the operation of the group fund, maintaining records, monitoring, evaluation, and the amendment of rules and regulations,
rules regarding protection against fire, illegal grazing, illicit felling, poaching, and encroachment; as well as fines and punishments for violators of rules, and rewards for effective conservation;
investment of CFUG funds in local community development activities, such as the construction of rural roads, culverts, dams, drinking water facilities, schools, a health post, a community forestry workshop, training programs, and donations for poor and disabled users.

Source: Adapted from CFUGs’ Constitutions and FOPs, 2009. (As viewed by researcher in 2009).

In addition, CFUGs engage in a number of different activities in order that the needs and interests of people in the local community be accommodated. For example, the conversion of the forests, from pine to a broad-leaved tree species forest, is a management objective which is incorporated in the FOPs of both the HJCFUG and SDCFUG. The KCFUG has spent money on setting up a botanical garden so that multipurpose trees and medicinal plants can be established, thus assisting in biodiversity conservation and promoting ecotourism. It has also been noted that there are different priorities, regarding the production of income by CFUGs [see Chapter 6 and Appendix 16].

In the KCFUG, income is generated for the establishment of picnic spots, the construction of a swimming pool, swings, view towers, trekking trails, and conservation of archeological sites such as the Kankali Goddess Temple. Furthermore, income generating activities, so that poor and disadvantaged households can be catered for, include the cultivation of grasses, mulberry (*Morus alba*), fodder, fruit species, goat farming and a piggery.
In case of HJCFUG, bio-briquette production and the establishment and management of a community workshop for iron smiths, are associated with income production. In relation to the SDCFUG, income generating activities have been directed at setting up community owned saw mills, a rice and flour mill, a truck, a motorbike, a lapsi candy factory, and the cultivation of multipurpose trees, on both community forest land and on private land.

Collective choice is a major factor, regarding the design of an FOP, which is the blueprint regarding management of the community forest. An FOP not only describes the condition of the forest, but it also defines the management objectives and technical activities which users will be involved in, regarding their forest. FOPs also enable CFUGs to plan activities such as harvesting and planting within the forest, in order that long-term objectives be achieved. An examination, of the last three versions of FOPs for the CFUGs, indicates that all FOPs have been directed at protecting poles and saplings. These FOPs are put together by bureaucrats, and are highly complex in form, regarding forest opening time, fines, charges and techniques which are related to the extraction of different forest products.

**Table 5.9 Protection measures regarding community forests**

<table>
<thead>
<tr>
<th>Protection rules</th>
<th>Provisions made by CFUGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest guards</td>
<td>No forest guards are appointed by the HJCFUG and SDCFUG. User members patrol the forest on a rotational basis voluntarily. In the case of the KCFUG, three forest guards are appointed. User members patrol the forest on a rotational basis voluntarily</td>
</tr>
<tr>
<td>Grazing</td>
<td>Grazing is prohibited in all CFs. Any owner who grazes cattle in the forest will be punished according to the rules laid down in the FOP</td>
</tr>
<tr>
<td>Forest fire</td>
<td>Users build and clear fire lines along the forest boundary. Users are required to help control a forest fire when such a fire occurs</td>
</tr>
<tr>
<td>Poaching</td>
<td>Poaching is banned within the forest areas. Legal action, regarding the poaching offences, will be referred to the DFO.</td>
</tr>
<tr>
<td>Illicit felling</td>
<td>Illicit felling is prohibited. The offender will be punished according to the rules laid down in the FOP</td>
</tr>
<tr>
<td>Forest encroachment</td>
<td>Encroachment is prohibited. The encroacher will be punished according to the rules laid down in the FOP</td>
</tr>
</tbody>
</table>

**Source:** HJCFUG, 2006. FOP; KCFUG, 2007. FOP; SDCFUG, 2006. FOP.

All CFUGs have certain forest protection rules incorporated into their FOPs (Table 5.9). So the two previous versions of the FOPs for the CFUGs reflected the policy and approach of the DoF, which was regarded as being the owner of the forest. However, the present FOPs reflect far less in the way of DoF policy. So the current FOPs are directed not only at forestry-related activities, but also at poverty reduction and local community development activities [see Chapter 6].
Apart from the operational rules and provisions regarding collective choice, forest activities of CFUGs are also affected by external factors such as marketing arrangements, court decisions and state legislation and policy such as Forest Policy, 1989; the Forest Act, 1993; the Forest Regulations, 1995; and the Community Forestry Guidelines, 2009.

5.5 Implementation of community forest operational plans

An examination of the FOPs of the CFUGs shows that their main purpose is to ensure the supply of forest products for domestic uses, with similar objectives (HJCFUG, 2006; KCFUG, 2007; SDCFUG, 2006). Those objectives are that:

- the supply of forest products, such as fuel wood, timber, fodder/grasses, and leaf-litter for bedding materials, be maintained;
- forest products be used on a sustainable basis;
- soil and water resources be conserved;
- wildlife habitats be improved;
- greenery and the local environments be maintained.

According to the existing *Community Forestry Development Guidelines 2009*, a CFUG should prepare and implement its FOP properly, in order that the objectives be achieved. The proper implementation of the FOP not only helps the group to take control of the forest area legally, but it also provides important and desired socio-economic outcomes, regarding the livelihoods of people in the rural community.

The *Forest Act 1993* requires that all CFUGs act in accordance with approved Forest Operational Plans (FOPs), regarding the management of their community forest, and in obtaining the desired socio-economic benefits from community forestry. The implementation of the FOPs requires that three aspects be considered:

(a) forest protection;
(b) forest development (i.e. application of silvicultural and cultural operations); and
(c) forest utilisation.

Ignorance, regarding the implementation of FOPs, leads either to over-protection of the forest, whereby there are no socio-economic benefit, or under-utilisation of forest products, because of over-harvesting. So, it is necessary that all CFUGs possesses adequate knowledge and skills, regarding the implementation of the FOP. Therefore, in the following sections, data is presented regarding attitude and perceptions of local people
about implementation of FOPs, their voluntary support as indicated by labour inputs, and their skills, knowledge and confidence that they can manage their community forests.

5.5.1 Forest protection by local people

Forest protection includes any action that assists in protecting forest from harmful activities. In the context of community forestry in the study areas, such harmful activities include forest encroachment for agriculture; poaching of wildlife; overgrazing; unauthorised removal of trees and other plants; and forest fire.

5.5.1.1 Encroachment control

Observing agricultural encroachment on government managed forests has ensured CFUGs are conscious of this issue in management of community forests. For this reason, almost all FOPs have rules which are designed to control encroachment. All three FOPs of the sample CFUGs have clauses in them that indicate that encroachment will be controlled, and that those who are found to be encroaching will be severely penalised. Discussions with respondents in the CFUGs have revealed that no new encroachment has occurred since the CFUGs took over management responsibility for the forests.

One of the interviewees of the KCFUG commented that:

...some people tried to encroach on small sections of the community forest adjoining their private land, but the CFUC immediately detected this, and the people who were encroaching were forced to stop when they were warned of likely punitive action.” (CHI19, October 2009).

Agricultural encroachment, unlike activities such as unauthorised felling of trees or poaching of wildlife, is easy to detect. It is also easy to identify the culprits, because they have to visit the encroached land repeatedly to look after the cultivated land and plants. According to the respondents (n=35, including government staff and CFUG members), CFUGs do not require any additional skills to control encroachment, if regular patrolling of community forests is properly organised and timely action is taken. Respondents are satisfied with the present situation because they have not experienced any new encroachment problems since the community forests were handed over.

5.5.1.2 Wildlife poaching control

Wildlife poaching occasionally occurs in the community forests. Wild animals are poached for meat, skins and medicinal purposes. Recognising the importance of wildlife in ecological welfare of forests, all of the FOPs contain provisions to control poaching and
protect wildlife. Key informants of the HJCFUG and SDCFUG reported that they did not have a wildlife poaching problem. They said that regular patrolling and strict protection rules regarding wildlife are the main reasons. Another reason is the non-existence of large animals, such as deer, leopards and bears in the forest, because of the unsuitable habitat (mainly coniferous type of forests).

In contrast, the much larger KCFUG had a number of problems controlling poaching of wildlife during the Maoist Conflict. The reasons, according to respondents, were the large forest area, difficulties in patrolling during the time of conflict, inadequate cooperation by the local government authority, and the presence of the Nepal Army and the Maoist People’s Liberation Army (PLA). In addition, respondents have reported that the existing community forestry legislation does not provide CFUGs with legal power to fine poachers.

Although discussions with respondents have revealed that poaching of wildlife has gradually been decreasing since the CFUGs were given responsibility, CFUGs are not empowered by legislation to punish offenders who have poached protected animals. They have had to bring poachers before the DFO in order that any legal action be taken. Any fines imposed go to the central treasury of the government, so there is little incentive for CFUGs to control wildlife poaching. Another important point which emerged from the discussions is that providing CFUGs with the capacity to stop or control the poaching of wildlife would require the cooperation of all forest users, as well as the neighbouring CFUGs.

5.5.1.3 Grazing control and impact on livestock population

Almost all of the households in the study areas had livestock that provide for household needs, such as providing manure and milk, and enabling ploughing. Goats are raised so that they can be sold. Cows, oxen, buffaloes and goats are the most common livestock reared. The field observation showed that livestock constitute a very important asset by providing manure for the fields. This is considered to be vital in order that produce from the fields be maximised. Livestock convert crop residues, and tree, shrub and grass products into farm yard manure and compost. Furthermore, the raising of goats can provide additional income for the households. Yet, about fifteen percent of the total numbers of households in the study site do not own all of their livestock. Instead, they lease them. This means that when livestock, which are produced from leased animals, are sold, the owner, who has leased the animals to the farmer, gets half of the money from the sale.
Excessive grazing in the forest area reduces regeneration, and thus negatively affects the growth and condition of the forest. All three CFUGs had provisions in their FOPs, regarding the control of grazing. Before the forests were handed over to the CFUGs, there was no control of grazing. One of the respondents in the KCFUG, in commenting about the situation prior to the handover of the forest, said that:

“...in the past, the forest was open for grazing ... We had easy access ... for grazing our cattle at any time...this reduced the amount of compost manure, because cattle spent most of the time in the forest, and so the manure was wasted in the forest...the quality of cattle was also inferior, ...” (CHI5, September 2009).

After the forests were handed over, grazing was brought under control. This has not only brought about natural regeneration, but it has enabled the overall condition of forests to improve. It is considered to be an important achievement, regarding the community forestry program. During an in-depth interview, one of the KCFUG members said:

“I think banning the grazing in the forest is very good for protecting and conserving the forest. If it wasn’t so, then there would be excessive grazing, leading to soil erosion. The cattle would also feed on seedlings and saplings of valuable tree species and medicinal plants.” (CHI14, October 2009).

However, about 25 percent of total respondents of the CFUGs are not happy with the ban on grazing inside the community forests (Table 5.10). Most of them are not only very poor, but they do not have sufficient amounts of private land for growing grass, fodder and other alternatives to feed their livestock. This applies especially in the KCFUG and SDCFUG areas. Grazing is not such an issue in the HJCFUG area, because the forest there does not contain grass and fodder, given that there is a closed canopy of pines, and a thick layer of pine needles on the ground.

### Table 5.10 Perceptions of the CFUGs’ members, regarding control of grazing inside the CF (n=138)

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>% of respondents by gender and wealth category</th>
<th>Not beneficial (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beneficial (%)</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>KCFUG</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

**Note:** V P- Very Poor, P- Poor, M- Medium and R- Rich

**Source:** Researcher’s household survey, 2009.
Although all FOPs of the CFUGs have provisions in them regarding the planting of multipurpose tree species on private and community forest land to provide alternative sources of feeds for livestock, there is an insufficient supply of fodder and grass in the community forests. Respondents have indicated that grass and fodder can be collected on a seasonal basis, especially during the rainy season in summer, when new shoots of grass and forage occur.

However, an examination of the FOPs of the CFUGs shows that the FOPs have a number of provisions in them to control the collecting of forest products. According to those provisions, only a limited amount of fodder can be collected in winter, and only if the people who want to collect it get permission at a meeting of the CFUG. In addition, a CFUC can take necessary legal action against any member who, whilst collecting grass and fodder, damages any of the valuable and protected species of seedlings or trees. One of the DFO staff, Sindhupalchok District, commented that:

“...CFUGs have the legal right to establish forest protection rules, in order that their forests be controlled. So this right is strengthened when strict protection rules are included in the FOPs. All these measures empower the executive members of the CFUG to have sole authority to arrest and penalise those who violate the rules...” (SIN2, June, 2011).

Despite the imposition of the ban on grazing in the community forests, and the urging that stall-feeding systems be adopted, not all user households are able to comply. Not all user members have agreed to adopt the stall-feeding system (Table 5.11). Only 70 percent of the male respondents recognise the benefits of stall-feeding, and its positive effect regarding forest protection.

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Beneficial (%)</th>
<th>Not beneficial (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>KCFUG</td>
<td>76</td>
<td>68</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>66</td>
<td>60</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>70</td>
<td>66</td>
</tr>
<tr>
<td>Total average percentage (%)</td>
<td>70%</td>
<td>64%</td>
</tr>
</tbody>
</table>

More than 60 percent of female interviewees have reported that grazing control and effective forest protection have not only enabled grass and fodder to become more available in the community forests, but that they have also helped reduce the collection time by up to three hours in the KCFUG area; two hours in the HJCFUG area; and up to five hours in the SDCFUG area. However, grazing control and effective forest protection is not supported by 33 percent of the respondents.

Furthermore, about 36 percent of all female respondents have said that they are not in favour of stall-feeding. They have said that it is not very beneficial, because it increases the workload of households, especially of women and children, requiring the collecting of grass and fodder from community forests. In addition, those respondents have said that even though they know the consequences of allowing grazing in the forests, especially in relation to regeneration, they are against the ban because they do not have sufficient numbers of fodder trees on their private land.

About 80 percent of women respondents in group discussions agreed that any grazing in a new plantation or regeneration area is harmful. However, they argue that controlled or rotational grazing inside the forests where mature trees are dominant, or where there is dense shrub land, would be beneficial, not only for cattle but also to check unwanted vegetation and weeds in the forests. They argue that such grazing would also accelerate the rate of decay of leaf-litter, because of trampling of the litter by the cattle.

However, DFO staff and male members of the existing CFUCs have indicated that they do not support grazing. They feel that stall-feeding is not only useful, regarding forest protection, but also beneficial regarding livestock and users’ household needs. Stall-feeding helps to promote the growth of grass and fodder on both community and private land, so that livestock can be fed with sufficient nutrients. Stall-feeding also encourages farmers to keep just a few productive breeds of livestock, that can provide more in the way of economic benefits to farmers, rather than less productive breeds. DFO staff claim that stall-feeding leads to more composts and manure being produced, so that farmers can get more benefits from their fields.

Change in livestock population

The data indicate that in all three CFUG areas, the average number of all types of livestock per household dropped slightly after the community forestry program had been introduced. About 75 percent of all respondents of the household survey in the CFUG areas have said that the main reason for the declining livestock population has been the imposition of the
strict ban on open grazing in the community forests. Although control of grazing has had a negative impact on livestock farming for a short period of time, about 67 percent of the respondents in all three CFUGs have reported that stopping grazing in the community forests has encouraged a natural regeneration of broad leaf species and forage inside the community forest areas. That has been beneficial, regarding the supply of fodder for stall-feeding livestock over the long term. Prior to the introduction of the CF program, the average livestock numbers per household in Kankali was 17 (4 buffaloes, 6 cows/ox and 7 goats). Then it fell to 10 (3 buffaloes, 3 cows/ox and 4 goats) in 2001, and remained that way till 2007, before increasing to 13 (3 buffaloes, 4 cows/ox and 6 goats) in 2009 (Figure 5.7).

**Figure 5.7 Changes in livestock numbers in Kankali**

![Graph showing changes in livestock numbers in Kankali](image)

Researcher’s household survey, 2009.

In relation to the HJCFUG area, the average number of livestock per household was 14 (3 buffaloes, 5 cows/ox and 6 goats) in 1998. It then dropped to 10 (2 buffaloes, 3 cows/ox and 5 goats) in 2001, before dropping further to 7 (1 buffalo, 2 cows/ox and 4 goats) in 2006. It then rose to 10 (2 buffaloes, 3 cows/ox and 5 goats) in 2009 (Figure 5.8). However, in contrast to the above reasons for the reduction of livestock, some respondents (n=7) of the HJCFUG area have reported an increase in forest products since the introduction of community forestry, which has caused livestock numbers to increase to some extent.

During the in-depth interviews, the Chairperson of the Kabhrepalanchok District FECOFUN, as well as all DFO respondents, confirmed that the ban on grazing inside community forest areas to allow the forest to regenerate has resulted in an overall decrease in livestock numbers. The restricted access to forest products has also meant that there is
less in the way of leaf litter for animal bedding, as well as less fodder. Consequently, this has led to a decrease in livestock numbers, because people have not had enough resources to be able to keep the numbers of cattle, buffalo, goats and sheep that they have previously owned.

**Figure 5.8 Changes in livestock numbers in Hilejaljale ‘Ka’**

![Graph showing changes in livestock numbers over time.](attachment:image)


In 1998, the average livestock population in SDCFUG was 13 (3 buffalos, 4 cows and 6 goats) and it dramatically declined to 7 (1 buffalo, 2 cows/ox and 4 goats) in 2002 and further slightly decreased to 6 (1 buffalo, 2 cows/ox and 3 goats) in 2006. Then, after three years, the figure increased to 9 (2 buffalos, 3 cows/ox and 4 goats) in 2009 (Figure 5.9). As the founder Chairperson of the CFUG expressed, community forestry has mostly had positive impacts on livelihoods of people. The easy access to collect fodders from community forests has increased the production of milk and other livestock productions.

As has been reported by women participants of the group discussions in the HJCFUG and SDCFUG, there was enough fodder available in some of the dry seasons to feed the large numbers of livestock, before the community forestry program was introduced. At other times there has been a surplus of fodder in the community forests.
Figure 5.9 Changes in livestock numbers in Shreechhap Deurali

![Graph showing livestock numbers over time]


The average livestock numbers have been highest in the KCFUG area, both before and after the implementation of the community forestry program. Large numbers of livestock in the KCFUG area mean that there is a greater need for grass, fodder and grazing facilities, which in turn exerts a greater impact on the community forests. The SDCFUG area has had relatively small livestock numbers, which is consistent with the small area of community forest; the closed canopy of the pine forest; and the lack of an adequate supply of fodder so that livestock can be stall-fed. In addition, it appears that these restrictions may have contributed to some farmers changing breeds of cattle and buffalo that they own. They are switching to more productive breeds. The average number of buffaloes and cows in rich and medium income households is higher than the average number of buffaloes and cows in very poor and poor households.

Goats are the most common livestock in all three study sites. This could be because goats are easy to manage, and are relatively cheap for occupants of poor and very poor households to purchase. One respondent from a poor household in the SDCFUG area said:

“...I don’t have any buffalo and cow because these are expensive for poor people like me to buy....I don’t have private land to produce enough fodder to feed...I have to rely on the community forest for fodder. So it is almost impossible for me to get fodder throughout the year... So I prefer goat farming, which is relatively easy and affordable for me and for other low income households...” (SIN12, October 2009).
It is interesting to note that there has been a slight decrease in overall livestock numbers since the introduction of community forestry. This has occurred because grazing has been stopped in the community forest, so that the forest could regenerate. While restricted access to the forest has meant that at certain times of the year there is less leaf litter available for animal bedding, and less fodder available putting downward pressure on livestock numbers, the overall increase in fodder production has led to an increase in livestock numbers to some extent.

Observed decrease in livestock numbers over some periods cannot be attributed simply to a change in the amount of fodder and leaf litter available from the forests. That decrease could also have occurred for other reasons, such as the seasonal availability of fodder in the community forests; less labour being available to tend livestock as children attend school; and young people leaving villages in order to work in urban areas.

In relation to the fodder problem, one of the respondents of the SDCFUG said:

“….we cannot get fodder from our forest at all times .... The management regimes restrict the collecting of forest products, especially fodder, to just certain times of the year. However, leaf litter is generally available throughout the year...” (SIN18, October 2009).

Rich and medium-rich people, who can afford to buy and rear improved breeds of livestock, are able to get more income from their small numbers of stall-fed animals. In addition, the adoption of stall-feeding by farmers, as a result of the ban on the grazing of animals in community forests, has encouraged farmers to reduce the numbers of unproductive grazing animals. So users are now benefiting by keeping good quality productive livestock, because the costs associated with this are relatively low.

5.5.1.4 Control of unauthorised harvesting

Data collected during the in-depth interviews and group discussions have revealed that unauthorised collecting and harvesting of both timber and non-timber forest products are decreasing, because of the existence of an effective FOP. The HJCFUG and SDCFUG effectively control such unauthorised activities by enlisting the help of their members to regularly patrol the community forests.

The KCFUG had frequently experienced unauthorised felling of trees in the community forest, for five years after the forest had been handed over. However, those incidents,
during the last five years, have dropped to only a tenth of the number. Offenders, in most cases, are detected and penalised, in accordance with the CFUG rules.

The higher number of incidents of unauthorised harvesting in KCFUG area has been related by interview respondents to the large number of users in a large area of community forest. However, in more than 80 percent of cases, the offenders have been caught. If the offenders are CFUG members, then they are fined. However, if they are outsiders, or users from any of the neighbouring areas, then the CFUC can only seize their tools (e.g., axes, knives, sickles, saws) because there is no clear provision in the Forest Act 1993, regarding punishment of outsiders.

During an in-depth interview session in the KCFUG, one of the female interviewees, who is entirely dependent on the illegal collection and selling of fuelwood for her household’s survival reported that:

“...in the past, before the implementation of CF program, there used to be a lot of timber and fuelwood smuggling. But after the implementation of CF, all community forests have been protected by the local CFUGs, which ban the illegal selling of timber and fuelwood. ... But eventually, they began to understand that the multiple benefits outweighed the disadvantages and discomforts.” (CHI22, September 2009).

During discussions, respondents from all CFUGs have indicated that unauthorised harvesting has occurred not only because of ignorance regarding CFUG rules, but also because of the high price per cubic foot of timber and other forest products. That price had been fixed by the CFUG in earlier years. The price rates are the same for all household income groups.

Awareness programs which have been set up in all CFUGs with the help of the DFO (and the NAFP in the case of the HJCFUG and the SDCFUG), when combined with a reduction in the price rate of timber and other forest products, particularly for poor and disadvantaged members of the CFUGs, have been helpful in reducing incidents in recent years. Regular patrolling has also been a factor.

A 50 percent rebate for poor and marginalised users, regarding timber prices for house construction, has also helped reduce the number of incidents in the SDCFUG area. In relation to the KCFUG, where unauthorised harvesting in the community forest is
gradually decreasing, offences are committed mostly by users and people from neighbouring areas where there are a limited number of resources.

5.5.2 Forestry development by the local community

Forest development includes all activities that lead to an increase in forest cover, or an improvement in the quality of existing forests. DFO staff in all three districts have reported that ‘forest development’ is used synonymously to cover all forest-related technical activities in Nepal. Thus nursery operations, planting, weeding, tending operations such as thinning, pruning, singling, and all other silvicultural treatments, are included in the term ‘forest development’. All of these activities are carried out manually by CFUG members within their community forest areas.

5.5.2.1 Nursery operation and seedling production

An examination of FOPs shows that, of the three CFUGs, only two (KCFUG and HJCFUG) have provisions in their FOPs, regarding the production of seedlings for planting purposes. However, the FOPs indicate no clear annual target, regarding seedling production and planting. In both FOPs, provisions have been made in order that decision-making power be transferred from the CFUGs to the CFUCs, so that an annual target, regarding seedling production and planting, can be set.

Discussions with CFUC members of KCFUG have revealed that a target has become possible, because its nursery foreman had acquired, about seven years ago, good knowledge and skills regarding seed collection, seed handling, and the raising of seedlings, whilst working in a private nursery. Community participation, regarding the establishment and operation of the nursery, has been outstanding. Records for last five years, regarding seedling production in the KCFUG area, show that the CFUG has produced seedlings in accordance with the target which had been set by the CFUC.

The HJCFUG has allocated land for the establishment of a nursery, but it has not been able to establish it. The reason is that there are not enough trained people to operate it. Over the last five years, the CFUC has recommended three persons to the DFO, so that that department could arrange for those individuals to be trained in nursery management. However, after they had received that training, and had acquired some nursery management skills, those people decided not to stay in the village, but went, instead, to Kathmandu in order to work in private nurseries. Another reason, that a nursery has not
been set up, has been the lack of suitable land for it, both in the community forests, and privately.

5.5.2.2 Plantation

A provision, regarding the setting up of a plantation, exists in the FOPs of all three CFUGs. But, even then, there have been no clear targets set in the latest five year plans, because, within each community forest, there has not been enough cleared land available for a plantation. More than 80 percent of the respondents who have been interviewed have participated in planting. But the majority of them said that a plantation was not necessary. Natural regeneration is profuse in all three community forests.

Respondents in both the KCFUG and SDCFUG have indicated that the land which has been set aside for establishing a plantation by the CFUC in each area is based on a visual report only, because CFUG members do not posses area calculation skills. Moreover, in relation to each of those two CFUG communities, DFO staff had not calculated the actual area to be planted when the FOPs were prepared. So, when the plantation in each forest was set up, the actual planting area fell short of the estimate. The result, in each case, has been that the plantation area is less than what is desired.

In relation to the HJCFUG area, the reason that the plantation target has not been achieved has been the inability of CFUG members to produce the required number of seedlings in their nursery for planting. In all three CFUGs, respondents said that the achievement of targets, and success of planting, requires knowledge and skills regarding plantation techniques, as well as supervision and technical guidance from DFO staff during the plantation activities. Confidence, regarding plantation activities, can only be gained by CFUGs if members learn these techniques from DFO staff. Discussions with these CFUGs, regarding their level of achievement, has clearly indicated that they lack knowledge and skills regarding plantation techniques, and require both training and guidance at the time of planting. Lack of time, during the planting season, is another constraint.

5.5.2.3 Weeding in the plantation area

Weeding involves removing unnecessary plants that obstruct the growth of desired species. The FOPs indicate that weeding is to be carried out in the community forest plantations for the first three years. However, the records, regarding the monitoring and evaluation by DFO staff show that only the KCFUG has conducted weeding properly (removing weeds within a radius 0.5 m around each plant). The quality of weeding, which has been carried
out by the other two CFUGs, is very poor, and has been done only once, instead of twice, as has been specified in the FOPs. This occurred because CFUG members did not have sufficient time.

In relation to the HJCFUG area, inadequate weeding occurred because members were engaged in agricultural activities. This caused more than 40 percent of the seedling to die, given that the planted area had become infested with weeds. In addition, not all members have the skills required for weeding. So, they end up loosening the soil around each seedling. The resultant moisture loss causes many seedlings to die.

So, even though weeding does not involve the use of complicated techniques, if it is done at the wrong time or if it is done improperly, or incompletely, then the growth of the seedling can be negatively affected. The knowledge and skills of all members of the three CFUGs need to improve, not only so that the correct choice, regarding the selection of plant species is made, but so that weeding can be done properly. However, an important factor is that users have only a limited amount of time available, regarding these matters.

5.5.2.4 Pruning of trees in planted and natural areas

Networking has been conducted amongst CFUGs and other agencies, whereby there have been study tours to forest and CFUG management areas. The numbers of forest management training programs, and post-formation support sessions regarding the application of silvicultural operations, have increased.

All three CFUGs have a provision in their FOPs, regarding the pruning of trees in both planted and natural areas. During group discussions, respondents in all three CFUGs said that pruning activities have been carried out in their community forests since the handover of the forests to them. All FOPs clearly indicate that the aim, regarding pruning, in both the plantations and the natural areas, is to produce clear boles, free of knots, so that the quality of timber can be improved.

It is interesting to note that most of the general user members of the KCFUG have no understanding as to how to prune, or why pruning occurs. Only executive members, who have been trained in forest management by the DFOs, are involved in pruning activities. Occasionally they have field support from DFO staff. For most of the general users, pruning means just cutting branches off both young and mature trees, in order that firewood for cooking and heating purposes be obtained.
The field observations have revealed that pruning has not been done properly in the Kankali Community Forest. The area forest Ranger, of the Amilepani Range Post, with whom I visited the community forest, indicated that he is not satisfied with the pruning which has been done by the members of the CFUG. As he explained, the proper way to prune is to cut the branches very close to the stem, and only up to one third of the tree’s height from the ground, unless otherwise prescribed. However, because most members of the CFUG lack the knowledge and skills, and because there has been a temptation to collect forest products, pruning has been done on more than half of the height of the trees, whereby only a small portion of the tree crown remains. Moreover, the branches have not been cut close to the main stem. The plantation has suffered because of improper pruning. In addition, some of the mature trees, which did not require pruning, have also been pruned.

A former chairperson of the KCFUG has disclosed the reasons for the poor performance regarding pruning. He said that there is too large an area for pruning. Too many people are involved in the process at the same time. Moreover, there has not been enough technical guidance from DFO staff. In addition, people who are trained in forest management have either been unable to communicate to non-executive members how to prune properly, or the users did not follow their instructions when pruning has been conducted. However, it has been found that pruning done by the HJCFUG and SDCFUG is satisfactory, compared to that done by the KCFUG. In both CFUGs, most of the general members know how to prune the planted pine trees, as well as those in natural areas. Two members from each CFUG had participated in seven days of forest management training programs, which had been organised by the DFO. These participants have acquired new skills and knowledge in forest management and pruning techniques.

After their training they became instructors, and organised three days of practical training for the other members of the CFUCs. The executive committee members then helped to disseminate skills and knowledge regarding pruning to the general members of the CFUGs. The respondents of both CFUCs have indicated that the main reason for the satisfactory pruning result has been the proper supervision and guidance, which has been provided by those who have received training from the DFO.
5.5.2.5 Thinning in plantation and natural areas

There is also provision in the FOPs of all three CFUGs, regarding thinning. Thinning involves reducing the number of trees in an area, primarily to improve growth, enhance forest health, or to allow trees to recover. The FOPs clearly indicate where thinning is to be carried out. However, in relation to the Kankali area, thinning has not been recommended.

Despite provisions that thinning be carried out every year, none of the CFUGs carried it out in the first five years after the FOPs had been established. The reason given is that there was a lack of knowledge, skills and confidence, regarding the carrying out of the thinning process. However, all three CFUGs carried out thinning after people from each CFUG received training in forest management and thinning. None-the-less, from what I saw (September –December 2009) of the blocks where thinning had been carried out, the KCFUG and HJCFUG have not done it properly, as prescribed by the FOPs.

In the Kankali Community Forest, clear bole mature trees were predominantly selected for harvesting so that a quantity of Sal timber would be available. In relation to the Hilejaljale ‘Ka” Community Forest, only suppressed, leaning and deformed trees have been removed. The crowns of the remaining young trees, poles and saplings are still touching.

The SDCFUG has carried out thinning properly. Although they have confidence in their ability, as a result of having had one or two years of practice, and having seen thinning operations carried out during study tours, CFUG members are still asking for more training and technical support from DFO staff, in relation to the carrying out of thinning. However, the area Ranger and other forestry field staff feel that, because of their other commitments, they cannot provide sufficient technical support, so that members of the CFUG can improve their skills and knowledge.

5.5.2.6 Singling

Singling is a silvicultural operation, which involves retaining one or two leading shoots, out of the many that originate from stumps or roots of species with coppicing power. Of the three CFUGs, only KJCFUG has provision in its FOP for the conducting of a singling operation. The dominant species of the forest is Shorea robusta, and abundant coppice growth from cut stumps and roots has occurred. Discussions and a field observation have indicated that singling operations have been carried out only in a small area, after guidance
and support had been obtained from DFO staff. The activity has been discontinued through lack of confidence. This could be overcome with further training and guidance.

In relation to the Hilejaljale ‘Ka’ and Shreechhap Community Forests, singling is not prescribed by the FOPs. The reasons given by the area Ranger are that both of those community forests are comprised mostly of pine trees, with some natural regeneration of the local broad-leaved species. Pine species do not have coppicing capacity. Furthermore, both CFUGs are interested in converting their pine forests to broad-leaved forests. This would be done by gradually removing the pine trees and encouraging the regeneration of the local broad-leaved species.

5.5.3 Changes in the bio-physical condition of community forests

Information collected from interviews with key informants, reviews of the CFUGs’ FOPs, and direct observations of the community forests during fieldwork, show that the forests were deteriorating before the introduction of community forestry and management by the local people (Box 5.4).
Box 5.4 Improvement of the forest condition through the implementation of the community forestry program

Tired of walking, Mr. X Ghimire (not his real name), an 84 year old respondent (KBR 10) - the oldest member of the HJCFUG - takes a rest on thick green forest land. The dramatic backdrop of dense forest cover gives him reason to be proud. As the founder chairman of the Community Forest, he helped transform the once dying forest into 118 hectares of green wealth in Ghimire Gaon.

"Those were the difficult times," he tells the researcher, referring to his green campaign. "Some people simply refused to be part of the mission to rebuild the forest." Used to collecting firewood and timber from the forest for cooking, most people in the village were in no frame of mind to end their habit two decades back.

Alarmed by the incessant felling of trees that had rendered the once dense forest into a nearly barren area, in which very few trees, poles and shrubs were left, the DFO, Kabhrepalanchok, with the help of the NAFP, decided in 1995 to hand over the enhancement and management of the forest to the local community. But many local people were unwilling to give up the habit of picking up firewood and timber and other forest products (like fodder for their cattle), because it was easy; although illegal.

"It was a big job for me to convince the people" the respondent says, grinning broadly with a flash in his eyes. Eventually, the forest was handed over to the local community in 1998. During the first few years, he had to personally attend to the plantation of multipurpose tree species, as well as to the protection of the community forest. Bamboo and medicinal plants were planted also.

Prior to handover, the land had been nearly barren because of massive deforestation and degradation, fire, snowfall and landslides.

"We used to jump over bushes when we were kids," says another respondent - a former primary school teacher and the present Secretary of the HJCFUG (KBR 11). He was pointing to a piece of land that had been rendered barren, before it was transformed into a lush expanse of trees and other plants. Furthermore, following the handover of the forest, the bio-physical condition of the community forest has gradually been improving.

Source: In-depth interview, 2009.

After the handover, the overall condition of all community forests has changed (Table 5.12; also see Appendices 15.1 and 15.2). This has been achieved through the diligent prevention of forest fire, grazing, illegal tree felling, and the unregulated extraction of forest products. The efforts of the CFUGs to resolve land disputes, with individuals and neighbouring CFUGs, are limiting the extent of forest encroachment. Plantations now exist on once-barren land.
Table 5.12 Changes in the bio-physical condition of the community forests

<table>
<thead>
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<th>Parameters</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canopy cover (%) (before CF)</td>
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<td>60</td>
<td>50</td>
</tr>
<tr>
<td>Canopy cover (%) (after CF)</td>
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<td>70</td>
<td>75</td>
</tr>
<tr>
<td>Average density of stand (tree/ha) (before CF)</td>
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<td>1300</td>
<td>900</td>
</tr>
<tr>
<td>Average density of stand (tree/ha) (after CF)</td>
<td>1300</td>
<td>1400</td>
<td>1100</td>
</tr>
<tr>
<td>Average natural regeneration (seedlings /ha) (before CF)</td>
<td>1700</td>
<td>2900</td>
<td>2500</td>
</tr>
<tr>
<td>Average natural regeneration (seedlings /ha) (after CF)</td>
<td>9980</td>
<td>4700</td>
<td>4300</td>
</tr>
<tr>
<td>Major flora and fauna species (after CF)</td>
<td>Increased</td>
<td>Increased</td>
<td>Increased</td>
</tr>
</tbody>
</table>

**Source**: Adapted from information collected from the CFUGs’ FOPs and field observation, 2009.

Data shown in Table 5.11 show that, after the implementation of the community forestry program, forest cover has increased in all three study sites. Kankali Community Forest is comprised of natural regenerations, sapling and poles stands. A general lack of appropriate silvicultural operations (e.g., thinning, pruning and singling) indicates that users are not reaping the full potential benefits.

The central part of the Kankali Forest is relatively dense, and requires active thinning. The west-south and east-south part is sparsely covered, and requires a new plantation. The remaining area of the forest is comprised of growth, ranging from healthy young trees to over-matured sal trees. A sissoo plantation of approximately 26 hectares was created by the Tarai Community Forestry Project prior to the handover of the forest to the community. However, as information, which has been collected during discussions, indicates, the growth performance of the sissoo trees is very poor, because of the inappropriate selection of the site for the plantation.

Moreover, in all three case study sites, wildlife conservation in the community forests has been ensured by the placing of bans on hunting, and the imposing of heavy fines for killing. Many members of the CFUGs have reported that the numbers of game birds, and animals such as leopards, porcupines and deer, have increased, as a result of the improvement in the habitat, and the imposition of proper protection measures. This improvement is a positive sign that biodiversity is being conserved in the community forests. However, occupants of a few households, which are located near the community forests, are not so happy about the wildlife conservation measures, because wildlife damage their crops and livestock. So, not all households have received the benefits of community forestry. This was noticeable during my field work. One of the staff of the
DFO, Chitwan, said that the overall bio-physical condition, of most of the community forests in the district, is improving because of the introduction of effective protection measures by the local CFUGs. He commented that:

“...whichever community forest we visit, we find improvements from an ecological point of view. People now praise the greenery of their forest land, following the implementation of CF program. However, in the news we also hear about children, adults or old people being killed by wild animals. None-the-less, this is an indication that wildlife habitats have improved, because of the implementation of the program... now, people have obtained both ecological and economic benefits.” (CHI11, September 2009).

About 93 percent of the respondents of the household survey (n=138) have indicated that most of the respondents of medium and rich households are happy with the improving bio-physical conditions, after the CF program had been implemented in the study areas (Table 5.13). FOPs and field observations support what respondents have indicated. So, it could be argued that, in this context, the program has been successful, particularly in relation to the increase in forest, and the improving condition of the forest.

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>5</td>
<td>95</td>
<td>0</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>6</td>
<td>91</td>
<td>3</td>
</tr>
<tr>
<td>SDCFUG</td>
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<td>5</td>
</tr>
<tr>
<td>Overall</td>
<td>4%</td>
<td>93%</td>
<td>3%</td>
</tr>
</tbody>
</table>


The protection, management and controlled harvesting of forest products are regarded as being the main reasons for the improvement in the condition of the forest. Activities such as seedling production, plantation, weeding and silviculture operations are being integrated, regarding the management of forest resources. The rules, regarding effective protection, are closely related to improving community owned forest resources. After the implementation of the CFP, the majority of the CFUGs’ members have been aware of the importance of the forest and its usefulness, the relationship between species, composition, density, and the overall forest condition [see Appendices 15.1 and 15.2].

5.5.4 Perception of users regarding forest management

The main objectives of community forest management relate to users’ forest product requirements. An examination of the FOPs of the CFUGs shows that forest management in
all community forest areas is focused on the ‘concept of maximum sustained yield’. Although it seems too early for this to be widely practised, the adoption of it is increasing.

Some users regard sustained yield as simply being a continuation of the use of forest products, and those people have no concern regarding the continuation of the supply. Scientifically, the yield can be regulated in terms of area or volume, or both. But this does not occur in practice, because the product extraction and distribution systems are so complex that sustainability is not considered.

In relation to all three FOPs, CFUGs practise silvicultural operations on a rotational basis during the harvesting season each year, when forest products are obtained. Generally, the CFUG assembly ensures that both forest development and harvesting activities occur. Thinning, pruning, singling, cleaning and removal of dead, diseased, dying and deformed trees are the main operations when different types of forest products are harvested from the forests.

In relation to the Kankali forest area, selective felling of over-mature trees is practised to meet the needs of users (e.g., the making of agricultural tools). However, these activities are not objectively defined in the FOPs. They are mainly based on the real needs of users. About 30 percent of respondents of the in-depth interviews (n=50) have indicated that they operate on an *ad hoc* basis, not only so that the general requirements of the FOPs can be achieved, but also so that users can obtain timber for their needs. During the field observation, it was observed that an artificial regeneration has been started in many communities’ forests, with the planting of exotic and indigenous species.

Of the three CFUGs, only Kankali’s new planting has been relatively successful. As reported by the respondents, the main reason for the failure of the planting has been that the seedlings produced in the nursery were neither healthy, nor of appropriate size. Another reason is that the wrong species had been selected for planting in sites which were available to be plantations. About 25 percent of the respondents said that the pitting and planting technique is sometimes unsuitable. After planting, weeding is required, and if that is not practised, then many of the plants will die.

The different wealth groups have presented varying views on forest protection and management practices. For example, about 70 percent of the total very poor and poor members respondents of in-depth interviews (n=7) in the SDCFUG said that the present
practices are focused on protection. Most of the CFUGs are conducting cleaning, thinning, and pruning activities. About 80 percent of the total women and Dalits respondents of in-depth interviews (n=10) in KCFUG have indicated that the present forest management practices are ineffective. About 90 percent of the HJCFUG respondents from elite members (n=5) said that the present practices are effective.

Approximately 70 percent of the KCFUG respondents commented on the declining number of mature trees in the community forest area, given the large amount of selective thinning which has occurred in the past. Now there are not enough mature trees to harvest, for the purpose of obtaining construction timber. Mostly pole size trees are left. During the fieldwork, it was observed that users are not practising forestry the way described in the FOP. Overall, the focus has been on protecting the forests.

5.5.4.1 Protection-oriented community forest management

Protection is the major consideration regarding all three community forests. Only dead, dying, and fallen trees and leaf litter are being removed. Because of such passive management, the forests are being used just for subsistence needs. So the forests are not being completely utilised, in terms of productivity. Moreover, CFUGs are extracting fewer products than the forests are capable of producing. Demand for forest product is higher than the supply. This indicates that CFUGs are protecting the forest. So it is a challenging task to encourage forest management to extract overstocked product from the forest, thereby fully utilising the potential of the forest. Moreover, DFO staff are very conservative. So they are reluctant to approve of FOPs which contain provisions to harvest trees according to the principles of sustainable yield. This situation neither favours poor and disadvantaged users, nor does it encourage the trading of forest products in the district.

5.5.4.2 Increased access to forest resources for poor and disadvantaged members

During the fieldwork, it has been observed that the rural livelihoods of people are based on common forestry resources. However, some users, especially poor and disadvantaged people, do not have sufficient access to forest resources and benefits from community forestry. Poor members only have access to small twigs and leaf-litter for a certain time of the year. This occurs because of an improper power relationship, inequity, and elite domination, regarding the management process.
Although the forests are becoming more accessible, after management responsibility had been transferred from the government to the local communities that does not mean that all members of the communities have access to forest resources. So community forestry has not been fully successful in improving the livelihoods of poorer and disadvantaged groups in the communities. Unnecessary control over forest resources has had a negative impact on the livelihoods of rural people, especially those who rely on the forests.

5.6 Summary

In this chapter, I have presented information to address the first key research question in relation to the socio-economic characteristics of the CFUGs. In summary, the CFUGs I explored are located in rural areas, where subsistence farming has strong links to forestry. The CFUGs are comprised of different castes and ethnic groups. Elite members are usually determined by landholding size, caste, ethnicity, occupations, literacy, economic conditions, and education.

The dependency of poor and disadvantaged groups on the community forests, for basic forest products, is greater than it is for rich and elite members. Elite and powerful members are dominant, when compared to poor and disadvantaged members of the groups. The gender division regarding labour requires that women primarily be responsible for household work, as well as for the collection and household use of forest products. Population rates are increasing, and females are in higher numbers than males in all three sites.

All three CFUGs are different, in terms of their socio-economic characteristics, skills and knowledge, regarding forest protection, management and development [see Appendix 18]. The KCFUG, which is located in a relatively accessible plain area, virtually represents the inner-Tarai communities of Nepal. The CFUG is comprised of people who have diverse economic and social backgrounds. That CFUG area is also endowed with basic infrastructure; in particular, a road that opens up the possibility of links to the local markets. It has a natural sal timber forest with high cash value, when compared to the other two community forests.

The HJCFUG and SDCFUG, which are located at relatively remote and isolated villages, have a longer rural settlement history than the KCFUG does. Both groups consist of people who originated from the same district, and who have historically determined inter-household relationships. That situation still exists. By comparison to the KCFUG, the
populations in these two CFUG areas have not increased quickly. In fact, there has been no significant increase or decrease in these populations, related to the implementation of community forestry. In terms of forest resources, both CFUG areas have pine plantations and natural regenerated forests.

In relation to the KCFUG, the average size of landholdings increased both in 1995 and in 2009. However, the average size of landholdings in the HJCFUG area remained the same, both before and after the implementation of community forestry. In relation to the SDCFUG area, the average size of landholdings of the lower caste has remained unchanged, whilst the average size of landholdings of the upper and middle caste households has increased slightly.

The data collected from the study area show that DFO staff have helped to facilitate the CFUG formation process. They have done this by meeting and holding discussions with local people, and identifying users of the forests. Moreover, DFO staff have influenced decision-making at the operational level. They have done this by identifying users when the CFUG was being formed; preparing FOPs, approving FOPs, and planning. The target-oriented community forestry program as well as a lack of trained and motivated DFO staff mean there have been few discussions with the wider community regarding the implementation of the program.

All CFUGs have FOPs, constitutions and operational rules. Forests are effectively protected by the CFUGs. The average number of livestock dropped after the implementation of community forestry as a result of the ban on grazing inside the forest. The numbers of livestock in rich and medium income households are higher than they are in very poor and poor households. Among all livestock, goats are common to all categories of members; and goat numbers are higher in all study sites than are the numbers of other animals.

Findings from the study show that, initially, CFP was introduced to protect forest resources, and to meet the basic forestry needs of the local people. Although the numbers of forest management training programs, as well as support regarding forest protection, management and silvicultural operations, have increased, not all CFUG members are confident enough to implement their FOPs. The respondents of group discussions, household surveys and in-depth interviews have expressed their happiness, regarding the protection, management and development of their community forests. The main purpose of
CF is to improve forest conditions, and contribute to the livelihoods of the local people. The forest condition is improving, and the CFP is well established. It is also essential to understand whether community forests are generating the desired socio-economic outcomes for the CFUGs. In the next chapter, the main socio-economic outcomes of community forestry for the CFUGs are examined.
Chapter 6

Socio-economic outcomes of community forestry

6.1 Introduction

The socio-economic characteristics of the case study CFUGs, as well as forest management, were examined in the previous chapter. In this chapter, the socio-economic outcomes of community forestry will be examined, to answer the second key question regarding this research. The research is focussed mainly on social and economic (including environmental and financial) outcomes of community forestry for the three study groups (see Figure 6.1).

![Figure 6.1 Outcomes of community forestry](image)

Source: Adapted from information collected from fieldwork, 2009.

The main sources of data that have been used in relation to this chapter are the FOPs, constitutions, and office records of the CFUGs, field observations, household surveys, focus group discussions, as well as in-depth interviews with CFUG executive committee members, CFUG members, FECOFUN representatives, community forestry experts, and government forestry officials. Secondary data have also been used.

In the first section of this chapter, the social outcomes of community forestry for rural communities in the study areas are provided. The environmental and economic outcomes of community forestry, including changes in the biophysical condition of forest resources; the availability and collection of different types of forest products; the collection and mobilisation of community funds for the protection and management of forest resources; income generating activities for poverty reduction; and the contribution of community forestry in relation to economic and rural community development are also examined.
6.2 Social outcomes

In the first section of this chapter the state of affairs prior to, and after, the implementation of the community forestry program is examined. Information which has been collected as a result of an examination of the literature regarding community forestry (see Sections 3.6 and 3.7), and fieldwork, reveals the main social outcomes. These include changes, regarding community participation, increasing the capacity to function, social cohesion, social networks, and service providers, since the community forestry program has been implemented in the case study sites (see Figure 6.2).

**Figure 6.2 Social outcomes of community forestry**

![Diagram of social outcomes of community forestry]

*Source*: Adapted from information collected from FOPs and fieldwork, 2009.

6.2.1 Community participation in community forestry

An examination of the existing FOPs of the case study CFUGs indicates that community participation is required in relation to a wide range of community forestry processes, including planning, decision-making, implementation and, finally, benefit-sharing on the basis of equity. These are the fundamental principles regarding community forestry. Hence, the active participation of the local community is indispensable in relation to the sustainable development of community forestry (see details in Chapter 3, Section 3.11.1.2).
Figure 6.3 Analysis of community participation in community forestry

Community participation in community forestry

- Participation in planning and decision-making (according to wealth categories, gender and caste regarding executive committees)
- Participation in implementation (protection and management of community forests)
- Participation in benefit sharing (forest utilisation)

Source: Adapted from information collected from FOPs and fieldwork, 2009.

6.2.1.1 Extent of participation on executive committees: gender and caste

The increased participation of women and Dalits on CFUG committees indicates that there have been improvements, in terms of social outcomes, because of community forestry. When speaking about community participation in forestry, one of the government forestry staff who has been involved in the establishment and development of the community forestry program in the Sindhupalchok District for the last two decades said:

“...my field observations since the 1980s show that people participate in the community forestry program when they believe that their share of benefits from local forest resources, as a result of equitable participation on the CFUCs, is secure. Equitable participation by women and poor members of the CFUGs on executive committees is gradually increasing. This is a prerequisite for the sustainable management and development of forest resources, regarding support for rural livelihoods...” (SIN2, October, 2009).

A review of the minutes of meetings, and of other official records of the study group CFUGs, shows that the representation, on executive committees, by women and members of lower castes, has only marginally changed following the handover of community forests.

The executive committee of the KCFUG was initially comprised, in 1995, of 21 members. About 67 percent of those members were upper caste, whilst the remaining 33 percent were middle caste. The committee was so big that it was difficult to organise. Moreover, because of insufficient attendance by members, it was difficult to obtain quorums for the meetings, as is required by the KCFUG constitution. However, since 1996 the number of
KCFUG executive committee members has been reduced to 17, with four seats being reserved for women. None-the-less, the records indicate that the executive committees, which have been formed since the first year of the handover of the forest, have been dominated by high caste wealthy men, and medium to upper caste women. Tables 6.1 and 6.2 show the composition of the KCFUG executive committees, since the formation and registration of that particular CFUG.

Table 6.1 Composition of the KCFUC (by caste and gender)

<table>
<thead>
<tr>
<th>Period</th>
<th>Upper caste</th>
<th>Middle caste</th>
<th>Lower caste</th>
<th>Total</th>
<th>Grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  F  Total</td>
<td>M  F  Total</td>
<td>M  F  Total</td>
<td>M  F  Total</td>
<td>M  F  Total</td>
</tr>
<tr>
<td>1995-1996</td>
<td>12  2  14</td>
<td>5  2  7</td>
<td>0  0  0</td>
<td>17  4  21</td>
<td></td>
</tr>
<tr>
<td>1996-1999</td>
<td>12  2  14</td>
<td>1  2  3</td>
<td>0  0  0</td>
<td>13  4  17</td>
<td></td>
</tr>
<tr>
<td>1999-2002</td>
<td>10  2  12</td>
<td>3  2  5</td>
<td>0  0  0</td>
<td>13  4  17</td>
<td></td>
</tr>
<tr>
<td>2002-2005</td>
<td>9  2  11</td>
<td>4  2  6</td>
<td>0  0  0</td>
<td>13  4  17</td>
<td></td>
</tr>
<tr>
<td>2005-2007</td>
<td>10  3  13</td>
<td>2  2  4</td>
<td>0  0  0</td>
<td>12  5  17</td>
<td></td>
</tr>
<tr>
<td>2007 to 2009</td>
<td>10  2  12</td>
<td>0  4  4</td>
<td>1  0  1</td>
<td>11  6  17</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63  13  76</td>
<td>23  15  29</td>
<td>1  0  1</td>
<td>79  27 106</td>
<td></td>
</tr>
</tbody>
</table>

Note: M – Male and F- Female

Source: KCFUG FOPs, 1995, 2001 and 2006; meeting minutes, 2009 (as viewed by researcher in 2009).

Table 6.2 Composition of the KCFUC (by wealth categories)

<table>
<thead>
<tr>
<th>Period</th>
<th>Very poor</th>
<th>Poor</th>
<th>Medium</th>
<th>Rich</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995-1996</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>1996-1999</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>1999-2002</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>2002-2005</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>2005-2007</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>2007 to 2009</td>
<td>0</td>
<td>1</td>
<td>8</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>1</td>
<td>44</td>
<td>61</td>
<td>106</td>
</tr>
</tbody>
</table>

Source: KCFUG FOPs, 1995, 2001 and 2006; meeting minutes, 2009 (as viewed by researcher in 2009).

In relation to the HJCFUG, the first executive committee which was formed in 1998 had 11 members. In 2009, the total number of committee members was still 11, with four positions reserved for women. However, 10 committee members (90%) were selected from the upper caste; whilst only one member (a male) was from the lower caste (see Table 6.3). All four female committee members came from wealthy households, after having been selected by influential committee members. The inclusion of females on the committee was mandatory, in accordance with the provisions of the existing guidelines, and instructions from the DFO. Table 6.4 shows the composition of the HJCFUG executive committee, according to wealth.
Table 6.3 Composition of the HJCFUC (by caste and gender)

<table>
<thead>
<tr>
<th>Period</th>
<th>Upper caste</th>
<th></th>
<th>Middle caste</th>
<th></th>
<th>Lower caste</th>
<th></th>
<th>Total</th>
<th></th>
<th>Grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>Total</td>
<td>M</td>
<td>F</td>
<td>Total</td>
<td>M</td>
<td>F</td>
<td>Total</td>
</tr>
<tr>
<td>1998-2001</td>
<td>11</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002-2006</td>
<td>11</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2007-2009</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>4</td>
<td>32</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

**Note:** M – Male and F - Female

**Source:** HJCFUG Forest Operation plans, 1998, 2002 and 2007; fieldwork, 2009 (as viewed by researcher in 2009).

Table 6.4 Composition of the HJCFUC (by wealth categories)

<table>
<thead>
<tr>
<th>Period</th>
<th>Very poor</th>
<th>Poor</th>
<th>Medium</th>
<th>Rich</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td></td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>1998-2001</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>2002-2006</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>2007-2009</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>1</td>
<td>44</td>
<td>61</td>
<td>106</td>
</tr>
</tbody>
</table>

**Source:** HJCFUG Forest Operation plans, 1998, 2002 and 2007; fieldwork, 2009 (as viewed by researcher in 2009).

In 2009, the SDCFUC was comprised of four members from the upper caste, six from the middle, and one from the lower caste. There were four female and seven male representatives on the committee (see Table 6.5). A few of the respondents in the SDCFUG said that their lack of involvement, regarding decisions being made in relation to the local community forest (CF), occurs because of their lack of education. They said that the more educated members, who are able to read and write, are able to read the minutes of the meetings, and that this ability therefore makes them more capable of making decisions. One respondent said that he was asked to join the CFUC, but declined because he is illiterate, and therefore regards himself as not being suitable for the job. This reflects the traditional hierarchical structure in Nepalese society where lower castes, poor or uneducated people are regarded as being unable to participate in decision-making processes. This also illustrates the impact that rural poverty tends to have, regarding the exclusion of poor and disadvantaged members of each CFUG.
Table 6.5 Composition of the SDCFUC (by caste and gender)

<table>
<thead>
<tr>
<th>Period</th>
<th>Upper caste</th>
<th>Middle caste</th>
<th>Lower caste</th>
<th>Total</th>
<th>Grand total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  F Total</td>
<td>M  F Total</td>
<td>M  F Total</td>
<td>M  F Total</td>
<td></td>
</tr>
<tr>
<td>1998-2000</td>
<td>3 1 4</td>
<td>6 3 9</td>
<td>0 0 0</td>
<td>9 4</td>
<td>13</td>
</tr>
<tr>
<td>2001-2002</td>
<td>4 2 6</td>
<td>5 2 7</td>
<td>0 0 0</td>
<td>9 4</td>
<td>13</td>
</tr>
<tr>
<td>2003-2004</td>
<td>2 2 4</td>
<td>7 2 9</td>
<td>0 0 0</td>
<td>9 4</td>
<td>13</td>
</tr>
<tr>
<td>2005-2006</td>
<td>3 1 4</td>
<td>6 2 8</td>
<td>1 0 1</td>
<td>10 3</td>
<td>13</td>
</tr>
<tr>
<td>2007-2008</td>
<td>4 1 5</td>
<td>3 4 7</td>
<td>1 0 1</td>
<td>8 5</td>
<td>13</td>
</tr>
<tr>
<td>2009-onward</td>
<td>3 1 4</td>
<td>3 3 6</td>
<td>1 0 1</td>
<td>7 4</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19 8 27</strong></td>
<td><strong>30 16 46</strong></td>
<td><strong>3 0 3</strong></td>
<td><strong>52 24 78</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: M – Male and F- Female

**Source:** SDCFUG Forest Operation plans, 1998, 2001 and 2006; fieldwork, 2009 (as viewed by researcher in 2009).

Table 6.6 shows the composition of executive committee of the SDCFUG by wealth categories.

Table 6.6 Composition of the SDCFUC (by wealth categories)

<table>
<thead>
<tr>
<th>Period</th>
<th>Very poor</th>
<th>Poor</th>
<th>Medium</th>
<th>Rich</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998-2000</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>2001-2002</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>2003-2004</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>2005-2006</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>2007-2008</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>2009-onward</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0 3 27</strong></td>
<td><strong>48</strong></td>
<td><strong>78</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** SDCFUG Forest Operation plans, 1998, 2001 and 2006; fieldwork, 2009 (as viewed by researcher in 2009).

Although involvement by women and lower caste members, on all three executive committees of the study group CFUGs, has marginally improved, the data indicate that there is still disproportionate representation of upper castes on the committees. The general members of the CFUGs are still ignorant regarding the guidelines and compliance provisions in relation to the inclusion of women and poor people on those committees. Most of the elites and upper caste people, of which the executive committees are comprised, know the provisions regarding the inclusion of women and poor members, but are reluctant to implement them. In addition, heavy household work and general labour cause the majority of women and poor members of the CFUGs to be excluded from participating in meetings and the decision making process.

The elite members are also reluctant to share power. So, they are not interested in providing opportunities for women and poor members of their CFUGs to participate on committees.
One of the lower caste women of the HJCFUG confirmed that women and poor members are being excluded generally. She said that:

“...all is still not going as well as one may think. Women, poor people, and lower caste members, in particular, are still excluded in relation to decision making, as well as the benefit sharing process regarding community forestry. We are only invited by CFUC members to meetings when foreigners and new visitors are going to be present; otherwise we are completely excluded” (KBR19, November, 2009).

Although women are involved, regarding the use of forest resources, their participation in both CFUGs and on executive committees is limited. One of the Dalit women members of the KCFUG said that the:

“...lack of female participation on the committee, or decision-making body, not only denies our needs and interests, but it also deprives us of our rights regarding community forestry. The major constraints, regarding our participating in decision making and the benefit sharing process, include lack of availability of time, the increased household and farm work burden, and lack of opportunities and supportive interventions...” (CHI23, October 2009).

Inequitable representation of women and poor members impedes the full benefits of community forestry. The distribution of CF benefits favours the local elite. One of the female members of the SDCFUC described female representation on the existing CFUC in these terms:

“...I am one of four female members on the CFUC. We do not really understand our FOP because we cannot read and write. So we just vocally express what our needs and interests are. But the male members do not listen to us; and they ignore our roles in relation to decision-making and the benefit sharing mechanism of community forestry” (SIN9 October 2009).

It has been observed that wealthy and elite male members of the executive committees in all three CFUGs are not in favour of women being included in the decision making process. One of the elite male members of the SDCFUC said:

“...women are best at carrying out household chores that men cannot do. Women do not know about the existing policies and provisions regarding our FOP. So, they just sit and listen. They cannot keep any sort of account of what is happening, and are neither able to record any minutes of the meetings, nor write progress reports. Men can do these things better. We have kept the women’s names in the samiti
During my field observations I observed that women, poor people and Dalits are the major forest users. So, they have important roles to play in relation to the sustained management of forest resources. However, because of social attitudes (e.g., that women should not go to community meetings; and that women and Dalits should not speak in front of men and VIPs) and low literacy levels, they are virtually confined to carrying out household or similar chores.

6.2.1.2 Community participation in protection and management of community forests

In principle, CFUG members should bear the costs, equally, so that the community forest is properly protected and developed. So, in addition to the payment by each household of a CFUG membership fee, every member is expected to take an active part in the general assembly; participate in forest patrolling on a rotating and voluntary basis (or contribute cash or the equivalent to pay for forest watchers); and be involved in other obligatory activities in accordance with decisions made by the CFUG. Increased community participation not only enables resources to be used in a sustainable way, but also brings people together in order that forest resources be properly protected and developed.

In the past, one of the causes of deforestation and degradation of government-managed forests was the lack of participation by people, and the irrational use of forest resources. One senior forestry professionals of the MFSC explained how important local participation is, and the reasons that people should participate in forest protection and management:

“...community forestry is much better. In the past, the government was not able to properly protect forest resources. Before the commencement of community forestry in 1978, the government was not able to convince people of the significance of forest management, regarding their day to day livelihoods. Local people were not really obtaining any benefit from government-managed forestry. That’s why they were not participating in the protection and management of the forests. If people don’t obtain any real benefit from forest resources, then why would they participate in relation to the management of those resources?” (CNTL3, December, 2009).

The household survey; focus group discussions; and in-depth interviews with key informants, have revealed that CFUGs are protecting their forests by making sure that there
is no unauthorized tree felling, poaching of wildlife, shifting cultivation, encroachment, overexploitation of forest products, and unregulated grazing (if it is permitted in any way). About 91 percent of respondents to the household survey (n=138) were satisfied, regarding the participation of women and poor people in relation to the protection and management of community forests. However, about eight percent of respondents did not express any clear view in relation to increasing or decreasing the amount of participation regarding the implementation of community forestry (see Table 6.7).

Table 6.7 Perception of CFUGs regarding participation of women and poor members in forest protection and management (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>7</td>
<td>92</td>
<td>1</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>9</td>
<td>89</td>
<td>2</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>8</td>
<td>92</td>
<td>0</td>
</tr>
<tr>
<td>Overall</td>
<td>8%</td>
<td>91%</td>
<td>1%</td>
</tr>
</tbody>
</table>


The research findings suggest that although the participation of women and poor people in forest protection and management is increasing, those people are not benefiting sufficiently from the utilisation of community forests (see 6.4.1).

My field observations indicate that the participation of CFUG members has, in fact, become primarily an investment for the future, and has little to do with their immediate problems. The CFUGs are still failing to achieve their objectives regarding active community participation, and the implementation of their FOPs for the optimum use of forest products. Therefore, there is suboptimal use of forest resources.

Community participation regarding forest fire control

A provision as to how forest fire is to be controlled is included in the documentation for each study group CFUG. Figure 6.4 shows the average number of days contributed on a voluntary basis by members of each of the study area CFUGs for forest protection and fire control.
In the KCFUG, the average number of ‘person days’ contributed for fire control is higher than it is in the other two CFUGs. The Chairperson of KCFUG says that the reasons are that: (a) there has been a rapid increase in the number of users’ households because of migration from other villages (there is a provision in the FOP that the occupants of each and every household should participate in both preventive and curative measures regarding forest fire), and (b) the forest is relatively large and is located in the Inner-tarai subtropical region where there is a relatively dry and humid climate during the months from December to May. That is the fire hazard season for Shorea robusta broad-leaved trees. Because of the very high risk of forest fire during the dry season, the KCFUG have built five-metre wide fire lines. The community participation in relation to this is considerable. The occupants of the member households are regularly involved in clearing fire lines every year during the fire hazard season. In addition, a fire fighting group which is comprised of twenty members, namely five forest guards, 12 men and 3 women, is formed before each fire season each year.

When compared to the KCFUG area, both the HJCFUG and the SDCFUG areas are relatively small in size, and CFUG members only have to look after small patches of community forest in isolated hilly areas. Both CFUGs have built fire lines which are three metres wide. The members of those two CFUGs are regularly mobilised and clear strips of land in the forests so that any fire can be prevented from crossing over from one section of forest to another. The respondents of both CFUGs have commented that the maintenance
of the fire lines, and regular patrolling of the forests, are sufficient for controlling any outbreak of fire. So, they have not formed special fire fighting units such as that which the KCFUG has.

Although there had been a fire in the Shreechhap Deurali Forest in 2008, the damage was minor, because forest users had brought the fire under control in time. The CFUG members have found that their fire lines are very effective, regarding the spreading of fire from one section of the forest to another. Streams, forest roads, and block boundaries also act as forest lines in the community forests.

Respondents in all three CFUGs have said that the major cause of fire before the handover of the forests was the lighting of fires by forest users to encourage fresh shoots of grass. Sometimes fires were lit by children just for fun. However, the number of forest fires has reduced since the formation and establishment of the CFUGs. The villagers gave up setting fires when the CFUGs decided to enforce rules regarding the protection of their forests. In relation to all three CFUGs, there are provisions in their FOPs for the protection of community forestland. Respondents have indicated that there are three main methods whereby forest can be protected. These are: (a) the use of employed forest watchers, (b) patrolling by users, and (c) everyone follows the rules, regarding protection.

In relation to the KCFUG area, patrolling, by members and forest guards on a rotational basis, has been adopted. Up to eight CFUG members are involved in daily patrolling, depending on the seasons and situations. Five forest guards are employed by the CFUG to patrol the forest. Users are required to patrol many times each year, depending on the seasons. One respondent said:

“... before the handover of Kankali Forest to us, it was the government’s responsibility to protect this forest... after the handover it is now our community forest,... and the strong sense that it is our forest is increasing. So nowadays we are more conscious regarding the protection, management and development of it. We are always ready to patrol the forest to ensure it is protected from fire and illegal activities...” (CHI12, October, 2009).

The office records of the HJCFUG and SDCFUG show that two paid forest watchers were employed by each CFUG for the first five years after the forests had been handed over. Thereafter, a patrolling system on a rotational basis has been in practice, whereby the occupants of two or three households are involved in daily patrols. Patrolling of the forests
in this way is effective because all CFUG members are involved, and are aware of the situation regarding their forests. The number of people who are involved in rotational patrolling is fixed according to the area of forestland to be patrolled. The users have a strong urge to protect the forests. So that motivates them to do rotational patrolling even if they are pressed for time. Fire, poaching, grazing, unauthorised harvesting and encroachment are therefore kept under control. Because the forests are protected by members of the CFUGs, the condition of the forests has improved. So, the forestland is now covered with pine trees and natural regeneration of broad leaf species (Appendices 15.1 and 15.2).

My field investigations indicate that of the three CFUGs, the SDCFUG is the most conscientious, regarding the protection of the forest. It seems that nobody in that group has any intention of seeing the forest damaged. Hence the forest in that area is protected from illegal activities, despite the fact that no special forest watcher has been appointed since 2007. It is an indication that community awareness has increased; as well as a sense of belonging regarding the forest.

In summary, protection is the first aspect, regarding forest management. Prevention of encroachment, poaching of wildlife, grazing, fire, and unauthorised harvesting occur because of conscientious activity by the CFUG. The adopted protection systems are largely effective. This indicates that the CFUGs are capable of carrying out protective activities. However, in some circumstances, an insufficient amount of forest, unclear forest policy, lack of time for members to participate in forest patrolling, and lack of awareness and knowledge, have caused problems regarding forest protection (there is more information regarding this in Section 5.5.1).

6.2.1.3 Community access to forest products

The majority (80%) of elite (rich and upper caste) members of the CFUGs interviewed, claim that the handover of the forests to the local communities not only helps create a favourable environment for local involvement in forest protection, but that it also helps to increase forest accessibility for poor and disadvantaged people, so that they can make use of forest products in accordance with the approved forest operation plans. Those elite members point out that community forests are no longer fully controlled by the government, or elite, and rich people, but are owned by members of the rural community,
including poor and disadvantaged people, irrespective of their socio-economic backgrounds.

The Chairperson of the FECOFUN of Kabhrepalanchok District said that the:

“...initiation of community forestry has helped to create a favourable environment regarding the protection of forest resources by local people. It has also helped poor and disadvantaged people to have greater accessibility to the forests, so that they can use forest products as per their approved forest operation plans”. (KBR4, November 2009).

However, about 64 percent of the total respondents of the household survey (especially very poor and poor people) have not seen any improvement, regarding equity and social justice issues, in their CFUGs (see Table.6.8). The respondents have defined equity as being ‘the equal representation of marginal groups (especially women, poor people and Dalits) regarding decision-making, the distribution of forest products, and investment of CFUG funds’. Only 36 percent of the respondents of the household survey believe that the involvement of poor people and women is improving, or that poor people are provided with enough forest products such as fuelwood for cooking, heating and lighting; and fodder for their cattle. Thirty two percent of respondents have said that there has been no improvement regarding equity; and another 32 percent did not know if people of very low socio-economic status are benefiting much from community forestry. Thus CFUGs have not been able to address the equity issue adequately, in relation to the implementation of the community forestry program.

Table 6.8 Perceptions of equity in community forestry by CFUG members (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>28</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>40</td>
<td>37</td>
<td>23</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>28</td>
<td>34</td>
<td>38</td>
</tr>
<tr>
<td>Overall</td>
<td><strong>32%</strong></td>
<td><strong>36%</strong></td>
<td><strong>32%</strong></td>
</tr>
</tbody>
</table>


Although natural resource management has long-term benefits, it can create hardship for poor and marginalised people. Often the economic and cultural rights or interests of people are ignored by elite individuals, and even by government officials. During an in-depth interview, the Founder Chairperson of FECOFUN claimed that environmental resources
conservation is not only an international issue, but that these resources are controlled by elite environmentalists.

In addition, the Founder Chairperson said:

“...it is obvious that keeping more forest or biodiversity, when there are many rural people with empty stomachs, does not make much sense. Before the handover of the forests to the local communities, the rich, the elite and powerful people used to hoard government-owned forestland as private property. Whilst they were making personal use of the forest resources, poor and disadvantaged people could not get access to forest resources easily. They had to depend on decisions by elites or powerful people as to whether they could obtain limited amounts of forest products. Poor and disadvantaged people should be able to obtain equitable benefits, regarding their community forests.” (CNTL6, December 2009).

In commenting further on the equity and social justice issues regarding community forestry, the Chairperson of FECOFUN said:

“...illiterate people have been virtually blindfolded because of a lack of education and awareness; and this is why they are not able to stand up for themselves, regarding their community forestry rights. This is a misleading aspect of community forestry. People of all socio-economic backgrounds should be made aware of their rights and duties. Only then is it possible for equity and social justice issues to be addressed, regarding decision making and benefit sharing.” (CNTL5, December 2009).

During an interview, one of the DFO Chitwan respondents reported that one major difference in household economic status is that there are different needs regarding forest products for members of the group. Although most households are largely dependent on subsistence farming, there are substantial differences regarding the landholdings of the richest and poorest. The DFO respondent said:

“...poor people in reality do not need timber because they can’t afford to build houses. What they need is small amounts of wood or bamboo for the construction of sheds; fuelwood for cooking and for keeping them warm in winter; fodder for their cattle; and fruits, medicinal plants and other non-timber forest products. In most cases, elite and rich people don’t place a lot of attention on the development of non-timber forest products; but concentrate instead on the production of timber and fuelwood”. (CHI1, September 2009).

The Kami community, which is predominantly comprised of blacksmiths, makes agricultural tools with the aid of charcoal fuelled fires. Traditionally, charcoal wood
collection from the forests by the Kamis has been free, on the understanding that the Kamis’ blacksmith services benefit local communities.

The Forest Act 1993 and Forest Regulations 1995 provide each CFUG with certain rights, on condition that the groups manage the local forest in accordance with government policies. However, although the legislation grants local forest users certain rights, irrespective of political boundaries, it does not include any special provision regarding the needs of groups such as the Kamis. None-the-less, the existing Community Forestry Guidelines contain special provisions regarding the supply of forest products to specific forestry based occupational groups. That is also mentioned in the FOP and constitution. However, there is no provision in the FOP of the SDCFUG regarding the supply of charcoal. Below (in Box 6.1) is the story of one Kami respondent.

**Box 6.1 Kami involvement in the rural community**

| SIN13 is a male respondent of the SDCFUG, and is, by caste, a ‘Kami’ (blacksmith). He traditionally belongs to a forest dependent occupational group. He claims that he and other Kami people are playing a key role in relation to the economic development of the community, by making and repairing via the use of traditional methods agricultural tools that are indispensable for mountain farming. The Kami provide low cost services regarding these tools. Although the respondent is providing a vital service for the local people, in relation to their subsistence livelihoods, he is one of a number of socially oppressed and economically disadvantaged members of the CFUG. If he had been given an opportunity to participate in the preparation of the FOP of the CFUG, then his charcoal collection problem may have been mentioned in the FOP. However, because of his low socio-economic status in the community, he never got the chance to be involved in the preparation. |

**Source:** In-depth interview, 2009.

Most (90%) of the respondents have indicated that the government-managed forests of the past provided little in the way of socio-economic benefits to the community. More than 90 percent of respondents said that the implementation of community forestry, however, is one of the more successful programs in Nepal. None-the-less, they said that equity and social justice issues have still not been addressed adequately enough by CFUGs. They believe that provision should be made in relation to these in the constitutions and FOPs of the CFUGs, and should be enforced in order that the gap between poor and rich, and elites and general members be reduced.

**6.2.2 Capacity for development**

The capacity of CFUGs to develop local leadership and management skills, liaise with government and traders, and empower women and poor people is an important social
outcome regarding community forestry. The research shows that community forestry plays a vital role not only in relation to the management of forest resources, but also in relation to transforming social conditions in various ways (see Figure 6.5).

**Figure 6.5 Capacity for development through community forestry**

![Diagram showing the anticipated increase in capacity through community forestry]

- Enhanced skills and knowledge
- Improved literacy status
- Leadership development
- Empowerment of women and Dalits

**Source:** Adapted from information collected from FOPs and fieldwork, 2009.

Gradual changes are occurring, regarding the skills and knowledge of CFUG members to manage forest resources, and to establish forestry-based microenterprises for income generating purposes. It has been noted during the fieldwork that with the implementation of CFP, rural people have gradually begun to understand the importance of teamwork and leadership, regarding community development. The research has also revealed evidence of empowerment of women and Dalits in the CFUGs.

Interview respondents from both the CFUGs and DFO offices reported that the CFUGs have been able to invest money in forest management training, to improve the skills of their members. As CFUGs have grown in number and have assumed management responsibility, they have sought to acquire the necessary knowledge and skills regarding management.

Since the community forestry program has been implemented, various kinds of training and extension programs have been introduced. This training has included an orientation workshop, a planning workshop, forest inventory, and training in relation to management (thinning, pruning, singling, cleaning, harvesting, logging, and so on); CFUG networking; bookkeeping; gender awareness; income generation; group management; and good
governance. In addition, study tours have been conducted through the use of community funds; and technical and financial support have been provided by the respective DFO offices, NAFP (only in the HJCFUG and SDCFUG areas), and other external agencies (see Table 6.6).

A lot of effort has gone into organising and conducting this training so that the existing skills and knowledge regarding forest protection, management and utilisation can be increased. However, the data reveal that there are important differences between men and women regarding the capacity to develop; as is shown in Appendix 13.

My research has revealed that the abilities of CFUG members have increased regarding forest management. This has occurred ‘on the job’ with members contributing labour for seedling production, plantation planting, pruning and other silvicultural tending operations. Since the implementation of the community forestry program several public awareness activities have been conducted on behalf of CFUG members to improve their skills and knowledge in forest protection, management, utilisation, income generation, and community development.

6.2.2.1 Changes regarding literacy status

The results of the household survey indicate that the literacy levels in all CFUGs have increased as a result of money spent on literacy programs. Of the three CFUGs, the greatest increase in terms of literacy has occurred in KCFUG where, the overall literacy rate has increased from 56 percent to 72 percent. Next is HJCFUG, where literacy has increased from 52 percent to 70 percent (1998-2009). During the same period, the literacy rate in the SDCFUG has increased from 53 percent to 69 percent (see Figure 6.6).
Figure 6.6 Change in literacy status following the implementation of the community forestry program

![Chart showing literacy status change](chart.png)


There are a number of statistically significant differences, regarding literacy status of the selected CFUGs, before and after the implementation of community forestry. Analysis of Paired T Test showed that there is a significant difference (p<0.05) in the overall average literacy status of the members of the three CFUGs between the first year of initiation of the CFP and in 2009 (see Table 6.9).

Table 6.9 Literacy status before and after implementation of community forestry

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Test</th>
<th>Average values</th>
<th>Degree of freedom (df)</th>
<th>p-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before CF</td>
<td>After CF</td>
<td>Statistic</td>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
<td>Paired T</td>
<td>2.1</td>
<td>2.8</td>
<td>-4.7349</td>
<td>49</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>Paired T</td>
<td>1.5</td>
<td>2.6</td>
<td>-7.462</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Paired T</td>
<td>1.8</td>
<td>2.8</td>
<td>-6.0938</td>
<td>52</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>Paired T</td>
<td>1.8</td>
<td>2.8</td>
<td>-9.9479</td>
<td>137</td>
</tr>
<tr>
<td>Overall</td>
<td>Paired T</td>
<td>1.8</td>
<td>2.8</td>
<td>-9.9479</td>
<td>137</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.


Before the introduction of the community forestry program, the average literacy rate for women in all three CFUGs was 46 percent; before increasing to 65 percent by 2009. Prior
to the implementation of CF the SDCFUG had the lowest (44%) rate for women. It was followed by HJCFUG (46%); and then Kankali (48%). One of the women respondents, who has joined a female literacy class which has been arranged by the KCFUG, has commented that:

“...the main reasons that the literacy of women has increased is the literacy class run by the CFUG; and that more girls are attending nearby schools because of improvements in the local school facilities because of investment by the CFUG...” (CHI17, October 2009).

One of the Dalit female respondents of the HJCFUG has explained how important the women literacy classes are. She said:

“...most of the women who are illiterate, and who did not get any schooling during their childhood, now have an excellent opportunity to learn to read and write. The literacy program for women, which is being conducted because of community forestry developments, is not only helping women to increase their skills, regarding literacy and numeracy, but is also helping women to become empowered, and to develop leadership skills so that their socio-economic status can be improved. Indeed, the literacy program is one of the best social developments that has been brought about in our village by the community forestry program...” (KBR19, November 2009).

Another reason that the literacy rate has gradually increased in the villages is that the CFUGs have invested some of their funds in education. New primary schools have been established. Former primary schools are being upgraded to secondary schools. The utilisation of CFUG funds to support local education has been a major development. However, in all CFUGs male literacy rates are higher than females. The difference in the level of literacy is also reflected in the structure of each CFUC. The secretaries and treasurers of HJCFUG and KCFUG have been educated to middle levels (i.e., just below the equivalent of an undergraduate degree). The secretary and treasurer of SDCFUG have been educated to secondary school level.

6.2.2.2 Change regarding skills and knowledge

According to the respondents from the CFUCs and the DFO, the awareness levels of users in relation to conserving biodiversity have increased; as have their various income generating activities (such as sericulture, goat farming, and micro-enterprise development). Following the implementation of the community forestry program, the CFUGs have received training to strengthen existing skills and knowledge to support income generation. For example, upon the recommendation of HJCFUG, the MEDEP has provided support for
14 members of Dalit households to establish a community-owned iron crafts workshop with training in manufacturing and marketing of new items. The HJCFUG also presented a recommendation to MEDEP that bio-briquette production, as well as a marketing training program, be provided to the same Dalits (blacksmiths).

The SDCFUG has purchased better logging and harvesting tools. External agencies, such as MEDEP, have helped the SDCFUG to establish and develop a small Lapsi candy business. Women and poor CFUG members have been given training in relation to the processing and manufacturing of candy. Now 40 poor CFUG women are involved daily in the candy production. One of the respondents of the DFO Sindhupalchok has indicated that there have been a number of positive changes in that CFUG regarding skills and knowledge (see Box 6.2).

**Box 6.2 A DFO staff officer’s view, regarding improvements in relation to forest management**

Shreechhap Deurali CFUG has been managing the local forest effectively. The group has done this by growing medicinal and aromatic plants (MAPs), as well as bamboo, broom grass, *lapsi*, and fodder species. The members have also properly managed their pine plantation, which is comprised of a natural broad-leaved species. However, they have informed me that their forest doesn’t meet the required standards, because there is no generation gap between different species of plants there. Meanwhile, the members are continually improving their skills and management knowledge, regarding forest resources. The necessity for additional training is indicative of the positive impact that the implementation of community forestry has had. In the past, after the initial handover of the community forest, people used to request training in relation to legal procedures. But now, people ask for training in relation to forest inventory, planning, implementation, monitoring, evaluation, income generation activities, sustainable forest management, record keeping, good governance, gender analysis, and so on.

When the community forest program was being implemented, forestry field staff used to conduct forest surveys by using ruler scales, Suunto clinometers and compasses. But now users want to learn how to make use of new techniques and tools, such as GPS (Global Positioning System), GIS (Global Information System), and other modern digital concepts that can assist in relation to forest surveys and inventory. The advance in technology indicates how users’ knowledge, skills and attitudes have changed. Furthermore, the numbers of people who are working with CFUGs is increasing. In other words, CFUG networks are now operating even at international levels. These networks provide opportunities for people to discuss and find possible solutions to their common problems, as well as for sharing ideas and experiences regarding the implementation of community forestry. All of this helps to increase the capacity of CFUGs. The numbers of networking collaborations that CFUGs are involved with is a big advance. Self-reliant CFUGs are managing their community forests effectively.

**Source:** In-depth-interview with SIN2, November 2009.

About 60 percent of respondents of the household survey said that members are gradually acquiring new skills and knowledge through the implementation of the CF program (see Table 6.10). Only 25 percent of respondents said that there has been no increase regarding skills and knowledge. The respondents have asked for additional training regarding various
activities. These include record keeping, document preparation, financial management, forest management, collection procedures, and the efficient use of CFUG funds. The respondents have also indicated that any training and extension programs should be implemented with proper monitoring and evaluation.

Table 6.10 Perception of CFUG members regarding changes in relation to skills and knowledge via the community forestry program (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Don not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>15</td>
<td>65</td>
<td>20</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>20</td>
<td>70</td>
<td>10</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>10</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>Overall</td>
<td>15%</td>
<td>72%</td>
<td>13%</td>
</tr>
</tbody>
</table>


Not all respondents are satisfied with the progress regarding the acquisition of new technical skills and knowledge. They have expressed a desire to obtain further skills and knowledge through more training and extension programs. Some respondents have suggested that special training and workshop programs be set up for women and poor members, especially in remote areas. In relation to all of this, the Chairperson of the Shreechhap Deurali CFUG said:

“...we (CFUC members) are relatively better off, in having acquired some skills and knowledge. But the majority of members are still technically weak and somewhat backward. We just do not have enough resources and skilled people in order that socio-economic conditions improve...” (SIN6, October 2009).

Only a few CFUG members clearly understand how trees should be selected, regarding thinning, pruning, harvesting, and even for the production of timber and fuelwood. One of the respondents of the DFO Kabhrepalanchok has commented that:

“...skills and knowledge of CFUGs have increased because of the implementation of community forestry...over the past 15 years there has been a significant improvement regarding skills, knowledge and attitudes of people. None-the-less, the present progress is unsatisfactory, because only about 25 percent of CFUGs are fully qualified to deal with the implementation of community forestry, whilst the rest still require guardianship.” (KBR1, November 2009).

One of the respondents of FECOFUN commented on the lack of skills and knowledge of CFUGs, when compared to FOP provisions. He said:
“...my field experiences indicate that the language and tables which are included in CFUG forest operation plans almost compel CFUGs to call for assistance from Rangers, regarding forest management and harvesting. This lack of technical skill, in relation to the interpretation of provisions in plans, has further disadvantaged illiterate CFUG members, who are generally poor people, regarding their efforts to negotiate forest management as informed users and decision makers.” (KBR4, November 2009).

None-the-less, during my field work I noticed that the implementation of CFP had not only led to improvements regarding the skills and knowledge of people in the CFUGs, but that it had also led to local leadership skills being developed.

6.2.2.3 Leadership development

According to some respondents, the development of leadership skills in the local community is one of the major social changes which has occurred as a result of community forestry. This is particularly relevant to women and poor members of the CFUGs, regarding their roles in implementation of community forestry and local community development activities. According to respondents of focus groups (n=16), some of the women and disadvantaged members of the CFUGs have developed leadership skills, and can now express their views and share ideas with other members of the community; even with outsiders. Those women are aware of their roles and responsibilities regarding the implementation of their FOPs.

One of the women respondents of HJCFUG, who occasionally attends the CFUC meetings, said that her self-confidence, regarding speaking in front of men, has increased. She said:

“... I know many men in our CFUG feel embarrased if women argue against their plans at the samiti (executive committee) meetings. Previously, I was afraid to attend the meetings and speak in front of men. My face used to turn red, and I was scared when I spoke in front of them. But now I feel better. I can sit and listen to them easily. I don't have any problem expressing my views, or discussing any issue which is raised at a meeting.” (KBR6, November 2009).

As government forestry and FECOFUN staff have explained, the community forestry program is regarded also as being a leadership development program because it helps people increase their understanding of the importance of teamwork and local leadership regarding community development. Some CFUG members are interested in becoming involved in local or national politics. They are affiliated with different political parties,
such as the United Nepal Communist Party (Maoist), the Nepali Congress, the Nepal Communist Party (United Marxists and Leninists), and the Rastriya Prajatantra Party.

The Deputy Director General of the DOF said:

“...before the implementation of CF, women, poor people and Dalits were not able to speak and share their views with males or elite persons in their community. They had no idea what to say, or how to say anything in front of those other people. However, after the implementation of the CF program, and because of the ongoing CF process, they have become empowered, and have benefited through various community forestry training programs and workshops, so that their leadership skills have developed. They can now express their views and share ideas with other members of the community; and even with outsiders. So community forestry has made people more confident in relation to leading their community. Consequently, some CFUG members are now interested in becoming involved in local or national politics as well.” (CNTL2, December 2009).

None-the-less, 15 percent of the respondents to the household survey do not regard community forestry as having produced any improvement regarding local leadership (see Table 6.11). Those respondents believe that change regarding leadership occurs only because of political movements in the country. About 10 percent of the respondents expressed no view, regarding leadership development via community forestry.

Table 6.11 Perception of CFUGs, regarding leadership development through the implementation of community forestry (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>5</td>
<td>85</td>
<td>10</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>10</td>
<td>75</td>
<td>15</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>15</td>
<td>65</td>
<td>20</td>
</tr>
<tr>
<td>Overall</td>
<td>10%</td>
<td>75%</td>
<td>15%</td>
</tr>
</tbody>
</table>


According to the respondents of group discussions, women sometimes find it difficult to express their views in a meeting about certain issues when older members of their families are putting forth different opinions. The women tend to discuss issues after such meetings, and not during them. This occurs because of strict social norms which prevent women from openly expressing their views. One female member of the SDCFUC said:

...we (women) in the committee meetings are the listeners rather than the talkers. I don’t know what to say, or how to discuss issues in meetings when my opinion differs from that which is expressed by senior men there.” (SIN10, October 2009).
My field observations indicate that since the implementation of community forestry, leadership skills of CFUG members have been gradually developing, but that progress is confined to the elite people. In relation to the poor and disadvantaged members, local leadership skills have not been sufficiently developed.

6.2.2.4 Empowerment of women and Dalits

The implementation of the community forestry program is important for the empowerment of women and poor people. It is also having the effect of increasing their capacity to (a) function socially rather than as passive subjects; (b) manage resources; (c) make decisions; and (d) take control whenever necessary so that their lives are not adversely affected. About 90 percent of the respondents in the household interviews have reported that there is an increasing trend for women and Dalits to become empowered, regarding the management and development of community forestry (see Table 6.12).

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>10</td>
<td>88</td>
<td>2</td>
</tr>
<tr>
<td>HICFUG</td>
<td>8</td>
<td>89</td>
<td>3</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>3</td>
<td>92</td>
<td>5</td>
</tr>
<tr>
<td>Overall</td>
<td>7%</td>
<td>90%</td>
<td>3%</td>
</tr>
</tbody>
</table>


According to local government forestry staff (one female and 12 male respondents via in-depth interviews), the level of participation by, and empowerment of, women and poor people, in relation to forest protection and management, are gradually increasing. Almost 95 percent of the DFO respondents have reported that women and poor members of the CFUGs have been asked to participate in the CF process, and that some are now interested in contributing to the management and development of community forests. The DFO respondents have also reported that women and poor people are aware of their rights regarding participation in the decision making, as well as in the benefit sharing.

In relation to the empowerment of women, one respondent from the Central Office of FECOFUN reported that:

“...many CFUGs in the different districts of Nepal have women chairpersons on their CFUCs. Women who are involved in the CF program are also elected to the VDC bodies, and even to the National Constituency Assembly of Nepal. Furthermore, several women are
working effectively as managers, as well as environmental and social activists, and change agents, contributing to the rural community development process.” (CNTL5, December 2009).

None-the-less, more than 95 percent of the female respondents of group discussions (n=63) have said that although women play important roles regarding the implementation of community forestry at a grass roots level, there is not enough recognition of their contributions to rural communities. Women in the CFUGs, as in most other places in Nepal, take a lower social position than men. The disparity between men and women varies from one caste to another, and within the same caste. This gender inequality, which is reinforced by strict political and cultural structures, leads to women having limited opportunities to contribute to the implementation of CF, and other development activities such as decision-making.

One of the poor women respondents of the HJCFUG said:

“...I don’t understand anything about community forest policies and the roles and rights of women and Dalits regarding decision making and benefit sharing. Nobody comes here to tell us about these things. We feel that we are a lower class...it seems that my lone voice or even those of a few of us cannot make a difference...they [Executive members] don’t care what we think. Therefore it is unwise for us to express our opinions.” (KBR8, November 2009).

This is unjust, and the knowledge and abilities that women possess are not being utilised so that objectives can be achieved; and so that there can be effective evaluation regarding sustainable socio-ecology. So the participation of women should be regarded as being a separate issue regarding CF.

About 95 percent of the respondents of in-depth interviews with CFUG members, FECOFUN representatives and government forestry staff, claim that before the implementation of CF people who were clever, and who could speak up, were not helping the illiterate, the ignorant, the poor people, and the women. One female respondents of the HJCFUG said that:

“...before the implementation of community forestry, women were limited in terms of what they could do. I could not go to any public meeting alone. If this was the tradition in the village, and a woman went alone, then people would start talking. So, I had to respect the village tradition. I couldn’t say anything in front of other people...But now we have a literacy class; and so we women can express our opinions at the CFUG meetings...” (KBR19, November 2009).
According to the respondents of the in-depth interviews of general members of the CFUGs, and of women’s focus group discussions, the literacy rate of women in the study areas is improving, and the participation of women and poor people, in relation to the implementation of CF, has been increasing.

After the CF program was implemented, and, as a result of their engagement in the CF process, women and poor people have increasingly become empowered, and have benefited through literacy classes. Training programs have helped them, regarding the development of leadership skills. So now they are able to express their views and share ideas with other members of the community; and even with outsiders. Women and disadvantaged members are aware of their roles and responsibilities regarding community forestry and local development activities. Thus community forestry has made people more active and confident, in relation to taking the lead in their community.

To show how valuable the contributions of community forestry have been, regarding the change in status of women in the KCFUG, one female respondent on the executive committee said that:

“...I would say that the community forestry program is effective, regarding rectifying the effects of gender inequality, because various training activities and women’s literacy classes now exist. Community forestry is helping women to increase their level of awareness. Consequently, they are interested in becoming involved in the community forestry process, as well as in other community development activities in our village...” (CHI18, October 2009).

In 2009, women made up about 50 percent of the residents in the three study sites. However, only 65 percent of those women were literate, and the literacy rate was six percent less than that of men. Moreover, because of the low level of female literacy, and the effects of the traditional patriarchal system in society, men still dominate decision making. The data in Tables 6.13 show the roles of women, regarding decision making at a household level, before the implementation of the community forestry program.
Table 6.1 Decision making roles (in terms of percentages) of women in the household, before the implementation of community forestry (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>House construction (%)</th>
<th>Land selling/purchasing (%)</th>
<th>Children's education (%)</th>
<th>Migration (%)</th>
<th>Use of hospital service (%)</th>
<th>Family planning (%)</th>
<th>Overall (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>45</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>46</td>
<td>47</td>
<td>43</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>40</td>
<td>30</td>
<td>35</td>
<td>30</td>
<td>40</td>
<td>40</td>
<td>36</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>35</td>
<td>30</td>
<td>35</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td>Overall</td>
<td>40%</td>
<td>32%</td>
<td>37%</td>
<td>35%</td>
<td>40%</td>
<td>42%</td>
<td>38%</td>
</tr>
</tbody>
</table>


The data in Table 6.14 indicate that the decision-making roles of women have increased. Women play important roles in relation to maintaining a subsistence household economy. They spend most of their time attending to household chores, agricultural matters and animal husbandry. The household activities of women include cooking, cleaning, taking care of children, fetching drinking water, and collecting fuelwood and fodder from the forest. Women are also involved in all agricultural work, except ploughing. Female activities which are related to animal husbandry include the feeding of cattle, and the cleaning of their sheds. On the basis of data collected during household surveys, I found that women work 15-18 hours a day - double that of males.

Table 6.14 Roles of women regarding the household (in percentage terms), after the implementation of community forestry (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>House construction (%)</th>
<th>Land selling/purchasing (%)</th>
<th>Children's education (%)</th>
<th>Migration (%)</th>
<th>Use of hospital service (%)</th>
<th>Family planning (%)</th>
<th>Overall (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>53</td>
<td>54</td>
<td>55</td>
<td>50</td>
<td>55</td>
<td>55</td>
<td>54</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>50</td>
<td>55</td>
<td>50</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>52</td>
<td>50</td>
<td>55</td>
<td>40</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Overall</td>
<td>52%</td>
<td>53%</td>
<td>53%</td>
<td>45%</td>
<td>52%</td>
<td>52%</td>
<td>51%</td>
</tr>
</tbody>
</table>


One woman respondent of the KCFUG said that:

“...although the community forest is now protected, the availability of forest products has increased, and so the collection time regarding firewood has been reduced significantly. However, stall feeding of cattle (as a result of a strict ban on grazing in the forest) has increased my workload. In addition to this, I have to look after my four children and my mother-in-law. She is now 70 years old and cannot take care of herself. My normal day starts as early as 5am, and continues until 11pm, in relation to all household chores and farm work.” (CHI23 October 2009)
None-the-less, the data have indicated that nearly 50 percent of women still have no role regarding decision making in their households. Furthermore, women hold very little in the way of private property, including jewellery and animals such as goats and chickens. Furthermore, child marriage still occurs in Nepal. In fact, it is still commonly practiced in the HJCFUG and SDCFUG areas. The involvement of women in either politics or social services is virtually non-existent.

However, as major users of community forest resources, women could be effective also as managers of those resources. But because of gender norms, as well as low literacy levels, women are primarily restricted to carrying out household activities. Despite their traditional involvement in the use of natural resources, the participation of women in groups, and on committees regarding community forest management, is minimal. Therefore, allowing women to have equal participation in the executive committee might not only ensure that women’s needs are met, but that there is sustainable management of forest resources.

The lower caste people (Dalits) occupy about 10 percent (226) of the total number of households in the study area. Of the total number of Dalits, Kamis form 53 percent, Sarkis make up 22 percent, and Damais form 19 percent. Other Dalit groups make up the remaining 6 percent. The Dalits possess small parcels of land (generally less than 0.5 ha); but the average number of occupants in their households is larger (5.8 per household) than the average number of people in the households of other castes.

Although constitutionally every citizen has equal rights in Nepal, the condition of lower caste people in the study area, and in the other hill and Inner-tarai districts is appalling. One of the Dalit respondents of the SDCFUG said that:

“...the caste system creates social stratification and an unequal social hierarchy in our village. It also suppresses lower caste users, regarding access to community forest resources and involvement in management decisions...” (SIN13, October 2009).

The Dalits are still economically deprived, politically backward, and harassed by people who believe in the caste system. So, Dalits are disadvantaged both socially and economically, and are regarded as being one of the most disadvantaged groups in the rural communities of the study areas. Social stratification and limited employment opportunities have resulted in their present socio-economic plight and backwardness. The poorest of the poor people in the three case study areas are comprised largely of Dalits. Moreover, 80 percent of Dalits in the study areas are in that poorest group.
Although many of those people remain in their caste-based and service-oriented traditional occupations (e.g., iron work, jewellery making, tailoring and so on), as well as agricultural work, they receive a very low return for their efforts, which is insufficient for their basic needs to be met. The occupants of most Dalit households (90%) cultivate rich people's land for their income, because most Dalit land is not large enough to enable the owners to support themselves for a whole year. Every year many people from this group leave the district, and even go to foreign countries (mainly India) in the hope of finding seasonal jobs. As has been reported by the respondents of group discussions, other important reasons for the backwardness of the Dalit community are modernisation and industrialization, which have caused most of their caste-based occupations to become redundant. Dalit people are largely unable to make up for the loss.

Office records of the CFUGs indicate that after the community forestry program had been implemented, some Dalit members received training and had been involved in workshops, in order that they become more aware of their rights and responsibilities. My field observations indicate that although no estimate can be provided as to when caste disparities may be eradicated, the gap between Dalits and non-Dalits needs to be narrowed through socio-political awareness. The situation in all three CFUGs remains the same, following the implementation of community forestry. Traditional caste discrimination prevails, even in public places such as teashops, grocery stores, and so on.

In addition, the community forestry program could play a vital role, regarding resolving problems of Dalits, and improving their socio-economic conditions. Such changes could begin to occur via Dalit participation in decision making and benefit sharing. My field work observations indicate that changes, regarding the status of women and Dalits, should occur not only so that members know their rights and duties, but also so that they can communicate with staff in government departments in order that their rights be protected.

### 6.2.3 Social network formation

As a result of community forestry, new opportunities have arisen regarding the planning and development of local communities. While not looking in great detail at the complex concept of social capital, for the purposes of this research, social capital includes establishing intra and inters community linkages through social networks, whereby social cohesion is enhanced.
This research finds that social capital is one of the most important socio economic outcomes in the study areas. The CF program has helped to produce a system of networks and trust relationships which enable communities to address common problems. The potential benefits of increased social capital include community involvement in forest management and development, community development, income attainment, good governance, and the reduction of rural poverty. Greater social cohesion will hopefully provide an environment in which CFUG members can interact with each other.

6.2.3.1 Social cohesion within CFUGs

Social cohesion refers to trustworthiness within a CFUG. It appears that social cohesion can be developed through the CF group process. During focus group discussions, the respondents seemed to welcome improved social cohesion and trustworthiness, regarding the CFUGs (see Box 6.3).

**Box 6.3 Some indications that there is improved social cohesion in the CFUGs**

- help and support have been provided in emergencies,
- members of the groups are perceived to be closer than they were before the implementation of CF,
- cooperation between members has increased,
- mutual trust between different members has increased,
- the gap between various groups of people (in terms of sex, caste/ethnicity, income, religion, origin, education, political party) has narrowed,
- people have learned from each other,
- unity has had a strengthening effect,
- contacts with external agencies have increased,
- transparency, regarding the use of forest products and funds, has increased, and consequently there has been a reduction in corruption regarding community forestry

**Source:** Focus group discussions, 2009.

According to interview respondents social cohesion in all three CFUGs has increased because of the implementation of CF; given that community related problems and issues can be discussed during CFUG meetings. Respondents have spoken about CFUG meetings as being the time to discuss local problems. Some people have said that CFP has helped not only to reduce conflicts between forest users, but also reduce conflicts between the local community, the DFO and other government authorities. During the focus group discussions, 65 percent of participants (n=121) reported that the implementation of CF has also helped reduce conflicts regarding the utilisation of forest resources.

One of the female respondents of the KCFUG said that:
“...community forestry is helping to reduce conflict amongst members, and now we feel that there is more social cohesion, and networks...we are learning how to build a team for the betterment of the CFUG and...also working hard as a team...in a transparent and trustful manner...this situation is helping to improve relationships amongst the members, and to increase social cohesion in the CFUG.” (CHI17, October, 2009).

In addition, FECOFUN representatives, and respondents who are executive members of the CFUGs, have said that the CF program is helping to prevent corruption to some extent, when compared to the earlier government-managed forestry system. Because CFUGs enforce strict rules and regulations, their forests are being protected from timber smugglers and overexploitation. The CFUGs plan for a range of local needs to be met; for local living standards to be improved; and for poverty to be alleviated through the implementation of the CF program.

According to the principles of community forestry, CFUGs are apolitical institutions. Hence the implementation of CF should help increase social cohesion in the community, regardless of political views. As one of the respondents of the DFO Chitwan said:

“...rural people belong to different political parties. They may have different political perspectives and views, but the CFUG is a common forum whereby all of these political ideologies and views can be accommodated, and where all members can unite for the management and development of their forest resources, as well as the implementation of local community development projects...” (CHI1, September 2009).

However, the influence of politics at the local level is different. One of the male Dalit respondents of the KCFUG said that:

“...the selection of executive members of the KCFUG is influenced more by local politics. The election is generally held every three years. That process is mostly influenced by political parties in such a way that representatives of minor groups are usually not included on the main committee; and so elites are selected for most of the committee posts.” (CHI22, October, 2009).

Although community forestry is not regarded as being a perfect way by which social cohesion can be achieved, this program has made enormous contributions towards improving social cohesiveness amongst members of the CFUGs. Whereas, in the past, people were not given opportunities and appropriate amounts of time to express their views at meetings, which caused conflicts to arise regarding the carrying out of communal work,
planning now takes place without conflict, because there is harmony regardless of caste and gender. People are now given equal opportunity to express their views. Some of the executive committee respondents have agreed to participate in the protection, management and utilisation of the community forest, in accordance with the approved constitution and FOP. This indicates that CF is assisting to build cooperation amongst community members. However, social cohesion, in relation to the CFUGs, is still limited.

My field observations indicate that social cohesion is mainly developing within toles. So CFUG meetings could be arranged by tole representatives. Social cohesion, whereby local toles could come together, may be one of the better ways by which community development could occur.

6.2.3.2 Social networks of each CFUG

The results of my field work indicate that social networks have been developed in the three rural communities via the community forestry program. The majority (90%) of the in-depth interviewees believe that establishing networks through government-managed forestry programs may be virtually impossible. Community forestry acts like an umbrella organisation or conduit, in that it provides various social services in rural areas. One DOF senior forestry official said that:

...by comparison to the past, community forestry is playing a key role regarding increasing linkages between CFUGs and various governmental and non-governmental institutions ... (CNTL1, December 2009).

All three CFUGs have established networks with various government offices in order that services be provided for their members (see Figures 6.7, 6.8 and 6.9). For example, all CFUGs remain in close contact with forestry offices such as the District Forest Office, the Ilaka (Area Forest Office), and the Range Post, regarding legal and technical assistance in relation to forest management and development. Other Government offices, such as the District Agriculture Office, and the Agriculture Service Centre help the CFUGs to obtain technical assistance so that they can cultivate a range of fruits, vegetables and other crops; as well as control pests and prevent diseases.

The District Livestock Development Office, and Livestock Service Centre, work with CFUGs in relation to providing technical assistance, not only so that new varieties of fodder and new breeds of livestock can be produced, but also so that there can be effective
treatment of sick livestock. Village Development Committees also collaborate with CFUGs in relation to local community infrastructure development, such as the building of rural roads, schools, drinking water facilities, and electricity facilities. Most of the local NGOs and GOs, which implement programs with community participation, have established networks with CFUGs.

Social network established by KCFUG

Of the three CFUGs, the KCFUG has the strongest connections with various organisations. The KCFUG has connections with the Institute of Forests, WWF Nepal, the government forestry offices, and Seed Tree (a district level NGO). These connections not only enable technical support to be obtained regarding forest management and development, but also information and experiences to be shared, and the potential contribution of community forestry in relation to the livelihoods of local people to be discussed.

The linkages with other CFUGs provide more opportunities for issues to be discussed and resolved. When executive members of the KCFUG learned that some members of the Amritdhara CFUG were collecting firewood from the Kankali forest, they went and discussed this with the executive committee of that CFUG, and resolved that issue. The KCFUG also works with the District Soil Conservation Office, and with the Chainpur Village Development Committee, regarding the construction of small dams, and a water conservation pond in the village. According to the DFO Chitwan, Amilepani Range Post is responsible for providing forestry management services for the KCFUG. But the capacity of this office is limited by insufficient numbers of forestry field staff.
Social network established by SDCFUG

The SDCFUG has established strong links with local NGOs and microenterprise development agencies, regarding that CFUG’s income generating activities. For example, Enterprise Development Program (MEDEP), and Sindhu Development Centre, work with the SDCFUG, and provide technical and financial support for the establishment of forest-based microenterprises (e.g., Lapsi candy), and the marketing in Banepa and Kathmandu of finished products such as candies, juices and pickles. Samaj Rupantaran Saving and Credit Cooperative Ltd was established in 2008 via a SDCFUG investment, to provide loans to members for income generating activities such as poultry production, livestock development, vegetable gardening, and candy making. By July 2011, the cooperative had 300 shareholders - most of whom are SDCFUG members.

The SDCFUG has very strong links with neighbouring CFUGs. The SDCFUG has invited the chairpersons of the neighbouring CFUGs to the general assembly meetings of the SDCFUG since 2006, in order that experiences be shared and conflicts be resolved. Furthermore, the neighbouring CFUGs have shared their experiences regarding the implementation of community forestry with the SDCFUG.
Social network established by HJCFUG

By comparison with the other two CFUGs, the HJCFUG is the weakest in terms of having links with other organisations. Although the HJCFUG is a member of the district-level FECOFUN, this unit has not provided any significant amount of support regarding the implementation of community forestry in the HJCFUG area. This CFUG has conducted a few activities with the help of other organisations. For example, the District Education Office approved the HJCFUG’s plan regarding the construction of school buildings in the village. The HJCFUG has also worked with Tukucha Nala VDC in relation to the Nala-Ghimire Gaon rural road project.

**Source:** Derived from researcher’s field data, 2009.
Source: Derived from researcher’s field data, 2009.

All respondents of both household and in-depth interviews regard social networks as being important, especially in terms of help being provided regarding the lending of money, or the supply of goods and services. CF can be regarded as being a major form of decentralized and participatory forest management, because of its association with the creation of robust institutions, extensive national coverage, reliable history, and importance regarding local livelihoods. One of the respondents of the FECOFUN central office said that:

“... I believe that the establishment of social networks not only helps to provide links with CFUGs’ members’ households, but it also helps in relation to various NGOs and Government agencies providing services for rural communities. It is quite difficult to establish these sorts of networks via other sectors.” (CNTL5, December 2009).

As has been reported by 80 percent of respondents of the in-depth interviews, the benefits that flow as a result of social networks being created are that:

- new information is provided about resource management,
- new opportunities arise, in relation to obtaining benefits from different agencies and from new expanded markets; and
- confidence and trust among partners increase.
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6.2.3.3 CFUGs’ networks

CFUGs can develop their own networks through cooperatives, and through other entities. The study areas’ CFUGs have indicated that they are prepared to go beyond forest protection and management, so as to have vital roles in relation to community development planning. They can do this through various networks and linkages so that conflicts can be resolved; ideas and experiences can be shared; resources and techniques can be made available; and planned activities can receive support. As has been reported by 93 percent of the respondents of the CFUCs in the study areas, networks have been emerging in those areas (see Table 6.15). According to in-depth interviewees, this is because of the inability of Range Post staff to provide a sufficient enough level of support for the fast-growing needs and aspirations of the CFUGs.

Table 6.15 Perception of CFUGs regarding their networks (n=138)

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>8</td>
<td>90</td>
<td>2</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>6</td>
<td>94</td>
<td>0</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>2</td>
<td>95</td>
<td>3</td>
</tr>
<tr>
<td>Overall</td>
<td>5%</td>
<td>93%</td>
<td>2%</td>
</tr>
</tbody>
</table>


According to the Chairperson of the Central level FECOFUN (CNTL5), the FECOFUN is assisting some of its members in relation to the preparation and implementation of good quality constitutions and FOPs, in order that these can become models for CFUGs in other districts. CFUG members are becoming increasingly active in relation to networking, and they have established very good networks with local government and non-government organisations. Every year the CFUGs renew their membership with FECOFUN, and that helps them to increase their networks with other CFUGs, and to speak in favour of CF in terms of the benefits it produces. Networking is helping CFUGs, in that their rights regarding ownership and benefits are being widely discussed.

Although FECOFUN is helping to strengthen user groups in order that poverty of local people can be reduced through forest resource management, FECOFUN is also working as a satellite organisation at national and international levels. Furthermore, FECOFUN provides training for facilitators. Twelve to thirteen CFUG facilitators are currently working in the Sindhupalchok District. They have good skills and knowledge regarding CF management, and so they are able to help CFUGs establish networks; whilst reviewing existing CFUG constitutions and FOPs.
The former Chairperson of the Central FECOFUN commented that:

“…the FECOFUN, which is a network of CFUGs in Nepal, helps to unite all user groups and to establish networks, from the local grassroots level to national and international levels, via the sharing of information and leadership skills. In addition, rural community members are working on the CFUCs, and the CFUGs are playing significant roles in relation to rural socio-economic development, and the sustainable development of forest resources.” (CNTL6, December, 2009).

As has been reported by a FECOFUN respondent in Sindhupalchok (SIN5), not all CFUGs become members of FECOFUN. Sometimes it is difficult to convince CFUGs to apply for membership. Despite the existence of CFUG networks, the majority of members of the studied CFUGs have not been aware of the existence of those networks. None-the-less, they feel that their CFUGs need to develop links with supporting agencies in order that help can be received whenever it is required. The FECOFUN respondent has also explained that FECOFUN has a limited number of staff members and resources. So, its staff are unable to reach CFUGs which are in very remote areas.

6.2.3.4 Caste based networks

A caste-based social network is customary practice, whereby there are relationships even between high-caste and low-caste households. Such networks still exist in the study areas, as well as in other areas of Nepal.

*Damai* (tailors), *Sarki* (c Cobbler) and *Kami* (blacksmiths) are examples of low-caste residents in the study sites. In all CFUGs, low-caste residents have low economic status. Many of the lower caste respondents in the KCFUG and HJCFUG areas are *Dalit* people. They hold meetings where discrimination, and special privileges for *Dalits*, are discussed. Cultural events are also arranged. Some of the *Dalit* respondents have indicated that they feel as though they belong to a community of like-minded people when they participate at *Dalit* group meetings.

A few of the interviewed occupants of *Dalit* households said that there were conflicts in the villages now and then, but that these are quickly resolved. One said that:

“...the social relationship is now going really well. It is a lot better than what it used to be. Now there is a sense of belonging amongst the members. The community forest program is acting as a catalyst, whereby there is a feeling of unity amongst the different members of
The occupants of lower caste households who have been interviewed regard social networks as being important, especially during times of need when money can be borrowed, or food can be acquired on credit. Yet, according to several of the respondents, not all of the villagers are willing to help, unless they lend money at high interest rates.

6.3 Economic outcomes

Improvements in forest resources include a number of intangible benefits, such as greater tree cover and an improved hydrological effect. The amount of forest product harvesting has increased in all of the study area CFUGs. The economic outcomes of community forestry are summarised in Figure 6.10. The main source of income for CFUGs is the sale of forest products within, and outside, the CFUGs. CFUG funds are being utilised in relation to income-generating and local community development, activities.

The supplies of timber and non-timber forest products, which can be obtained by virtually all members of the different wealth groups, vary from one CFUG to another and even from one household to another. Forest products which are suitable for soil nutrient management (e.g., leaf litter for making compost) have generally improved. However, because there has been little in the way of a deliberate strategy implemented so that the supply of these products can be increased, any improvements regarding supply are well below potential economic outcomes.

Figure 6.10 Economic outcomes of community forestry

Source: Adapted from information collected from FOPs and fieldwork, 2009.
6.3.1 Forest utilisation

Forest utilisation refers to the harvesting of both wood and non-wood forest products. The FOPs indicate that the main products which are to be harvested include timber, fuelwood, grass, fodder and leaf-litter. However, other products such as medicinal herbs are also harvested. The CF users collect various forest products during different seasons. The supply of those products depends on their availability and on the level of dependency of users in the different wealth groups (see Table 6.16).

<table>
<thead>
<tr>
<th>Forest products</th>
<th>Mode of user requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuelwood</td>
<td>Daily but weekly/monthly (small dry branches of trees) or seasonal collection (large size)</td>
</tr>
<tr>
<td>Fodder/orage/grass</td>
<td>Daily but seasonal collection</td>
</tr>
<tr>
<td>Leaf-litter (bedding materials)</td>
<td>Daily but seasonal collection</td>
</tr>
<tr>
<td>Timber</td>
<td>Seasonal once a year</td>
</tr>
<tr>
<td>Small timber, pole</td>
<td>Seasonal once a year</td>
</tr>
<tr>
<td>Other non-timber forest products</td>
<td>Seasonal and as per availability</td>
</tr>
</tbody>
</table>

**Source:** Fieldwork, 2009.

Forest utilisation involves systematic harvesting of forest products, as prescribed by the FOP, but in such a way that the forest is least affected.

6.3.1.1 Timber

As has been mentioned above, CFUGs manage their community forests so that a variety of forest products can be harvested. Timber, which is one of the most important products, is used as construction material (it can be in the form of poles, or sawn timber), and for making agricultural implements. For these reasons, timber is always in demand, and CFUGs make provision in their FOPs for timber to be extracted regularly from their community forests, in order that the needs of users be met.

An examination of the FOPs and annual progress reports of the study area CFUGs indicates that all three CFUGs have made provision for timber to be extracted from their community forests. The data in Table 6.17 show the quantities which have been harvested since those three CFUGs were registered. There is provision in the FOP of each CFUG for a certain amount of timber to be harvested annually; but that amount of timber is rarely extracted.
The records of the CFUGs indicate that the quantity of timber which is harvested varies from one year to another.

Table: 6.17 Average annual quantity of timber harvested by the CFUGs (volume in cubic feet)

<table>
<thead>
<tr>
<th>FOP*</th>
<th>Average annual quantity of timber prescribed in the FOPs</th>
<th>Average annual quantity of timber harvested</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KCFUG</td>
<td>HJCFUG</td>
</tr>
<tr>
<td>FOP1</td>
<td>5505</td>
<td>1600</td>
</tr>
<tr>
<td>FOP2</td>
<td>6780</td>
<td>7050</td>
</tr>
<tr>
<td>FOP3</td>
<td>7020</td>
<td>11050</td>
</tr>
<tr>
<td>Total</td>
<td>19305</td>
<td>19700</td>
</tr>
</tbody>
</table>


The reason that the average annual quantity of timber harvested is different from that which is prescribed differs in each CFUG area. KCFUG has extracted the most timber since the handover of forests in 2009. HJCFUG is next, in terms of the amount of timber extracted; followed by SDCFUG (see Table 6.13, and Figure 6.11).

In relation to KCFUG, surplus timber was auctioned to outsiders for a couple of years after the community forestry program had been implemented. Thereafter, timber sales to outsiders stopped because of the increased demand for timber within the KCFUG. Furthermore, there were fewer mature trees each year, because member households have been increasing rapidly as a result of the migration of people from various hill areas and other parts of the Chitwan District and their occupants have been constructing new buildings and infrastructure.

Although the numbers of member households have not been increasing as rapidly in the HJCFUG and SDCFUG areas, the average annual harvesting, regarding timber, has been increasing none-the-less. The main reason has been the preference by those two CFUGs to sell timber to outsiders, rather than to their own members, in order that more earnings be acquired.
Although the amount of timber which is harvested annually differs from one CFUG to another, the average amount of timber extracted annually has gradually been increasing, from the time that the handover of the forests occurred until the end of 2009. The records show that after the FOPs of HJCFUG and SDCFUG had been revised for a second time, provisions were incorporated into those FOPs whereby timber could be sold every year to outsiders at a higher price than that which had been fixed for CFUG members (see Figure 6.12).

This has helped the two CFUGs to increase the amounts of money in their funds considerably. The increase in volume of harvested timber has occurred not only because of improvements regarding the management of the forests, but also because the two CFUGs had intended to increase the amounts of money in their funds as well. In recent years both CFUGs have harvested more timber than they had in the years immediately following the handover of the forests. However, the quantities of harvested timber in all of the studied CFUG areas are still below the prescribed annual allowable amounts.

When the community forestry program was first implemented in the study areas, only a few members of the CFUGs knew how to cut down trees; and only a few were able to measure the volume of felled trees. In the absence of such knowledge, CFUGs either requested the assistance of area Rangers regarding the measuring trees and logs, or they relied on a visual estimate when selecting trees for felling. The estimates were generally many times lower than the volumes actually felled.

One of the respondents of the DFO Chitwan said that community forestry is still unable to meet household demands for timber; other forest products; income; and the livelihoods of people in need. However, the respondent said that in some areas, where the government-funded community forestry project has been implemented, a livelihood improvement program is being considered so that poor people and women can be assisted. However, that program has not yet been implemented.

The respondent said that:

“...although community forest operation plans, in general, are focused on forest management and community development activities, they still lack provisions regarding household level functioning within the community forestry process. Although there are provisions in many
forest operation plans, regarding the selling of forest products at relatively cheap prices, to users, when compared to the prices of forest products prior to the handover of the forests, the current prices are still too high for poor and disadvantaged members of the CFUGs. So how can we claim that CFUG members are obtaining forest products at reasonable prices so that household demands can be met?” (CHI2, September 2009).

Although the bio-physical condition of the forests has gradually been improving, after the implementation of community forestry, the information in Table 6.18 indicates that community forests are still incapable of supplying enough quality timber, in order that household demands of members be met.

<table>
<thead>
<tr>
<th>CFUGs/categories</th>
<th>Before implementation of CF</th>
<th>After implementation of CF (in 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KCFUG</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMAD per HH (cft) (%)</td>
<td>3 (100)</td>
<td>4 (100)</td>
</tr>
<tr>
<td>TMAS from forests (cft) (%)</td>
<td>2 (67)</td>
<td>3 (75)</td>
</tr>
<tr>
<td>TMAS from private land (cft) (%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>HJCFUG</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMAD per HH (cft) (%)</td>
<td>6 (100)</td>
<td>10 (100)</td>
</tr>
<tr>
<td>TMAS from forests (cft) (%)</td>
<td>3 (50)</td>
<td>5 (50)</td>
</tr>
<tr>
<td>TMAS from private land (cft) (%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>SDCFUG</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMAD per HH (HL) (%)</td>
<td>4 (100)</td>
<td>8 (100)</td>
</tr>
<tr>
<td>TMAS from forests (cft) (%)</td>
<td>2 (50)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>TMAS from private land (cft) (%)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total average TMAD (cft) (%)</strong></td>
<td>4 (100)</td>
<td>7 (100)</td>
</tr>
<tr>
<td><strong>Average TMAS from the forests (cft) (%)</strong></td>
<td>2 (54)</td>
<td>5 (73)</td>
</tr>
<tr>
<td><strong>Average TMAS from private land (cft) (%)</strong></td>
<td>-</td>
<td>5 (40)</td>
</tr>
</tbody>
</table>

**Note**: HH: Household, cft: Cubic feet, TMAD: Total mean annual demand; TMAS: Total mean annual supply. The figures in parentheses indicate ‘percentages’. The supply of fuelwood includes both large and small amounts.

**Source**: Researcher’s household survey, 2009.
Before community forestry was implemented, local poor and disadvantaged people could obtain access to timber, fuelwood, fodder and leaf-litter in local forests free of charge, whenever they needed them. None the less, with relatively poor forest conditions only a limited quantity of forest products was available. After the CF handover, there have been significant improvements in forest condition and biodiversity. So local people are now benefiting in lots of different ways, as a result of those improvements.

However, the timber consumption habits of the occupants of wealthy households differ from those of occupants of poor households. Respondents in group discussions have said that occupants of wealthy households use more timber for construction purposes than the occupants of very poor, poor and medium income households’ use. Rich people can spend money much more readily on construction than occupants of very poor and poor households can. So although the price of timber which is harvested from the community forests is low compared to the price in the local markets, very poor and poor households cannot afford to buy timber even at the lower price. So, most of the benefits regarding the low price of timber go to the occupants of medium and rich households.

The research has found that for the first five years after the handover of the forests, HJCFUG and SDCFUG did not harvest the amounts of timber that were specified in their first FOPs. This occurred because the DFOs did not allow those CFUGs to sell timber outside their districts, even though the Forest Act 1993 permits the transport and sale of timber anywhere inside the country. However, the DFO staff have explained that the government regulation at that time was being applied in a limited sense, so that any sale of timber occurred only within the district where the timber had been harvested, because district needs had to be dealt with first.

None-the-less, this apparent contradiction regarding government legislation somewhat discouraged CFUGs from becoming seriously involved in forest management until 2002. My findings regarding timber utilisation suggest that the government policy in relation to the transport and sale of timber may have prevented CFUGs from realising the full potential of their forests earlier. The acquisition of appropriate knowledge and skills, regarding (a) estimating the volume of standing and felled trees; (b) sawing timber efficiently; and (c) properly estimating the total tree stock in the forest, has a significant effect in relation to the optimal utilisation of timber, and the sustainable management and development of the forest [see Chapter 7].

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6.3.1.2 Fuelwood

The main cooking fuel in the study areas is firewood. Of all the forest products, fuelwood is the most essential item for people in the study areas. Firewood is needed for cooking and heating because there is no alternative energy source available for the majority of people in those rural areas. So, CFUGs make provision in their FOPs for the harvesting of fuelwood. Overall, 94 percent of households in the study areas use firewood as their main cooking fuel (Table 6.19). This is followed by LPG/Biogas (2%), kerosene (2%), bio-briquette (1%), and others (1%). However, for occupants of households which are located away from the forest (e.g., in Jyamire hamlet, in Kankali) it is more efficient to use LPG/biogas. Some of the local teashops can afford LPG or biogas.

**Table 6.19 Distribution of households in terms of main fuel used for cooking (in %) (n=138)**

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Fuelwood (%)</th>
<th>Kerosene (%)</th>
<th>LPG/Biogas (%)</th>
<th>Bio-briquette (%)</th>
<th>Others* (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>91</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>96</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>97</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Average</td>
<td>94%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Other fuels include electricity, bio-gas, coal/charcoal and other categories.

**Source:** Researcher’s household survey, 2009.

My field observations indicate that the average annual household quantity of fuelwood, which is collected from the community forests in the three study areas, has increased in recent years (see Table 5.20). Furthermore, the overall demand, by households, brick factories, tea shops, restaurants, and so on, for forest products generally, is high. The population in the study areas has continued to grow. So has the number of forest product dependent enterprises, such as brick/tile kiln operations, restaurants, and so on. As long as the demand for fuelwood remains, one could not expect firewood sellers to disappear from the markets.

In the past, before community forestry was implemented, it was virtually impossible for one to find firewood near villages. So, in all three study areas, users had to walk a long way and spend a considerable amount of time collecting just a headload of fuelwood.

One of the poor *Dalit* respondents of the KCFUG said that:

“…before the handover of the forest, we had to go very far away to get fuelwood. It used to take from dawn until dusk to get even a bhari (headload) of fuelwood. It was very troublesome. Now we don’t have to
worry so much about collecting fuelwood and other forest products so that our household needs can be met. As a member of the CFUG, I can go to the forest to collect small amounts of dry fuelwood on the first five days of every month. I can collect grass every day of the year. Therefore, I am happy to see the socio-economic benefits of community forestry in our village.” (CH16, October 2009).

Many of the respondents in the three study areas have expressed views similar to that of the respondent above. So those people are in favour of the community forestry program being implemented. In the past, all three forests were managed by the government’s DFOs, and so local people didn’t even have legal access to fuelwood for their daily needs. Community forests, as the primary places for collecting firewood, are common in rural areas. However, occupants of richer households are more likely to collect fuelwood from both their own land and the local community forest, whilst occupants of poorer households rely on community forests, and anywhere else they can find firewood.

Whilst there is provision in the FOPs of the HJCFUG and SDCFUG for a certain number of headloads (HL) of fuelwood to be extracted from the community forests each year, there is no such provision in the FOP of the KCFUG. In relation to the KCFUG, a headload of fuelwood refers to small pieces of wood that cannot be used for construction purposes. The data shown in Table 6.19 indicate the average annual quantities of fuelwood collected from the forests by occupants of different income households before and after the implementation of community forestry.

All CFUGs in the study areas allow the free extraction of small amounts of dry fuelwood. But no records are kept, regarding that fuelwood extraction. Thus the figures in the table are only estimates, which have been provided by respondents during the household survey. Virtually none of the occupants of very poor households in the study areas has ever bought fuelwood in the form of timber offcuts from the CFUG depot, because it is very expensive, and poor people cannot afford to buy it. Therefore poor people are entirely dependent on collecting small amounts of dry fuelwood, because its extraction is free at certain times.

KCFUG allow small amounts of dry fuelwood to be collected on the first five days of every month. But even so, approximately 40 percent of the respondents of the household survey are not satisfied with this provision; and they want to be able to collect free fuelwood from the forest three days a week. However, the executive committee has indicated that it would not be possible to open the forest for that period of time because there are not enough people available to monitor the collection of fuelwood three days a week, in order that the collection not have a negative effect on forest resources and the habitat of wild animals.
Because SDCFUG and HJCFUG allow their members to have free access more often to small amounts of dry fuelwood, more damage has been done to their forests than has been done in the Kankali forest area. Although it is stipulated that only trees which have no timber or fodder value are to be used in relation to fuelwood collection, many other trees have been lopped or cut for fuelwood. Despite this damage to the forests, only a few users have ever been penalised for not following the rules, because it is difficult to detect people damaging trees in those large forests.

Table 6.20 Fuelwood collection by different categories of users (n=138)

<table>
<thead>
<tr>
<th>CFUGs/categories</th>
<th>Before implementation of CF</th>
<th>After implementation of CF (in 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TMAD per HH (HL) (%)</td>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
<td>Very poor (100)</td>
<td>Poor (100)</td>
</tr>
<tr>
<td></td>
<td>Medium (100)</td>
<td>Rich (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very poor (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rich (100)</td>
</tr>
<tr>
<td>TMAS from CF (HL)</td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td>TMAS from private land (HL)</td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
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<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>TMAD per HH (HL) (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td>TMAS from CF (HL) (%)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td>TMAS from private land (HL)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>TMAD per HH (HL) (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td>TMAS from CF (HL) (%)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td>TMAS from private land (HL)</td>
<td>(100)</td>
</tr>
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<td></td>
<td></td>
<td>(100)</td>
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<td></td>
<td></td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(100)</td>
</tr>
</tbody>
</table>

Note: HH: Household, HL: Head load (50kg), TMAD: Total mean annual demand; TMAS: Total mean annual supply. The figures in parentheses indicate ‘percentages’. The supply of fuelwood includes both large and small amounts.

The average annual intake of fuelwood from community forestland for each household ranges from 63 headloads (which is 95% of a very poor household’s annual requirement) to 75 headloads (which is 79% of a normal household’s requirement). The occupants of wealthier and medium households tend to have sufficient quantities of fuelwood on their own farmlands; whilst most poor people depend on community forestland for their domestic needs [see Appendices 15.1 and 15.2]. In the study areas, the supply of fuelwood from community forestland varies from one CFUG to another.

In all three study areas, the large fuelwood harvest is regulated. Virtually all of the supply is now provided via pruning and thinning activities, even though pruning and thinning were not properly carried out during the five year period that followed the implementation of the community forestry program. Subsequently, members of the CFUGs in the study areas have become involved in forest management training programs which have been organised by the DFOs and CFUGs. In addition, thinning and pruning exercises are conducted every year in their forests. These activities have helped CFUG members increase their skills, as well as their knowledge regarding community forest management.

Respondents from all CFUGs in the study areas have indicated that because very poor and poor users do not possess enough private land and trees, virtually all poor and very poor users rely on community forests to provide enough fuelwood to meet their annual requirements. However, the fuelwood requirements of the rich and medium income users are met from both community forests and private land. I have observed during my fieldwork that general users in all CFUGs are unaware as to how fuelwood can be used most effectively. More intensive management of community forests may be required, in order that there be an increase in the amount of fuelwood available.

6.3.1.3 Grass, fodder and leaf-litter

Grass, fodder and leaf-litter are other forest products which are utilised by CFUG members. These products are needed so that domestic animals, upon which farming depend, can be fed and maintained. Whilst grass and tree fodder are fed to the animals, leaf-litter is used as bedding material, especially for cattle. The bedding is later combined with manure so that fields can be fertilised. Hence, CFUGs regard these products as being equally important; and there are provisions in the FOPs so that these products can be properly harvested. Because grass and leaf-litter are free for users to collect from the forest, no records are kept regarding those products. The figures in Table 6.21 are estimates, which are based on the
recollections of respondents. Prior to the community forestry program being implemented, the forests were under the control of government DFOs. But there were not enough DFO staff available to visit the forests every day in order to protect them. The local people were not involved at that stage in the protection of forests. Although grazing and unauthorised harvesting of trees were illegal, heavy grazing, illicit felling, and intentional fires occurred. Those activities damaged not only the timber and fuelwood species of trees, but they also destroyed large areas of grass, fodder and leaf-litter as well.

Obviously, this situation led to a scarcity of these products; and the daily needs of the local people could not be met by the limited supplies that the forests provided. Respondents have reported that very poor and poor people suffered as a result of the shortage of those forest products. It was difficult for those people to find alternative ways of feeding their cattle. Although the forests were not able to meet the requirements of all households, most of the medium and rich people were able to collect grass and fodder from their private land so that they could feed their cattle and goats.

After the community forestry program had been implemented, local people became involved in the protection, management and development of forest resources. Grazing has now been banned in the community forests, and forestlands are now protected from virtually anything that might damage them. So, natural regeneration of various species of palatable grass and fodder occurs, and as a result, cattle and goats can be properly fed.

Table 6.2 shows that KCFUG utilises the greatest amounts of grass, fodder and leaf-litter. According to DFO staff, the reasons that more of these forest products are available in the KCFUG area are that there is a larger community forest there, as well as sub-tropical broad-leaved vegetation. My field observations have revealed that fodder trees, such as Saj (*Terminalia tomentose*), Tanki (*Bauhinia purpurea*), Harro (*Terminalia chebula*, and Barro (*Terminalia bellerica*), have been badly affected in the forests, because they have been excessively exploited.

Although the Kankali CFUG has tried to improve fodder production by temporarily banning its harvesting, there has been no appreciable increase in the number and growth of fodder trees yet. However, the cultivation of various other species, such as mulberry (*Morus rubra*), napier grass (*Pennisetum* sp), broom grass (*Thysanochaena maxima*), and native grasses such as Dubo (*Cynodon dactylon*) and Siru (*Imperata cylindrica*), has been helpful to supply additional forage for livestock.
Both HJCFUG and SDCFUG have planted pine forests, namely the local broad-leaf species. Those two CFUGs have attempted also to increase the amount of fodder production in their community forests and on private land. They have done this by encouraging the natural regeneration of native fodder species, as well as by planting multipurpose trees such as Khahniyu (*Ficus semicordata*), *Artocarpus lakoocha*, *Litsea*, *sp.*, *Ficus auriculata* and *Terminalia chebula*. They have also planted molasses grass (*Melinis minutiflora*), broom grass (*Thysanichaena maxima*), and napier grass (*Pennisetum sp.*).

**Table 6.21 Average annual demand and supply of grass/fodder per household (n=138)**

<table>
<thead>
<tr>
<th>CFUGs/categories</th>
<th>Before implementation of CF</th>
<th>After implementation of CF (in 2009)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>KCFUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very poor</td>
<td>Poor</td>
</tr>
<tr>
<td>TMAD per HH (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td>TMAS from CF (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(76)</td>
<td>(41)</td>
</tr>
<tr>
<td>TMAS from private land (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3)</td>
<td>(25)</td>
</tr>
<tr>
<td></td>
<td>HJCFUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very poor</td>
<td>Poor</td>
</tr>
<tr>
<td>TMAD per HH (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td>TMAS from CF (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(73)</td>
<td>(75)</td>
</tr>
<tr>
<td>TMAS from private land (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(27)</td>
<td>(25)</td>
</tr>
<tr>
<td></td>
<td>SDCFUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very poor</td>
<td>Poor</td>
</tr>
<tr>
<td>TMAD per HH (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td>TMAS from CF (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(94)</td>
<td>(83)</td>
</tr>
<tr>
<td>TMAS from private land (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(17)</td>
</tr>
<tr>
<td></td>
<td>Total average TMAD (HL) (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td>Average TMAS from CFs (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(80)</td>
<td>(67)</td>
</tr>
<tr>
<td>Average TMAS from the private land (HL) (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(20)</td>
<td>(33)</td>
</tr>
</tbody>
</table>

Note: TMAD: Total mean annual demand; TMAS: Total mean annual supply

The figures in parentheses are percentages.

Table 6.2 indicates that the average annual amount of leaf-litter, which is used by all categories of households, has increased after the implementation of the community forestry program. However, the needs of different wealth groups vary, even from one CFUG to another.

Table 6.2  Average annual quantity of leaf-litter (in HL) collected by occupants of the different income households of the CFUGs (n=138)

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Before community forestry (quantity in HL)</th>
<th>After community forestry (quantity in HL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very poor</td>
<td>Poor</td>
</tr>
<tr>
<td>KCFUG</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>43</td>
<td>46</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>Total average</td>
<td>39 HL</td>
<td>41 HL</td>
</tr>
</tbody>
</table>

Note: 1 HL (Headload) =50kg.


The overall quantities of grass and fodder in the community forests have increased since the forests were handed over. None-the-less, in relation to the HJCFUG and SDCFUG areas, the amounts of grass and fodder which come from forestland is gradually decreasing, compared to the quantities that come from private land. The respondents of those two CFUGs have said that because both forests are comprised of pines, the extent of canopy cover discourages the natural regeneration of grass underneath the trees. Furthermore, a ban, which has been placed by those two CFUGs on the cutting of tree fodder, is contributing to the decrease regarding the amount of fodder available on forestland.

Various forest products are collected from forestland by the different wealth groups in the community. Up to 68 percent of respondents in the different wealth groups have said that they are collecting fuelwood from the CF. Up to 30 percent of respondents in the different wealth groups have indicated that they are collecting grass. In relation to timber harvesting, up to 25 percent of respondents have said that they are benefitting. But they are predominantly from the higher wealth groups. Other forest products, such as charcoal, bedding materials, resin and sal leaves are collected by all wealth groups.
6.3.1.4 Control mechanisms, regarding the collection and distribution of forest products

A review of the existing FOPs of the three CFUGs indicates that all of them contain control mechanism provisions for the collection and distribution of forest products. The CFUCs have a first-come-first-served system, regarding forest products. Each user pays a fee. This ranges from NRs 5 (about seven US cents) in Shreechhap Deurali, to Rs 10 (about 14 US cents) in the KCFUG and HJCFUG areas. None-the-less, the prices of forest products are kept low so that the occupants of each household have access to the benefits which are produced by community forestry. Some products can be harvested from the forest free of charge at any time of the year.

The maximum amount of each forest product that can be acquired by each user is fixed, so that the occupants of a wealthy household cannot purchase a very large quantity of one or more products, thereby preventing access by other users. For example, in relation to timber, the HJCFUG has fixed a ceiling of 100 cft per household at Rs 40 (about US$ 0.53) per cft. Users who are professional carpenters can get an additional 100 cft, but they have to pay Rs50 (about US$ 0.67) per cft for that additional timber. However, that is the maximum amount of timber that a professional carpenter can buy per annum in that CFUG area.

However, there is provision in the FOP of HJCFUG for the supply of up to 150 cft of timber at free of cost to any CFUG member who has suffered from a natural calamity, such as a fire, a flood, or a landslide that has either damaged or destroyed that member’s house.

Poor and disadvantaged users can get up to 100 cft of timber by paying only Rs 35 (about US$ 0.47) per cft. However, in reality, none of these options, for which there are provisions in the FOP of HJCFUG, has ever been used. If a member of a CFUG wants to use timber outside the village, then he or she has to pay the price that a non-member pays for that timber. That effectively means that the member has to place one or more bids for the timber via an auctioning process. One respondent said:

“...as a member of Kankali CFUG, I went to the CFUG’s office in Jestha (May-June) last year to submit an application for 40 cft of log timber so that I could construct my house in Bharatpur (the District headquarters) by paying no more than NRs 319 per cft, which is the rate that each CFUG member normally pays for timber. However the CFUC rejected my application, and declared that members who need timber from the community forest to build houses outside the CFUG area have to compete in the normal bidding process. So I ended up
paying NRs 400 per cft, which is very expensive for me.” (CHI13, October, 2009).

However, there is no limit regarding the quantity of fuelwood that can be purchased by anyone. That may have something to do with the availability of it because of the silviculture operation. CFUCs not only control the amounts of forest products which are available to households, but they also try to be fair regarding the distribution of those products.

After the CFP is implemented, the forest is managed according to the CFUG constitution and FOP. CFUG members are always looking for new ways to acquire income, and gain access to new markets. Selling surplus timber or fuelwood is the main source of income for any CFUG. In the past, before the handover of the forest to the local community, there was virtually no incentive to market any forest product, because there were no legal provisions regarding a local community harvesting and supplying one or more of those products.

There are several legal steps involved in any auction process. However, auctions regarding timber are virtually auctions in name only, because contractors have enormous influence in relation to the marketing of timber. Indeed, the trading of timber in virtually any district is unfair because contractors, forestry staff, and elite members of CFUCs benefit from that trading. Respondents argue that transparency and fair trade are essential, in order that CFUGs acquire the maximum benefits from community forestry.

One respondent said:

“...we had 500 cft of surplus pine timber to sell at the local market. We needed to get approval from the DFO to sell that timber. For this purpose we went to Janagal Rangepost. The Ranger told us not only to measure the timber accurately again, but also to bring documentation of the CFUC’s approval, so that the timber could be sold outside the CFUG area. We subsequently went to the Rangepost with the requested document. Then the Ranger told us to submit the audit report for the last fiscal year. We went to the Rangepost again with the audit report, but he was not there. The Rangepost was closed. So we went to the DFO and talked to staff there about what had been occurring. Finally, the DFO staff gave us approval to sell the timber.” (KBR17 November, 2009).

6.3.1.5 Marketing of forest products

Respondents who have been involved in the trading of forest products have said during the interviews that markets for those products are often poorly organised, and thus perform
suboptimally. Prices can be very unstable, and can vary according to the quality and quantity of the products. Furthermore, prices fluctuate because of the influence of major traders, government forestry policy, and seasons. Major traders have great influence, not only over CFUC members, but also over government staff, because of bribery or politics. Although the existing government policy encourages the sale of surplus timber and fuelwood by auction, this process is rarely put into practice. Sometimes money is paid to elite CFUC members and forestry staff by the buyer so that the buyer can get what he wants at a price which is acceptable to him.

One such buyer said:

“…we, the local forest products traders who tend to buy timber from community forest CFUGs, have close personal relationships with executive members of committees — especially with chairpersons, secretaries and treasurers — and we also speak frequently with forestry officials. A large number of these interactions take place on a personal basis outside the officially allocated times. We are always under pressure to convince committee members and forestry officials to release more timber from community forests. Many executive members and forestry officials have corrupt motives. Most of the corruption and abuse, by authorities, forestry officials, and community leaders, involves illegal harvesting of, and trade in, timber.”  (CHI6, September, 2009).

Of the NTFPs, there is quite a high demand for Lapsi, bamboo and medicinal plants, at both the local level, and on international markets. People sometimes earn good money by selling various forest products that are produced on their own land. However, on the basis of in-depth interviews with forest product sellers, it is evident that market conditions seldom enable such traders to achieve high profits.

As has been indicated by the DFO staff of all three districts, the marketing of community forestry products is unpredictable because CFUG members do not have the bargaining power to set the prices to obtain the full economic benefits from the sales of those products. Most of the current trading is unfair because the benefits are reaped mostly by powerful traders who not only have a monopoly, but who also deal unethically with some of the elite members of the executive committees of the CFUGs. Furthermore, local forest product sellers have said that availability, quality and quantity of the different types of forest products are other factors that influence price. As a result of all this, it’s virtually impossible to rely on some sort of equation regarding price for any forest product, especially in relation to the local markets. Another reason for the fluctuation in prices is the degree of demand in the various international markets, especially in relation to China and
India. CFUGs do not have access to information regarding such markets. This situation favors only those traders who export forest products to countries such as China and India.

A respondent who has established a veneer factory in Sindhupalchok District has commented on the price differences in the local market regarding timber. In December 2009, the price of one cubic foot of uttis log (*Alnus nepalensis*) was Rs 115 in the local Barabise market. However, between December 2007 and January 2008 the price rose from Rs 140 to Rs 180. The market price of sawn timber during that same period (between December and January) rose from Rs 220 to Rs 260. None-the-less, the wholesale price of logs per cft, when purchased from local growers or CFUGs, has been constant, namely Rs 100 per cft at all times.

All DFO respondents have reported that there has been a lack of transparency regarding the marketing of forest products. Elite executive members are acting as pseudo timber contractors, and are benefiting from unfair trades. In some cases, the abuse of power by executives for their own personal gain has created obstacles regarding trust. Executive members of the HJCFUG have reported that they had been lent money by a timber trader who wanted to be assured of the supply of timber to his saw mill at a discounted rate, rather than at local market prices. It was a secret agreement between the trader and two elite members of the executive committee. So, not all CFUC members know about such agreements.

One of the forestry field staff of the Janagal Range Post said that:

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...trade is not very effective or systematic. There is no equity, or consistency, in relation to the income which traders receive. There is a trend to use contractors, and that’s why less money is going to the CFUG funds...
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(KBR2, November 2009).

Most of the DFO respondents of Sindhupalchok and Kabhrepanchok (n=6) have indicated that there have been sales of pine timber, from the HJCFUG and SDCFUG areas, at the Kathmandu market. But CFUGs are disadvantaged by a lack of transparency, regarding market price, and by the absence of processing techniques which add value to pine.

One DFO Sindhupalchok respondent said that:

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...public auditing does not work effectively or efficiently. To further improve the trade in forest products, CFUGs should form a cooperative, or network of CFUGs at the district level. That
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One of the DFO staff of Chitwan (CHI1) has reported that, given the present conditions of uncertainty and lack of adequate information, risk-averse small scale sellers tend to diversify their enterprises. The respondent explained that market failure is very common for small scale sellers. Furthermore, because there are high transaction costs in markets in rural areas, production diversification is a wise choice. It should also be noted that local influential persons and some of the committee members buy timber, supposedly on behalf of the poor at the subsidised rate, and then sell it on the black market.

6.3.2 Collection and mobilisation of CFUGs’ funds

CFUGs collect income, and spend money on various forest management and community development activities. The data indicate that CFUG income and expenditure vary from one location to the next, and from one CFUG to the next (see Table 6.23).

Table 6.23 Total income and expenditure (in NRs) of the CFUGs in the study areas up until 2009, since the introduction of the community forestry program

<table>
<thead>
<tr>
<th>Description</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total income</td>
<td>40360403</td>
<td>6491616</td>
<td>7024026</td>
<td>53876044</td>
</tr>
<tr>
<td>Total expenditure</td>
<td>35640468</td>
<td>6366092</td>
<td>6945970</td>
<td>48952530</td>
</tr>
<tr>
<td>Total savings</td>
<td>4719935</td>
<td>125524</td>
<td>78056</td>
<td>4923514</td>
</tr>
</tbody>
</table>

Note: Amount of expenditure in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compiled and calculated from CFUGs’ office records, annual progress reports, and audit reports, as examined and recorded by researcher in 2009.

6.3.2.1 Collection of CFUGs’ fund

All CFUGs generate income from the sales of forest products, as well as by a variety of other methods. The records of the CFUGs in the study areas indicate that sales of products such as timber, green or large size wood, poles, bamboo, and non-timber forest products, provide most of the income (see Table 6.24). The records show that the overall contribution by sales of forest products, to the three CFUG funds is, on average, approximately 81 percent of all money collected by the CFUGs. However, the exact percentage varies from
one CFUG to another. For example, HJCFUG receives the highest proportion of income (97%) from the sale of forest products. Next is KCFUG at 85%, whilst SDCFUG is third at 52%.

These variations, regarding income from sales of forest products in the study sites, occur not only because of the different types and condition of forest resources, but also because of the income generating capability of each CFUG.

Table 6.24 Total income of CFUGs from forest products

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Total income from forest products since implementation of community forestry (value in 2009/10 at 10% rate)</th>
<th>Amount from sales of other products (Rs)</th>
<th>Total amount (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CFUG</td>
<td>Outside</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quantity</td>
<td>NRs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fuelwood (HL)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Outside</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quantity</td>
<td>NRs</td>
</tr>
<tr>
<td>KCFUG</td>
<td>50943</td>
<td>28136998</td>
<td>0</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>31212</td>
<td>1557504</td>
<td>35704</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>9877</td>
<td>511250</td>
<td>29149</td>
</tr>
<tr>
<td>Total</td>
<td>92032</td>
<td>30205752</td>
<td>64853</td>
</tr>
</tbody>
</table>

Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compiled and calculated from CFUGs’ office records, annual progress reports, and audit reports, from handover year to 2009.

Apart from the sales of timber, fuelwood and non-timber forest products generating income for CFUGs, money is received by them in various other ways. These include entrance fees; application and membership fees; fines and awards; government subsidies; cash payments by members in lieu of labour; donations; handicrafts sales; cash crop cultivation; goat rearing; ecotourism; forest-based microenterprises; and returns from cooperatives (see Table 6.25).
Table 6.25 Income from other sources (in NRs)

<table>
<thead>
<tr>
<th>Income sources</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total income of CFUGs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Income (NRs)</td>
<td>%</td>
<td>Income (NRs)</td>
<td>%</td>
</tr>
<tr>
<td>Total income of CFUGs</td>
<td>40360403</td>
<td>100</td>
<td>6491616</td>
<td>100</td>
</tr>
<tr>
<td>Forest products sales</td>
<td>34050129</td>
<td>84</td>
<td>6279902</td>
<td>97</td>
</tr>
<tr>
<td>Others</td>
<td>6310274</td>
<td>16</td>
<td>211714</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compiled and calculated from CFUGs’ office records, annual progress reports, and audit reports.

Despite the limitations regarding trade of timber and other forest products, the revenue received by CFUGs from forest product sales is significant (Table 6.26). However, because of the availability of valuable sal timbers and access to relatively good markets, the KCFUG has greater potential to generate income from the sale of forest products compared to the other two CFUGs. In addition, KCFUG - being relatively larger in size than the other two CFUGs - obtains a significant amount of income from membership fees, and from other fees.

Table 6.26 Total income of the CFUGs

<table>
<thead>
<tr>
<th>Income sources</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total income of CFUGs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Income (NRs)</td>
<td>%</td>
<td>Income (NRs)</td>
<td>%</td>
</tr>
<tr>
<td>Total income of CFUGs</td>
<td>53876045</td>
<td>100</td>
<td>9948898</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compilation and calculation from CFUGs’ office records, annual progress reports and audit reports.

My field observations indicate that community forestry has had a major effect in relation to preventing deforestation, and increasing biomass. Some scholars, such as Pokhrel & Byrne...
(2009), have indicated that community forestry is useful regarding carbon sequestration. However, during my fieldwork, I noticed that the CFUGs are unaware of this because of a lack of information about climate change, roles and values of their forests regarding carbon sequestration, and the REDD+ mechanism.

6.3.2.2 Mobilisation of CFUGs’ funds

The CFUGs’ office records and audit reports show that their funds have been utilised mainly for forest resource development, forest harvesting, logging, office management, income generating, and community development activities (see Table 6.27).

Despite the use of the CFUGs’ funds for various activities, transparency regarding the collecting and spending of money is a serious issue for each of the study group CFUGs. It is primarily because of the lack of participatory monitoring and evaluation by all members of each CFUG that the collecting and spending, regarding each CFUG’s fund, is not transparent. Each CFUG’s fund is controlled by a few elite members of the executive committee, namely the treasurer, the secretary, and the chairperson. Poor people, women, and disadvantaged members of the CFUGs in the study areas have no direct access to the funds. A large proportion (21%) of the total CFUG expenditure in the study areas is used for office operations and miscellaneous activities.

<table>
<thead>
<tr>
<th>Activities/period</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total amount</th>
<th>% of total expenditure of all CFUGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest harvesting &amp; logging</td>
<td>12665226</td>
<td>1473405</td>
<td>1914152</td>
<td>16052783</td>
<td>33</td>
</tr>
<tr>
<td>Income generation activities</td>
<td>1021338</td>
<td>0</td>
<td>1914097</td>
<td>2935435</td>
<td>6</td>
</tr>
<tr>
<td>Community development</td>
<td>7321470</td>
<td>3255760</td>
<td>1172757</td>
<td>11749987</td>
<td>24</td>
</tr>
<tr>
<td>Office management and administrative expenses</td>
<td>5971686</td>
<td>628353</td>
<td>1341306</td>
<td>7941345</td>
<td>16</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1516414</td>
<td>80159</td>
<td>251819</td>
<td>1848392</td>
<td>4</td>
</tr>
<tr>
<td>Grand total</td>
<td>35640468</td>
<td>6366092</td>
<td>6945970</td>
<td>48952530</td>
<td>100</td>
</tr>
</tbody>
</table>

**Note:** Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

**Source:** Data compilation and calculation from CFUGs’ office records, annual progress reports and audit reports.
According to the results of the household survey, 51 percent of the total respondents believe that the CFUCs utilise the funds in a transparent way; whilst 21 percent (especially very poor people) believe that there is a lack of transparency regarding the use of the funds. The remaining 28 percent of respondents did not express an opinion either way (see Table 6.28). Of the three GFUGs in the study areas, it seems that the HJCFUC has been the worst, regarding maintaining transparency in the use of that CFUG’s fund.

**Table 6.28 Perception of CFUGs regarding transparency in fund mobilisation (n=138)**

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>26</td>
<td>50</td>
<td>24</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>37</td>
<td>43</td>
<td>20</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>21</td>
<td>60</td>
<td>19</td>
</tr>
<tr>
<td>Overall</td>
<td>28%</td>
<td>51%</td>
<td>21%</td>
</tr>
</tbody>
</table>

**Source:** Researcher’s household survey, 2009.

Furthermore, about 32 percent of the total household respondents have indicated that the current CFUCs are not doing enough regarding the needs and interests of disadvantaged, women, and poor members of the CFUGs. Another 18 percent of respondents did not express an opinion either way (see Table 6.29).

An examination of the minutes of meetings, as well as office records, indicates that the KCFUG and HJCFUG lack the skills which they need to maintain their records and accounts. So this makes it difficult to interpret data and information. However, the SDCFUG do keep proper records regarding income and expenditure. Moreover, those records are being maintained in separate registers.

**Table 6.29 Perception of CFUGs, regarding the efforts of CFUCs in relation to poor and disadvantaged members (n=138)**

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Do not know (%)</th>
<th>Improving (%)</th>
<th>Not improving (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>14</td>
<td>44</td>
<td>42</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>20</td>
<td>57</td>
<td>23</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>19</td>
<td>49</td>
<td>32</td>
</tr>
<tr>
<td>Overall</td>
<td>18%</td>
<td>50%</td>
<td>32%</td>
</tr>
</tbody>
</table>

**Source:** Researcher’s household survey, 2009.

One of the respondents of the HJCFUG said:

“...we do not know about the CFUG’s income, expenditure and investments. At the general assembly, only a summary, regarding the financial activities, is presented. Members are usually asked by the
Samiti (executive committee) to contact them after the assembly if they wish to know more about the financial matters. This presentation of a summary creates suspicion, regarding the accountability of the samiti towards its general members...the chairperson said that the committee has had to bribe forest officials in order that approval be obtained for the overharvesting of timber, and subsequent selling of that timber to forest traders so that money can be raised for the construction of the rural road. However, members of the samiti do not show the road expenditure in detail to the assembly. Members of the samiti are also reluctant to invest community funds in income generating activities, so that poor people and Dalits can benefit.” (KBR12, November 2009).

Forest protection and development

Community forestry also helps in relation to the creation of local employment opportunities. CFUG members are recruited as forest guards and have sometimes been involved in a paid capacity regarding the setting up of plantations, harvesting, logging, and silvicultural operations. The CFUGs in the study areas spend about 18 percent of their total income on forest protection and development activities. The audit reports and office records of those CFUGs show that more than 80 percent of the total expenditure on forest management and development is comprised of payments to CFUG members who have been paid for their labour (see Table 6.30).

Table 6.30 Investment for forest protection and development

<table>
<thead>
<tr>
<th>CFUG expenditures</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total of all CFUGs</th>
<th>Overall % of total expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary for forest watcher</td>
<td>3566816</td>
<td>147355</td>
<td>133507</td>
<td>3847678</td>
<td>7.9</td>
</tr>
<tr>
<td>Fences</td>
<td>849119</td>
<td>0</td>
<td>0</td>
<td>849119</td>
<td>1.7</td>
</tr>
<tr>
<td>Demarcation</td>
<td>85758</td>
<td>0</td>
<td>0</td>
<td>85758</td>
<td>0.2</td>
</tr>
<tr>
<td>Fireline and fire control</td>
<td>680295</td>
<td>285665</td>
<td>42075</td>
<td>1008035</td>
<td>2.1</td>
</tr>
<tr>
<td>Nursery and plantation</td>
<td>608781</td>
<td>197419</td>
<td>30323</td>
<td>836523</td>
<td>1.7</td>
</tr>
<tr>
<td>Forest management &amp; development training</td>
<td>898574</td>
<td>216547</td>
<td>106364</td>
<td>1221485</td>
<td>2.5</td>
</tr>
<tr>
<td>Other activities</td>
<td>454991</td>
<td>81429</td>
<td>39570</td>
<td>575990</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>7144334</td>
<td>928415</td>
<td>351839</td>
<td>8424588</td>
<td>17.2</td>
</tr>
</tbody>
</table>

Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compiled and calculated from each CFUGs’ office records, annual progress reports, and audit reports.
The availability of employment for wages, especially in relation to forest protection and development activities, provides an incentive for members to be involved in the operations of the CFUG. In fact, access to employment for wages is a major incentive for Dalit men and women and poor people who have limited opportunities to obtain regular employment.

**Forest harvesting and logging**

It has also been revealed that most (34%) of the total budget of the CFUGs in the study areas is used for harvesting, logging, and transportation. The recordkeeping and community fund management are equally important regarding keeping forest management activities ongoing and positive (see Table 6.31). Employment, as paid labour, for forest product harvesting and logging, is restricted to skilled people who can be either members of the CFUGs, or non-members.

### Table 6.31 Expenditure regarding forest harvesting and logging

<table>
<thead>
<tr>
<th>CFUG expenditures</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total of all CFUGs (NRs)</th>
<th>Percentage of total expenditure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest harvesting &amp; logging</td>
<td>12665226</td>
<td>1473405</td>
<td>1914152</td>
<td>16052783</td>
<td>33</td>
</tr>
<tr>
<td>Percentage of total expenditure of the CFUG</td>
<td>36</td>
<td>25</td>
<td>28</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

**Source:** Data compilation and calculation from CFUGs’ office records, annual progress reports and audit reports.

**Office management and administration**

About 16 percent of the total expenditure of the CFUGs in the study areas is for office management and administration (see Table 6.32). However, KCFUG spends a significant proportion of its fund on maintaining the CFUG office; which affects its ability to spend equitably among members.
Table 6.32 Office management and administration costs of the CFUGs

<table>
<thead>
<tr>
<th>CFUG expenditures</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
<th>Total</th>
<th>Percentage of total expenditure (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td>4401707</td>
<td>0</td>
<td>472124</td>
<td>4873831</td>
<td>10</td>
</tr>
<tr>
<td>Office goods</td>
<td>927740</td>
<td>318770</td>
<td>721948</td>
<td>1968458</td>
<td>4</td>
</tr>
<tr>
<td>Allowances</td>
<td>642239</td>
<td>309583</td>
<td>147234</td>
<td>1099056</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>5971686</td>
<td>628353</td>
<td>1341306</td>
<td>7941345</td>
<td>16</td>
</tr>
</tbody>
</table>

Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

Source: Data compilation and calculation from CFUGs’ office records, annual progress reports, and audit reports.

A significant proportion (12%) of the total expenditure of the CFUGs in the study areas is for the payment of salaries of officeholders, including a financial allowance for executive members. The powerful elite and upper caste members have access to executive positions. However, a large number of Dalit and poor people seek work for wages daily. This includes being forest guards in the community forests. Poor people and Dalits lack access to the financial benefits which have been derived from the implementation of community forestry.

Income generation activities

In this section, I briefly present a case in support of the adoption of income generating activities (IGAs), whereby forest degradation can hopefully be reduced, and the economic condition of poor people in rural areas be improved. The basic assumption is that the high incidence of poverty in rural areas is responsible for the degradation of forest there. IGAs would hopefully be able to provide income which would alleviate poverty in those areas, whereby the dependence of people on the extraction and sale of forest products could perhaps be reduced. However, whether the dependence of the poor on the forest would be reduced as a result of the implementation of IGAs is the main question to be addressed.

My field observations indicate that many poor members of the KCFUG sell firewood and other forestry products in order that their income be supplemented, so that their subsistence requirements can be met. Furthermore, in the group discussions held at the study sites, people have confided that some of the poor people work for rich timber traders who may be illicitly harvesting timber and other products from the forest. With a regular and reliable legal source of income, local poor people may, perhaps, give up working for such timber traders, especially if the risks, of being caught carrying out illicit activities, are perceived as being too high.
Do IGAs have a positive effect regarding the household economic situation? In general terms, there is a positive effect. But there are limitations also. For instance, returns from farming (including goat and cattle raising) come slowly. So, people are forced to obtain money in other ways so that any loan repayments can be paid on time. None-the-less, in relation to IGAs, more income could enable positive changes to occur in relation to education, additional food, and access to medical facilities, and so on. At least two categories of IGAs have been discerned in the study areas.

The first category is comprised of community level IGAs, which include the selling of non-timber forest products. The DFOs encourage this sort of activity. The second category involves only occupants of poor households in the villages. Income generating activities, such as the cultivation of various types of grasses, fodders, mulberry, and fruit species could occur on forestland, if that land could be made available to poor people by CFUGs for such purposes. CFUGs could coordinate such programs with government departments and international non-governmental organisations. Data which is presented in Table 6.33 indicate that only about six percent of total CFUG funds are spent on IGAs. Examples of some of these IGAs are presented in Appendix 16.
<table>
<thead>
<tr>
<th>Activities/period</th>
<th>KCFUG (NRs)</th>
<th>HJCFUG (NRs)</th>
<th>SDCFUG (NRs)</th>
<th>Total of all CFUGs (NRs)</th>
<th>% of total expenditure of CFUGs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IGA for poor households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goat/pig farming</td>
<td>210831</td>
<td>0</td>
<td>73837</td>
<td>284668</td>
<td>0.6</td>
</tr>
<tr>
<td>Soft loan for vegetable gardens</td>
<td>45743</td>
<td>-</td>
<td>193269</td>
<td>239012</td>
<td>0.5</td>
</tr>
<tr>
<td>Fodder/forage/fruit/broom grass production</td>
<td>41456</td>
<td>-</td>
<td>0</td>
<td>414560</td>
<td>0.1</td>
</tr>
<tr>
<td>Sericulture</td>
<td>40263</td>
<td>0</td>
<td>0</td>
<td>40263</td>
<td>0.1</td>
</tr>
<tr>
<td>Bio-briquette</td>
<td>-</td>
<td>Recommendation for MEDEP</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Improvement of blacksmiths’ workshop</td>
<td>0</td>
<td>Recommendation for MEDEP</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Investments for co-operatives and microenterprises</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares in Co-operative</td>
<td>0</td>
<td>0</td>
<td>133100</td>
<td>133100</td>
<td>0.3</td>
</tr>
<tr>
<td>Shares in micro-hydropower</td>
<td>0</td>
<td>0</td>
<td>121110</td>
<td>121110</td>
<td>0.2</td>
</tr>
<tr>
<td>Fish farming</td>
<td>18150</td>
<td>0</td>
<td>0</td>
<td>18150</td>
<td>0.01</td>
</tr>
<tr>
<td>Saw mill</td>
<td>0</td>
<td>0</td>
<td>247588</td>
<td>247588</td>
<td>0.5</td>
</tr>
<tr>
<td>Rice &amp; flour mill</td>
<td>0</td>
<td>0</td>
<td>53240</td>
<td>53240</td>
<td>0.1</td>
</tr>
<tr>
<td>Truck</td>
<td>0</td>
<td>0</td>
<td>835653</td>
<td>835653</td>
<td>1.7</td>
</tr>
<tr>
<td>Lapsi candy</td>
<td>0</td>
<td>0</td>
<td>256300</td>
<td>256300</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Ecotourism development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botanical garden</td>
<td>43258</td>
<td>0</td>
<td>0</td>
<td>43258</td>
<td>0.1</td>
</tr>
<tr>
<td>Swimming pool</td>
<td>440000</td>
<td>0</td>
<td>0</td>
<td>440000</td>
<td>0.9</td>
</tr>
<tr>
<td>Picnic spots</td>
<td>181637</td>
<td>-</td>
<td>0</td>
<td>181637</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1021338</td>
<td>0</td>
<td>1914097</td>
<td>2935435</td>
<td>6</td>
</tr>
</tbody>
</table>

**Note:** Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate. (US$1 was equivalent to NRs 75.00 in 2009)

**Source:** Data compilation and calculation from CFUGs’ office records, annual progress reports and audit reports. Data verified in focus group discussions, 2009.

It is interesting to note that perception of improving equity in community forestry as shown in Table 6.8 is correlates with the allocation of CFUGs’ funds for income generating activities as shown in Table 6.32. Since the HJCFUG has not spent its fund for income generating activities, the perception of equity in community forestry by its CFUG members is relatively lower than the perception of equity in by the members of others two CFUGs. Similarly, perception of CFUGs regarding transparency in fund mobilisation (in Table
6.27) is also co-related with the investments of CFUGs’ funds for number of activities including income generating and pro-poor activities.

6.3.3 Local community development

In all three study sites there is not enough in the way of infrastructure to formally connect the local villages to the local markets. Although the government’s Village Development Committees are the lowest ranked administrative units in Nepal, they have been set up so that society can theoretically be organised at the local level according to development activities. But my field observations indicate that because of political instability, and limited financial capacity, those government bodies are having virtually no effect regarding local development activities in the study areas. However, the majority (85%) of the respondents said that community forestry is making a positive contribution to local community development.

One respondent said:

“...we do not get financial support from the government for development projects. Our CFUG carries out many development activities, such as building a primary school for our children, building a road to link our village with the local market (Jalkine), building a saw mill, a rice mill, and candy-making facility, thereby providing employment for local people. We have also established a savings and credit cooperative. The CFUG’s fund has been used also for...The construction of a rural electricity transmission line. Now electricity has reached this remote village. In addition, the CFUG fund is being used so that a drinking water facility can be implemented for members. So CF is doing a lot more than what the government is able to do...” (SIN7, October 2009).

Another respondent said that:

“...a CFUG is able to carry out all sorts of local community development activities, which virtually all government departments in Nepal could support.” (CNTL6, December 2009).

So, CFUGs, as self-organised entities, are not only actively involved in community forest management, but, as has been indicated above, are investing their funds and voluntary efforts also in relation to local development projects.

The availability of timber at a lower price encourages the building of schools, health posts and members’ houses. Other development activities, for which CFUG funds have been
spent, include schools, health posts, drinking water facilities, irrigation, a temple, a vegetable collection centre, community buildings and halls, soil and water conservation, and small bridges and culverts (see Table 6.34) and also see Appendix 17.

In relation to KCFUG and SDCFUG, there are provisions so that money can be allocated to people who are willing to construct toilets in their homes, or install bio-gas. However, the office records of those two CFUGs indicate that until the end of 2009 no CFUG money had been used in relation to those activities.

**Table 6.34 Community development**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities/period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drinking water</td>
<td>1065033</td>
<td>64308</td>
<td>24188</td>
<td>1153529</td>
<td>2.4</td>
</tr>
<tr>
<td>Rural road</td>
<td>976562</td>
<td>946045</td>
<td>83439</td>
<td>2006046</td>
<td>4.1</td>
</tr>
<tr>
<td>Schools</td>
<td>1964243</td>
<td>2037704</td>
<td>225669</td>
<td>4227616</td>
<td>8.6</td>
</tr>
<tr>
<td>Vegetable collection centre</td>
<td>0</td>
<td>6050</td>
<td>0</td>
<td>6050</td>
<td>0.01</td>
</tr>
<tr>
<td>Soil conservation and flood control</td>
<td>151114</td>
<td>121000</td>
<td>0</td>
<td>272114</td>
<td>0.6</td>
</tr>
<tr>
<td>Temple</td>
<td>8053</td>
<td>29231</td>
<td></td>
<td>37284</td>
<td>0.1</td>
</tr>
<tr>
<td>Health post support</td>
<td>75026</td>
<td>0</td>
<td>0</td>
<td>75026</td>
<td>0.2</td>
</tr>
<tr>
<td>FUG land purchasing</td>
<td>269376</td>
<td>0</td>
<td>0</td>
<td>269376</td>
<td>0.6</td>
</tr>
<tr>
<td>FUG office building and compounding</td>
<td>2573321</td>
<td>0</td>
<td>743680</td>
<td>3317001</td>
<td>6.8</td>
</tr>
<tr>
<td>Culvert/bridge</td>
<td>246795</td>
<td>0</td>
<td>0</td>
<td>246795</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7321470</strong></td>
<td><strong>3255760</strong></td>
<td><strong>1172757</strong></td>
<td><strong>11749987</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

*Note: Amount of expenditures in NRs; values calculated in 2009/2010 at 10% inflation and interest rate, (US$1 was equivalent to NRs 75.00 in 2009)*

*Source: Data compilation and calculation from CFUGs’ office records, annual progress reports and audit reports.*

Data shown in Table 6.34 indicate that the CFUGs act as local development agents. Apart from CFUGs, there are no formal bodies in local communities whereby the protection and management of forest resources can be organised; or community funds be allocated for community development activities. Nor are there any bodies that formally connect the local villages to the VDCs or DDCs. Participation by each CFUG is voluntary.

Indeed, community development projects would not be possible if the CFUGs’ funds were not available. In the past, local people used to visit government bodies and request money so that their annual community budgets could be taken care of; because communities had
no money. However, CFUGs have subsequently decided to invest their own funds and voluntary labour in relation to local development activities. So, community forestry is virtually the only way that a wide range of local community developments can occur. However, local people have different opinions regarding community development activities. They also have different opinions as to how CFUG funds should be spent in relation to those activities. For example, most of the local rich and medium income members hope that the local rural road networks will improve access to and from the villages. Poor people, however, do not regard any investment of CFUG funds in the construction of rural roads as being important (see Box 6.5).

**Box 6.4 Different perceptions of the poor and rich CFUG members, regarding investing CFUG money in rural road construction**

The Secretary of the HJCFUG, who is one of the rich and elite members of that CFUG, and who is also one of the people who has been responsible for initiating the construction of the Nala-Ghimire Gaon rural road, argues that the construction of that road will make it easier for all CFUG members to sell their dairy products and vegetables. That will provide them with the opportunity to spend more of their time farming, rather than carrying loads to the local marketplace in Nala Bazaar, or in Banepa. In addition, he says that the road will also help in relation to transportation costs being reduced. Furthermore, he argues that the road will help producers of agricultural products have more access to markets. The Secretary hopes also that the road will make it easier for a local dairy industry, pine poles treatment plant, and local marketplace to be established (KBR 11, November 2009).

None-the-less, a poor Dalit woman in the CFUG, who lives by working in the fields of medium and rich people, and by carrying headloads of items to and from Nala Bazaar, is not sure what the construction of the road will produce for her. She says that she is likely to lose her job carrying loads of items for people. She tends to believe that the road building project will not provide any benefit for poor people, regarding their livelihoods. Consequently, she has requested that priority be given to spending CFUG money on income generating activities, especially for poor people, so that their income can be increased, and poverty can be reduced.

**Source:** In-depth interviews, with KBR 11 and KBR 19, 2009.

### 6.4 Overall change regarding the socio-economic status of CFUGs

Any improvement in the bio-physical condition of forests can have a positive impact on the lives of poor people, women and disadvantaged individuals; especially if all members of CFUGs have equal access to forest resources. Increasing the ease of access to fuelwood, fodder, and other non-timber products from nearby forests can help supplement daily income. However, a number of issues are raised as a result of the community forestry program having been successfully implemented. For example, when a previously degraded resource begins yielding substantial amounts of income, then it is reasonable to assume that
a government would expect the rejuvenated resource to begin contributing in relation to national development.

In addition, the increase in the availability of fodder for feeding livestock, and leaf-litter as bedding material for livestock, helps in relation to the production of more organic manures which enhance the productivity of farmlands, and enable in increase in the production of various cash crops and other agricultural products [see photo 1]. The additional income provided by both agricultural and livestock production helps CFUG income to increase. However, income varies from one household to another, from one group to another, and from one locality to another. All of these factors have several direct and indirect economic effects, not only regarding livelihoods, but also in relation to the rural economy.

Photo 1 Cash crop cultivation (cultivation of potato)

Source: Field work, 2009.

There are a number of statistically significant differences, regarding overall production of cash crop in the selected CFUGs, before and after the implementation of community forestry. Analysis of Paired T Test showed that there is a significant difference (p<0.05) in the cash crop production in all three CFUGs between the first year of initiation of the CFP and in 2009 (see Table 6.35).
Table 6.35 Cash crops production before and after implementation of CF

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Test</th>
<th>Average values</th>
<th>Degree of freedom (df)</th>
<th>p-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before CF</td>
<td>After CF</td>
<td>Statistic</td>
<td></td>
</tr>
<tr>
<td>KCFUG</td>
<td>Paired T Test</td>
<td>86.0</td>
<td>114.9</td>
<td>-4.9678</td>
<td>49</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>Paired T Test</td>
<td>171.6</td>
<td>782.3</td>
<td>-7.7535</td>
<td>34</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>Paired T Test</td>
<td>33.4</td>
<td>58.4</td>
<td>-2.9446</td>
<td>52</td>
</tr>
<tr>
<td>Overall</td>
<td>Paired T Test</td>
<td>87.5</td>
<td>262.5</td>
<td>-5.9099</td>
<td>137</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.


Although community forestry is generally regarded as being a panacea for forest conservation and poverty reduction in Nepal, CFUG members are not getting enough fuelwood, timber, fodder/forage and leaf litter from their CFs. Furthermore, the socio-economic outcomes of CF depend not only on the FOPs and constitutions of CFUGs, but also on local participation regarding the implementation of community development projects. Indeed, CFUG members are already contributing to local development by supporting the construction of schools, irrigation facilities, drinking water facilities, roads, community buildings, and bus shelters.

Household interviews have identified four wealth categories of rural people that can help understand improvements: (a) very poor, (b) poor, (c) medium, and (d) rich [see Chapter 4]. The respondents of the household interviews (n = 138) have indicated that their financial situation has improved since community forestry was implemented in 2009 (see Table 6.36 and Table 6.37).

Table 6.36 Wealth rankings: before and after the introduction of community forestry

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Very poor Before CF</th>
<th>Very poor After CF</th>
<th>Poor Before CF</th>
<th>Poor After CF</th>
<th>Medium Before CF</th>
<th>Medium After CF</th>
<th>Rich Before CF</th>
<th>Rich After CF</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>20</td>
<td>18</td>
<td>26</td>
<td>22</td>
<td>41</td>
<td>46</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>9</td>
<td>8</td>
<td>30</td>
<td>28</td>
<td>32</td>
<td>34</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>20</td>
<td>16</td>
<td>36</td>
<td>35</td>
<td>27</td>
<td>30</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Overall</td>
<td>16%</td>
<td>14%</td>
<td>31%</td>
<td>28%</td>
<td>33%</td>
<td>37%</td>
<td>20%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Source: CFUGs’ office records and wealth ranking exercises, 2009.
The percentages of very poor and poor households have decreased since community forestry was implemented in all three CFUG areas. Furthermore, percentages of medium income households have increased in all three areas. The percentages of rich households have remained much the same in all three CFUG areas.

Regular daily income is a rarity for poor people; none of the poor respondents have regular income. Rich and elite members of CFUGs usually do not have to work for other people, because they are able to live on what their fields produce. Some of the very poor and poor CFUG members lease land from rich people, so that they can produce rice and maize. Richer farmers have day-to-day jobs. For example, they may work in fields, or carry loads. But those jobs do not provide them with the sort of regular income that would be provided by a permanent job.

There are a number of statistically significant differences, regarding economic status of the selected CFUGs, before and after the implementation of community forestry. Analysis of Fishers Exact Test showed that there is a significant difference ($p<0.05$) in the overall economic status of the CFUGs between the first year of initiation of the CFP and in 2009 (see Table 6.37).

**Table 6.37 Economic status of the CFUGs before and after implementation of community forestry**

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Test</th>
<th>Statistic</th>
<th>Degree of freedom (df)</th>
<th>p-value</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCFUG</td>
<td>Fishers Exact Test</td>
<td>1.31E-19</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>SDCFG</td>
<td>Fishers Exact Test</td>
<td>2.38E-12</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>HJCFUG</td>
<td>Fishers Exact Test</td>
<td>6E-06</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>Chi Squared Test</td>
<td>199.434</td>
<td>9</td>
<td>0</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: ‘Before CF’ means the year before the forests were handed over to the CFUGs and ‘After CF’ denotes the year 2009.

**Source:** Household survey, 2009.

After the implementation of the CFP, food security has generally improved for very poor, poor and medium income people. They have reported that there has been a positive change regarding food (see Figure 6.13). However, although the average annual household income, in the studied CFUG areas, has increased since community forestry was implemented, the food security situation, for many people in those areas, is still unsatisfactory.
It is not clear whether the use of CFUG funds has improved the economic situation for rural people very much. Furthermore, community funds are not being used so that very poor and poor people can be supported. However, CFUGs have directly benefited from the proper management of forest products; and have indirectly benefited from improvements, regarding goods and services, as well as from the use of CFUG funds for community development.

6.5 Summary

The data show that, after the implementation of the community forestry program, the engagement of local people - especially women, poor people and Dalits - in the CF process has gradually been increasing in a positive way. To some extent these people have been empowered, and are benefitting because various community forestry training programs and workshops have been established, in order that their leadership skills be developed, and so that they can express their views and share ideas with other members of the community; even with outsiders. However, the overall change, in terms of the status of women and poor people is still not sufficient for them to experience all potential benefits from community forestry and community development programs [see Appendix 18]. Although mandatory provisions have resulted in a higher percentage of women, poor people and Dalits being included on executive committees, there has been no such promotion of women, poor people and Dalits to key decision-making positions.

Source: CFUGs’ office records and researcher’s household survey, 2009.
The awareness amongst CFUG members that community forests should be conserved has increased following the implementation of community forestry and various training programs and workshops which have been set up in association with the CF program. Furthermore, the awareness of women and the poorest people of the potential benefits from community forestry has gradually increased since the program was introduced. Consequently, poor and backward members of CFUGs are increasingly involved in the community forestry management process. This helps build their self-confidence in forest management and builds a feeling of ownership of forest resources.

The development of local leadership qualities in rural areas is one of the key outcomes of community forestry. Women, poor people, Dalits and different ethnic minority groups now participate in forest management and rural development activities. Traditionally, leadership in Nepal has been defined by economic and political affiliations. So, it is not easy for poor people, women and disadvantaged members to break through the ‘barriers’ that have been established by that traditional convention. However, by questioning the decisions of CFUCs, poor people, women and disadvantaged users can at least help ensure that there is accountable local leadership. The lack of sound leadership at the local level is one of many reasons that community forestry is not delivering all potential socio-economic outcomes in Nepal. Local leadership continues to be limited to a few elite individuals or families. Moreover, local leadership is heavily politicised, and is plagued by unethical practices which result from a lack of appropriate checks and balances. The absence of checks and balances results from a lack of skills; knowledge; educated people; and political awareness.

Community forestry has positive effects, regarding the establishing and strengthening of social networks in rural areas. Those networks help provide opportunities for CFUGs to strengthen their capacity by sharing ideas and experiences of the implementation of community forestry and by discussing and finding possible solutions to common problems. The analysis of the field data indicates that social cohesion and social networks have changed, not only because of increased understanding by CFUG members, but also because of increased exposure and links to governmental and non-governmental organisations. The CFUGs have created forums that go beyond forest management to provide other local community development activities. Those interactions help build trust amongst community members which helps community development activities to be implemented both within and outside the CF areas. However, the link between the expansion of CF and desirable
social and environmental outcomes is not straightforward. There are multiple factors which shape the outcomes.

The benefits from building social capital depend on the participation and capacity (e.g., increased knowledge regarding rights and duties) of CFUG members. Better connected CFUGs may receive more in the way of socio-economic benefits. Moreover, a strong social network may help prevent coordination failure. Information may circulate faster within a network than outside it. This may enable opportunities to arise, whereby early action can be taken, and delay be avoided.

Social mobilisation has gradually been increasing in rural areas since community forestry was implemented. That mobilisation includes (a) community participation in the community forestry process; (b) the development of skills and knowledge, by CFUG members, in relation to forest management; (c) leadership development; and (d) the formation of social networks. Apart from social mobilisation, the improvement in the condition of forests through the implementation of the community forestry program is resulting in an increased quality and quantity of forest products.

The implementation of community forestry is useful in converting one sort of capital to another. Forest resources are effectively natural capital that may be converted into economic capital (e.g., via sales of harvested forest products so that cash income can be provided for CFUGs). Conversely, economic capital may be converted into natural capital (e.g., via money being spent on reforestation or on the protection and development of community forest resources). Social capital also results, and includes networking, and human resource development as a result of training programs.

As the condition of the forests improves, the quality and quantity of forest products, such as fuelwood, timber, fodder, grass, leaf-litter, and thatching material have increased. The introduction of community forestry has not adversely affected local people’s livelihoods. Although CFUGs have introduced changes as to when members can collect or harvest products from forests, local people have been able to adjust in accordance with the new arrangements.

The data also indicate that there has been an increase in the amount of fodder, grass, thatching material, and leaf litter collected since the introduction of community forestry. The community forests are the main suppliers of firewood, fodder, grass, and timber.
However, the supply of forest products is still not sufficient for the needs of CFUG members to be met. None the less, the amount of leaf litter which can be collected from forests by people in the lowest income group with the least amount of private land, can easily meet their needs. The forest product needs of CFUG members vary from one wealth group to another. For example, there is a difference regarding the use of timber between wealthy and poor households. Occupants of medium sized households collect the least amount of forest products. However, a complete explanation for these variations in forest product use by different wealth categories is not available.

The community forestry program provides opportunities for income to be generated within rural communities, and for CFUG funds to be established in rural areas. Income generating activities (IGAs) have been introduced by almost all CFUGs. The underlying assumption seems to be that poverty is at the root of non-conservation-of-forests behaviour. The various IGAs are regarded as providing incentives for local people to engage in conservation efforts. Much of the income which is generated by CFUGs via forest management (which includes forest product sales) is currently being used for local community development.

Although there is currently very little money being spent on pro-poor programs, community forest management potentially provides an excellent way by which poverty reduction could be addressed throughout Nepal. The utilisation of some portion of CFUG income for poverty reduction activities should be based on both local needs and market opportunities. Furthermore, the allocation of a section of local forestland to poor members of the community, so that they can generate extra income by cultivating commercially high value, but low volume, NTFPs, namely improved varieties of fodder and forage (for goats, cows, and buffalos), would help, in relation to household poverty being reduced.

Much of the CFUGs’ incomes have been spent on rural development activities, such as rural roads which link communities with local market places. The availability of timber at a lower price encourages the building of schools, health posts, and members’ permanent houses. That availability of timber at a lower price also encourages users to build cattle sheds. Other forest products, such as fuelwood and fodder, can be easily made available to users at lower prices. A portion of the CFUGs’ income is being spent so that transportation, education, health, and income generating activities can be improved. Priorities, for community development include the building of local schools, rural roads, drinking water
facilities, irrigation, temples, health posts, community buildings, bridges, and various other local infrastructures.

Despite the success of community forestry, benefits are not equally shared amongst CFUG members. One cause of inequality has been the failure by management to assign equal access rights to user members who depend on local forests. Consequently, there is an unfair and inequitable portioning of forest products. Furthermore, there is unequal representation of users in the decision making process.

This chapter has shown that community forestry has delivered socio-economic outcomes. Sustainable forest management and development of forest resources is occurring when there is active participation by all members of the CFUG, including women, poor people, and disadvantaged groups. In addition, CFUGs have been able to invest income from the sustainable harvesting of forests over the last fifteen years in formal school education facilities, informal education programs for women, poor and disadvantaged members, as well as scholarships for poor students. The CFUGs’ funds have also been utilised in development of local infrastructure. Interaction amongst CFUG members, between CFUGs, and between CFUCs and DFO staff, are crucial regarding positive outcomes.

Nonetheless, up till now, there has been a limited positive impact on the livelihoods of poor and disadvantaged CFUG members, because the protection-orientated forest management approach of CFUCs has not made available to all CFUG members the required amounts of forest products. The inequitable distribution of benefits from community forestry arises primarily because of the domination of the distribution process by elite and rich members. Furthermore, the collecting and mobilising of CFUG funds are controlled mainly by elite CFUC male members. Contributions by CFUGs to local community development programs depend largely on the interests and decisions of elite members of CFUCs. Money is spent mainly on the construction of buildings, roads and temples, whereby poor people do not directly benefit. Therefore, community forestry is currently somewhat regarded as being ‘committee forestry’. In order that the objectives of community forestry be reached, policy makers and forest managers have to be able to recognise what is required, in relation to important socio-economic outcomes being achieved, and the rights of people in local communities being properly established. Chapter Seven discusses the factors that influence the socio-economic outcomes of community.
Chapter 7
Factors influencing the socio-economic outcomes of community forestry

7.1 Introduction

This chapter explores significant factors emerging from the research shaping the socio-economic outcomes of community forestry to answer the third key research question. Some key respondents were asked directly about which factors they thought were influential in creating positive or negative outcomes. For the most part of this chapter, the discussion of the main factors identified by the respondents, and highlighted in the CFUGs’ office records is further analysis of the outcomes presented in Chapter 6.

Methods used to generate data for this chapter include reviews of office documents (consisting of reviews of constitutions and FOPs, meeting minutes, audit reports), in-depth interviews, semi-structured household survey with user households of different socio-economic groups, focus group discussions and participant observations. Selected male and female key informants were interviewed to document internal factors, for example, power disparity, socio-economic characteristics of users, caste discrimination, elite domination, exclusion of women and Dalits in community forestry process, and communication gap within the CFUGs. The same informants were interviewed to document external factors, for example, resource ownership and security, forest characteristics, compliance with FOPs, government bureaucracy, fear, mistrust of government and conflicts market access, external support, communication gap between government’s forestry office and CFUGs) all of which tend to shape socio-economic outcomes of community forestry. Based on the analysis of data collected from the fieldwork and other various sources, I argue that, power disparity, governance, resource ownership allocation and support from external donors and government agencies are the key factors influencing the extent that socio-economic outcomes are generated from community forestry for rural communities in Nepal.
Figure 7.1 Factors influencing socio-economic outcomes of community forestry

- Caste discrimination
- Social exclusion of women and poor members
- Elite domination in decision-making and benefit sharing mechanism
- Inequitable benefit sharing
- Resource ownership and security
- Compliance with forest policies and forest operational plans
- Government bureaucracy
- Fear, mistrust of government and conflicts
- Communication and information flow in CFUGs

Other factors:
- Forest characteristics
- Household characteristics
- Market access and control
- External supports
7.2 Power disparity

Within the case study areas, power disparity of CFUG members appeared as an influential factor upon socio-economic outcomes of community forestry for rural communities in the study areas. It is a key social element both within and between the CFUCs and CFUGs, and has played an important role in biased decision-making and inequitable benefit sharing mechanisms in community forestry which has ultimately affected the implementation of constitutions and FOPs. Therefore, power disparity is critical and if not addressed, has the potential to seriously undermine all the positive gains made to date.

Power disparities have apparently mixed effects, limiting the potential for poverty alleviation but allowing, perhaps even enabling forest conservation. One of the respondents of the DFO staff of Kabhrepalanchok District expressed his view of the consequences of power disparity in the implementation of community forestry as:

“...theoretically, community forests must be used for the betterment of all poor and disadvantaged members. If forests are not for providing benefits to these members, it would not make any sense for the conservation... and it would not be justifiable. The misuse of power or disproportionate sharing of power has led to destruction of community forests as well as existing social cohesion and trust...domination of powerful elite over the poor and disadvantaged members in utilisation and management of CFUGs’ funds has created conflict, and in the long run, it will not be sustainable.”(KBR2, November, 2009).

The above quote indicated that power disparity still exists between upper and lower castes, between rich and poor members. It appeared that the power disparity is mainly caused by the misuse of power in a few people’s hands. As a result of power disparities, community forestry programs were not effectively implemented by executive members of the CFUGs. The overall CF process still reflects and exacerbates existing divisions within communities, leading to user group domination by local elites. In this research, elites are denoted as the people with substantial advantage in decision-making processes due to their wealth, social/ caste and/or hereditary status. The factors that contribute to this domination by local elites are described in the following section.

7.2.1 Socio-economic background of users

Principally, collective actions and inclusions of all members of a CFUG are the prerequisites for sustainable management and development of community forests.
However, the CFUGs are not homogenous and there are diverging interests in regard to use of the forest. Conservation of forest is a priority but interests vary when uses of other products other than fuelwood and timber are in question. The low socio-economic status of women and poor people leads to unequal sharing of power in the society. The powerful and rich people in the rural communities participate in community forestry processes in order to keep power and control over valuable resources, they also tend to have sufficient time and other resources to be able to participate regularly in meetings (e.g. may employ farm labourers). Therefore, socio-economic background of members is an important factor in power disparity among the rural communities.

As reported by the respondents from the FECOFUN (n=6), rich peoples not only have a high economic profile in the rural communities but also have higher social status compared to poor people because of their wealth [Chapter 5]. The level of participation is also directly influenced by the socio-economic status of members of the CFUG. The respondents of DFOs (n=10) informed that all households of the CFUGs do not need exactly the same amount of forest products at all times. In all three CFUGs, wealthier households have greater use of forest products compared to poorer households which generate different incentives for forest use and forest management. Wealthier households prefer forest products which support the agriculture system such as timber for building constructions, fuelwood and fodder, whereas poorer households prefer mostly small timber, dry fuelwood, leaf-litter, fodder which can generate cash and support their basic subsistence livelihoods [see Chapter 6, Section 6.4.1, Tables 6.14, 6.16 and 6.17]. However, it is likely that richer households have easier access to alternative forest resources from their private land. Thus, each household may or may not participate despite having similar rules, provisions and preferences with respect to conservation and sustainable use of forest resources. In addition, the access to the forest represents wealth, power and prestige in society as well as a means of livelihood and access to the resources. To illustrate this, the respondents of the Central Office of FECOFUN commented,

“…better off members have extra time to be involved in the executive committees and can actively play roles in decision making processes of CF. Contrary to this, poor members do not have much time to participate in committees’ meetings because they have to spend most of their time doing hardworking labour jobs to solve daily hand to mouth problems…” (CNTL6, December 2009).
“...although the decision-making process has become more progressive and inclusive than in the past, there are no specific pro-poor outcomes of CF...” (CNTL4, December 2009).

In addition, supplementary work load of poor and women members has also increased due to their engagement in forest protection and management activities. Because of their high work load and low socio-cultural position, their participation in decision making and benefit sharing process is often inadequate. These groups of users have limited or no access to other alternative resources such as private forests and also little or no purchasing power for forest products from the local market. This situation has created a poverty trap and discrimination of this group of users.

During my field observation, I also noticed that some of the dominant features of the disparities between rich and poor members are access to education, ownership of private land, access to decision-making processes and rights. Yet, the disparities are so embedded in society that it will take more than just a regulatory requirement for CFUGs to follow a democratic method of voting in discussions and making decisions in annual general meetings, where different socio-economic groupings are represented, to change society. Lack of land or small landholdings which are passed on from generation to generation make it difficult for new generations to improve their standard of living with only minimal land and subsistence farming system. With a large number of households being poor and education that costs money, it is difficult for poor families to provide their children access to full education. Many illiterate and poor members of the CFUGs are still superstitious and believe in traditional social taboos. Patriarchal structures and process such as gender division of labour, undervaluation of contributions of women to support their household economy result in a low level of ability to attend meetings.

Almost all tasks ranging from household chores, child care, aged care and management of livestock to farm activities are considered to be women’s primary responsibilities in all the three villages. Most of the tasks of community affairs like that of attending general assembly, meetings, and involvement in decision-making forums fall to men. Generally, men are reluctant to accept more flexible gender roles especially the household chores. One of the poor male respondents of HJCFUG commented as,

“...our community does not accept men cooking, washing, cleaning, feeding children. These are women’s responsibilities. It would be better opportunities for women if they can do both domestic and community works but it is not possible for them. Tell me one thing, if my wife
"... emerging evidences and experience of implementation of CF show that CFUGs are unable to address the concerns of Dalits and disadvantaged members of the community. It has been noted that comparatively upper caste rich members influence the decision-making process in committees benefitting themselves." (CNTL1, December 2009).

As reported by respondents of focus group discussions (n=12), the caste discrimination in rural communities makes it particularly difficult for Dalits and disadvantaged groups to achieve a subsistence livelihood. In addition, Dalits occupy the most marginal land and generally live in very poor conditions. The Dalits members of the CFUGs are frequently disadvantaged when dealing with the upper caste people. The Dalits households have less...
access to forest resources compared to upper caste households. So they receive only minimal benefits not from community forests but also from small farm and the livestock industry. To illustrate discrimination against the lower caste members, one of the Dalits respondents reported as,

“... we have been still prohibited from selling fresh milk to the local dairy cooperatives because the local upper castes fear that the milk or milk carrying utensils touched by Dalits will be ritually polluted.” (KBR18, November 2009).

At the initial stage of my field work, I found the lower caste members of the CFUGs to be shy, particularly when I was accompanied by upper caste members. However, once I gained their trust I found they were quite willing to talk about their needs and interests, problems and prospects. Most Dalits respondents interviewed indicated they saw little hope of achieving equitable benefits of community forestry due to caste discrimination by the members of upper caste in their CFUGs. In addition, according to respondents from lower castes, they were more likely to be punished for breaking the rules than upper caste members. This eventually leads to non-observance of CFUG rules and even destruction of community forestry by the powerless because they feel cheated. A review of office records of CFUGs and discussion with participants of focus group discussions revealed that in theory, the rules associated with fines are equally applicable for all users irrespective of their socio-economic position. However, in practice, enforcement of fine rules is confined especially to poor members. One poor Dalits respondent of the KCFUG commented as,

“...there are lists of fines associated with the rule-breaking in our community forest operational plan. But these fines and rules apply to the poor Dalits members who do not have access to say something in the executive committee. The rich and upper caste members buy products of their share from the community forests and sell it to the local saw mill or even outside the community, which is illegal, but these people are never fined. The committee finds it easier to fine a poor Dalits woman with a small head load of dry fuelwood and fodder collected from the forests, but turns a blind eye to rich and upper caste members who break the rules for extra illegal incomes from the community forest.” (CHI23, October, 2009).

Although women of different caste and economic classes are influenced differently by socio-cultural norms and values, poor low caste women face more discriminatory societal norms and hence, are more marginalised and disadvantaged compared to better off upper caste women. According to lower caste women in SDCFUG, they are more discriminated against compared to the upper caste women in collecting fuelwood and fodder from the
community forest. The executive members used to admonish them and warn them not to collect fuelwood and fodder when the forest is closed, but upper caste women collect fuelwood without any warning by others. One Dalits woman said,

“...upper caste women collect fuelwood and fodder freely though forest is closed at that time, but whenever we go forest to collect the fuelwood upper caste people accuse us of stealing the products.” (SIN18, October, 2009).

7.2.3 Elite domination in decision-making and benefit sharing process

A review of constitutions and forest operational plans of the CFUGs showed that equitable involvement of all minorities of the rural communities in decision making is essential for benefiting from the community forestry program. Although a key principle of CF requires a participatory decision-making process, as discussed in Chapter Six, there is still elite domination in decision making and benefit sharing process. The rich and powerful people are elected to control access to and use of the forests. This is not necessarily because the rich and elite are the best managers, but rather because they have the higher position in the communities to obtain executive power. The composition of executive committees also has consequences for poor people’s access to and use of forest products, since the needs of the poor and marginalised members are not always the same as needs of elite and rich members. Thus, the rules are likely to be considered from the point of view of the controllers and owners of the forest resources. In fact, a review of the FOPs showed that the rules of the CF do not reflect the needs of poor and disadvantaged members adequately. Consequently, the poor and powerless members are not represented in the executive committees. A poor respondent of HJCFUG said,

“... rich and elite people having power (of money, social position, and political influence) are respected and ... they involved in decision-making and benefit sharing mechanism, we do not have power and access to participate in decision-making and benefit sharing mechanism, and so we do not get equitable benefits from our community forest.”(KBR19, December, 2009).

I observed three CFUCs’ meetings, one in each study site. During my observations, I found that domination of male elite members of the CFUCs was common in the meetings. In decision-making processes, normally the secretaries of the executive committees proposed the agendas, one by one each of elite and the most elite member took part in the discussion. Finally, the decisions were taken based on the interests of male and elite members rather
than based on the consensus of all members. During these meetings, women members were just attending to meet the quorum for meetings. Elite male members did not appear to acknowledge or record the views of the women members who were present. In addition, sometimes the decision-making process took a long time and increased the transaction costs in terms of time and meeting allowances. Although the regular monthly meetings, minute and record-keeping systems have showed that the decision-making process is gradually improving in the CFUGs, according to the existing constitutions and FOPs of the CFUGs, the chairperson of the committee has the power to make the final decision when there are disagreements between members of the committee. The data collected from household surveys also revealed that rich and medium households are getting more benefits from collecting forest products (Appendices 16.1 and 16.2).

7.2.4 Social exclusion of women and poor members

Women and poor members of CFUGs can play important roles in implementation of community forestry at a grass root level. As I presented in Chapter Five, the committees are still most often controlled by forest uses by male elite, based on their own interests and not the concerns of the women and poor members. Even though lower caste and women are part of committees, they remain silent in the community forestry process. Social hierarchical structure of rural communities obstructs women and poor members in opposing the rich and elite members.

Social exclusion of women, *Dalits* and disadvantaged members in the community forestry processes not only misjudges their contributions but also challenges the further expansion of community forestry in rural areas. The results of this research show some efforts of the CFUGs are helping to develop new skills, knowledge, confidence and self-reliance of resource users to collaborate and engage in sustainable development. However, major problems are still being encountered in the community forestry program due to the lack of involvement of poor, lower caste, illiterate and women in various activities of community forest management. To illustrate exclusion of poor households in decision making process, one of the respondents from DFO Chitwan commented,

“...though the poor households also have outstanding opportunity costs of participation as the time spent on participation could be used as labour for cash,... they do not benefit from community forests as much as the others richer households do and,... women and poor are not getting equitable opportunities to participate in the executive committees due to their exclusion by elite members...”. (CHI1 September 2009).
One respondent of the DFO Sindhupalchok reported that in the earlier stage of CF, shortcomings of the Government’s forestry staff to initiate the community forestry program with equitable involvement of all users in the community forestry process led to failure of CFUGs to implement their FOPs properly and their functions were just like as ‘Committee’ or ‘Chairman’ Forestry rather than ‘Community Forestry’. However, some of the users still attend executive committee only to show their physical presence and to meet the requirement of a quorum for their meetings rather than to actively participate in discussion and the decision making process. The criterion of ‘authentic participation’ and the female forest users’ indispensable role in the goal of equitable benefit sharing is still uncertain in community forestry. One of the female respondents of the HJCFUG commented

“Women are still not present in equal number to men in executive committees and decision-making process of CF. Women’s subordinate position to men in rural communities comes from the patriarchal structures and culture that is gender division of labour, unequal access to membership and participation, control over community forest resources and community funds” (KBR6, November, 2011).

My field observation showed that the household dependence on community forest income varies according to socio-economic attributes of the household and resource conditions. As discussed in Chapter Five and Chapter Six, the community forest incomes and benefits mainly go to the upper caste, male headed, literate and richer households. In contrast, due to the exclusion of untouchable and lower caste, the poor, female headed and illiterate households, these groups have not been receiving satisfactory benefits. As outlined in Chapter Six, as the income level rose, the dependency on community forest income declined. Community forests’ income is more important to improve socio-economic conditions of the poor, illiterate and untouchable households who own lower household capital, but these people are not getting adequate benefits from investment of community funds.

7.2.5 Inequitable benefit sharing mechanisms

Equitable benefit sharing mechanisms or putting the last first is an important prerequisite for getting optimum socio-economic outcomes of community forestry and to support rural livelihoods. It is a special consideration for the pro-poor, women and disadvantaged members of the CFUGs. It also encompasses human rights and gender equity issues and the reversals, not for absolute but for levelling, of putting the last first and the first last to be considered in all contexts. This fundamental concern for these disadvantaged groups is in
conflict with the widely existing socio-political system of the hierarchical nature. Therefore, it is the most challenging as it lacks the support of or even the consent of the elite and rich members of the CFUGs.

Provision of equitable and positive discrimination for distribution of timber, fuelwood, leaf litter and other NTFPs are crucial to improve the socio-economic conditions of socially backward and economically poor and Dalits members of the CFUGs. Besides, allocation of some piece of community forest land, allocation of some grant support for soft loan to pro-poor and disadvantaged households to conduct various skills development training and income generation activities are also valuable contribution of CF to support the living standards of the poor rural people. Although some provisions for poor and women users have been incorporated to the FOPs, elite and powerful executive members of the CFUGs are reluctant to implement these provisions. One of the respondents of in-depth interviews of Dalits women of KCFUG stated,

“Though some provisions for equitable distribution of forest products there are mentioned in community forest operation plan, it is almost nothing to see in practices while implementation of such operational plan in favour of poor and disadvantaged members. All users have to pay the same rates for forest products and other activities of CF. ... there are no positive discriminations for poor and disadvantaged members. Not only this, sometimes relatives and kin of those who are in the executive committee are favoured more and they are provided with high quality timbers than the other poor and Dalits members are provided with” (CHI23, October 2009).

Various women and poor users’ empowerment programs have been proposed in the FOPs. The FOP has provisions for scholarships to poor and disadvantaged students, allocation of some CF land for additional income generating activities, women health programs and a commitment to transparency in fund collection and mobilisation. Various humanitarian support for the victims of natural disasters, supplying medicine and some provisions for shelter support through goods and services to the pro-poor users have been incorporated in the FOP. However, all these provisions have not been implemented in practice; therefore most of the equity issues remain on paper [see Chapter 6, Section, 6.2.1]. With strict controlled access and limited use, sometimes community forestry has adverse effects on the poor users, who do not have enough land and depend mainly on labouring, and are highly dependent on the forest for collection of fuelwood, fodder timber and leaf litter for basic needs. In other words, power disparity has led to the inequitable governance which has
remained a major challenge in generating socio-economic outcomes of community forestry for rural communities.

### 7.3 Governance

Although good governance is one of the key factors affecting socio-economic benefits from community forestry, the CFUGs still need to do much more to improve governance in the implementation of community forestry. The CFUGs were not truly satisfied or convinced that community forestry can improve socio-economic conditions of people through sustainable management and development of forest resources.

#### 7.3.1 Resource ownership and security

I found the majority of FECOFEN representatives (n=6) in all three districts highly skeptical about the community forests being handed over to CFUGs. They had a feeling that the DoF would take the forest back once its condition improved. Ownership of the forest land makes the Forest Service the overall controller of the forests. The respondents realised that allocation of clearly defined property rights over the forest resource are very important factors for generating socio-economic outcomes and sustainable management and development of the community forest resources. On the other hand, the existing legislation fails to transfer the ownership of the forest land to the CFUGs. Land ownership of all national forests including community forests is still with the DoF. Constitutions and forest operational plans of CFUGs are still to be approved by the DFOs and Rangers and Forest Guards are still seen by villagers as authority figures. Some of the respondents from the CFUCs’ and FECOFUN were suspicious about the real intention of some ambiguous clauses such as Article 26 and 27 of the Forest Act 1993. Article 26 in the Forest Act 1993 reads,

> “If any amendment made in the forest operational plan by the community forest user group is considered likely to affect adversely in the environment in a significant manner, District Forest Officer may direct the community forest user group not to implement such amendment within 30 days from the date when he receives such information it shall be the duty of the community forest user group with such directives” (GoN, 1993, pp.15-16).

Furthermore, Article 27 has a provision that “community forest may be taken back” by the DFO. The conditions for taking back expressed in the Act are vague, such as “adverse effect on the environment”. It is likely that the DFO can accuse the CFUG at any time on
the basis of this clause. The language in Article 27 of the *Forest Act 1993*, illustrates this fact,

“In case the users’ group cannot operate its functions in accordance with the forest operational plan in the community forest handed over ... or operates any functions which cause significant adverse effect in the environment or does not comply with the terms and conditions to be complied pursuant to this Act or the Rules made thereunder, the District Forest Officer may decide to cancel the registration of such Users’ Group and take back such community forest as prescribed” (GoN, 1993, p.16).

A review of the Forest Act 1993 showed that rather than the court acting as a third party in disputes between forest users and the DFO, the forest bureaucracy retains the power of the court. For example, complaints about the dispute would not be handled in a court of law but by the Regional Forest Director who takes care of disputes arising between the public and the DFO (GoN 1993, p.18). This leaves room for discretion and possible abuses of authority.

### 7.3.2 Recommendations by respondents: trial privatising community forestry

The respondents from the government forestry offices claimed that community forests are managed as communal or common-property. Rules and conventions are provided by the existing Government’s community forest policies and legislation, and communal rules and regulations are set by the CFUGs’ members themselves. The existing community forest policy and legislation provide legal rights to the CFUG only for management and utilisation of community forest resources. The CFUG’s constitutions and operational plans which are prepared by the users themselves with the technical support of the DFO field staff, grant a bundle of use and management rights to the local communities under the broad framework of *Forest Act 1993*. These FOPs have descriptions of roles, responsibilities and rights of forest users [Chapter 3]. As these rights are often subject to interpretation, they vary with the economic value and ecological sensitivity of the product and are shaped by the relationship of power between the DFO and the community.

The CFUG requires getting approval of its constitution and FOP, the periodic renewal, annual financial transactions, activity report, annual allowable cut and several operational issues such as permit for harvesting, sale and enterprise operation. However, there were some gaps between CF policy and its implementation at the local level. Respondents from CFUCs (n=10) and FECOFEN (n=6) reported some areas where the DFO staff and
community leaders had conflicting interpretations based on their own interests. Sometimes the CFUC members tried to challenge or ignore the legal and regulatory framework. For example, constructing physical infrastructures such as a school in Shreechhap Deurali; swimming pool, picnic spots and swings for ecotourism development in Kankali; stone and red clay quarries in all three community forests also showed that communities did not always exercise their rights in the form of visible struggles or formal agreements but through different informal channels which were illegal.

Discussions with FECOFUN representatives (n=6) indicated that the transfer of land ownership rights to the local CFUGs is becoming a debatable issue in the community forestry arena. The respondents of the FECOFUN avowed that now Nepal is undergoing a political transition and state restructuring and thus is observing a national constitution building process through the elected constituent assembly. These changes will have a significant influence on forestry policies and institutions. The FECOFEN representatives and other community forestry advocates argue that well defined property rights is one of the most important elements for maintaining institutional sustainability of CFUGs, and it is also the main reason and basis for people participation in community forestry. A district FECOFUN chairperson commented:

“...the existing CF policy only allows transferring of legal rights and ownership to use and manage the forest resource to the CFUG; thus, land ownership still rests with the government. That is why partial transfer of rights and ownership cannot assure long-term benefits from the CF to improve the socio-economic condition of the rural community. Therefore, clearly defined complete ownership and rights over the forest resource should be transferred to the CFUG for assurance of long-term benefits of CF and sustainable management and development of forest resource as well as to contribute its valuable efforts for poverty reduction. However, there would be a threat to capture land by elite members...” (KBR4, November, 2009).

In contrast to the FECOFUN chairperson, almost all respondents of the government staff (n=13) did not agree to the transfer of land ownership to the CFUGs. In their view, it would not be possible to protect forests if the government transfers land ownership rights to the CFUGs. The Government staff believe that ultimately elites and rich people will capture and use the forest land for their private benefits and the poor and disadvantaged members will not get opportunities to be involved in equitable decision making and benefit processes of community forestry thus, they will be excluded from getting the socio-economic benefits
of the community forests. To support this view, one of the respondents of the DFO Sindhupalchok gave his opinion as:

“...in my opinion, they should be given the land ownership but not yet because there is a big gap between the users and government. The government at this stage is not ready to give land rights to the forest user groups. This would create conflict between the government and CFUGs. Also, sometimes it would create conflicts between CFUGs and elites and powerful members of FUGCs. Elite members would use the forest land for non-forestry uses” (SIN1, November, 2009).

One of the CFUC members expressed his view regarding the ownership of community forestry land as,

“... the existing provisions of transfer of rights of management and use of forest product to local CFUGs are sufficient for now. Though it would be better to transfer the land ownership from the government to the CFUG but we poor and disadvantaged people are still not able to get full benefits of community forestry. Elite and strong members are getting more benefits from the community forest. So, in the absence of proper monitoring mechanism from the DFO, it would not be possible for transferring landownership to the CFUG because, there would be a threat to capture land by elite members...” (KBR14, November, 2009).

Indeed, well-defined ownership over the forest resources is essential for long-term assurance for forest users’ access to resources over which they have collective claims. However, the same assurances cannot be provided by the existing community forestry policy. Therefore, full transfer of ownership rights over the forest land from the Government to CFUGs is not an urgent need for providing optimum socio-economic outcomes of community forestry to support livelihoods of rural communities in Nepal. Prior to full transfer of ownership of community forest land to local communities, attitudes and participation of users has to improve and equity issues should be addressed properly through improving governance of CFUGs.

7.3.3 Compliance with forest policies and forest operational plans

In a broad sense, forest management is the application of business methods and technical forestry principles to the operation of forest property. However, the primary focus of CF is local users not business. Indeed, the scientific operational plan is a CF management scheme or a road map of forest development which defines management objectives, rules and silvicultural operations. So, in this context, compliance of the existing forest management plans is one of the most important aspects of community forestry that shapes the socio-
economic outcomes for the local communities. In order to optimise the positive socio-economic outcomes of CF, the FOPs have to be developed and implemented properly. However, there exists inequity in the compliance of forest policy and rules and this has negatively impacted on access to socio-economic benefits of community forestry for the poor and Dalits members. One of the poor and Dalits members of KCFUG complained,

“...the executive committee recorded higher price for the timber we obtained and we were forced to pay higher price. However, the high-caste members even took more timber secretly but were not forced to pay that price.” (CHI18, September, 2009).

According to low caste women, the enforcement of the rules restricting collection and use of fuelwood from forest for a long period creates problems in fulfilling their household needs.

“We are not allowed to collect small dry fuelwood from the forest when forest is closed. The committee members people told us that during this time, we can collect fuelwood at price of Nepali Rupees two per kilogram from the depot. Due to this rule, we have problem in fulfilling our basic needs of fuelwood.” (CHI22, October, 2009).

Reward and punishment systems have improved compliance, helped to maintain appropriate discipline within the CFUG and removed the free rider problems and adverse effects of externalities in the forest management system. Appropriate reward and punishment systems have been established by the CFUGs (see details in Chapter 6) for producing anticipated social outcomes and detailed explanations of systems given in the CFUGs’ constitutions. As per the approved constitutions and the FOPs, the CFUCs punish any member who does not follow the rules and regulations prescribed in their constitution and operational plans. Thus, all the households in the CFUGs are obliged to work proportionately for management and development of community forests. For example, in KCFUG, a penalty equal to one day’s wage is levied on absentees. The KCFUC also provides rewards or incentives to those who contribute remarkable efforts to the conservation of the community forest.

In order to improve the quality of FOPs, there needs to be capacity building of the CFUGs and of DFO staff that will result in sustainable management and development of forest as stressed in community forestry. For example, fixing an annual allowable cut is one of the contentious issues that involve intense negotiation. Ideally, it is based on the ecological assessment of the regenerative capacity of the forest using a detailed inventory. However,
in practice the DFO staff usually claim that they have the 'legitimate' knowledge and skills to calculate the annual allowable cut. There is often a gap between the technically calculated allowable cut and the demand for timber in the user group. One of the respondents of DFO Chitwan said,

“CFUGs still do not have adequate skills and knowledge about how to apply silvicultural and harvesting and logging operations in their community forests. Most of the CFUGs are still very weak in forest inventory and other technical aspects of forest management. Mostly, elite members of CFUCs are interested to increase their funds by overharvesting of timber and fuelwood. So, we (government forestry staff) are very aware in calculation of annual allowable cut, and in prescriptions of quantity of forest products harvesting during the preparation of their forest operational plans to control overharvesting of forest products from their community forests” (CHI4, September 2009).

In addition, the CFUG leaders usually develop ambitious development plans to be funded by the timber rent in order to keep their constituency happy. Both the CFUG leaders and the forest technicians know that they can manipulate the calculation of annual allowable cut. They, therefore, indulge in extra-legal negotiations to change the level of harvest. Any reluctance to enter into these negotiations or noncompliance with the mutual understanding often results in tension sometimes leading to legal disputes. In this situation, it is not possible to generate expected socio-economic outcomes of community forestry for rural communities.

7.3.4 Government bureaucracy

In Nepal, forest bureaucracy also has a vital role in implementation of community forestry policy for generation of socio-economic outcomes of community forestry for rural communities. By nature of administrative and bureaucratic behavior, some of the DoF staff are reluctant to handover good condition forests to the local people. They try to control the CFUGs forest management by limiting access to the forest, which sometimes may not leave enough forest products for the users and thus CFUG members may over-exploit the forests that are available to them. In this regard, during the in-depth interview, one informant, the MFSC reported,

“...in the last two decades, I have not seen any growth of new saplings converting into poles and mature trees in our country. What we have been doing is just harvesting all the mature trees in the name of government or community management. Do you have any such
example where certain hectares or areas of different stage of forest cover have been growing and developing which could serve the needs of furniture industry or others without declining the forest areas and biomass? This is the challenge for foresters.” (CNTL3, December, 2009).

Commonly, the DFO staff can help in preparation of FOPs, and thus, they have the ability to directly introduce such provisions or influence the CFUGs’ leaders to include such provisions. Although, the CFUG members are allowed to use technical assistance from outside the forest bureaucracy, they prefer to utilise the government staff as this eases the process of getting the DFO’s approval. Consequently, the CFUG members are compelled to accept many unwanted provisions. This occurred during the early days of CF when the users had little understanding of the FOP process and were not organised to defend their rights. The first FOP was prepared primarily by the ranger. Consequently, there was the insertion of protective provisions in the FOPs which prohibited the extraction of timber to fulfill household demands. Today, many community leaders see the DFO staff’s conscious manipulation of the FOP’s contents as curtailing their community rights. One of the respondents from Central Office of FECOFUN commented regarding control of government offices to the CFUGs as,

“... even after handing-over of forest management responsibility and rights to the local communities, government forest officials still tend to exercise control at various stages of harvesting of forest products. Although the existing forest legislation recognizes CFUGs as autonomous local forestry institutions, CFUGs still have to get approval from DFOs to mark trees for felling, to collect logs and bring them to depots, to saw logs, and to sell timbers and fuelwood outside the CFUGs. More importantly, all these approvals and instructions of DFOs enact symbolic violence when obediently accepted by CFUGs.” (CNTL6 December, 2009).

7.3.5 Fear and mistrust of government

The image of DFOs in many public eyes is still negative especially in Tarai and Inner-Tarai districts. People fear government field staff as they hold enormous legal authority (such as firing and arresting, jail and court cases, financial punishment). The legacy of the past image of DFOs and their staff has not yet completely disappeared. In addition, some of DFO staff are still reluctant to hand-over dense and good quality forests to local CFUGs. Sometimes, we can see conflicts between DFO and local users in hand-over of forests to a CFUG. In some cases, conflicts between two or more forestry programs or agencies
working in the same geographical area (for example, leasehold and community forestry or collaborative and community forestry) create confusion and difficulties.

Additionally, in response to the complaints by those who have little access to the timber, the DFO issued a circular that the CFUG must meet the local demands before selling timber to the open market. As per the provision, the CFUG wanting to sell timber must go through a series of administrative procedures including public notification, getting sale permit from the DFO and so on. The administrative and bureaucratic requirements have largely discouraged the CFUG from selling its products in the market. Selling all the products within the group is one way of avoiding these cumbersome processes. As a result, most of the products are sold within the group at nominal price. Ultimately, it results in low timber rent that could not potentially be invested in poverty reduction.

My field observations showed that the forest bureaucracy is still largely against active forest management intervention especially for the cutting of trees. Some of the bad market practices, often operating under the nexus of the timber mafia, local elites and some forest officials has further strengthened this sceptical view. Moreover, the negative impacts on equity and sustainability in some cases have further contributed to disputes. It is however, argued that, in many cases those who preach for subsistence use are benefiting both from legal trade and illegal transactions with the market. Therefore, apart from concerns of unsustainable harvesting, biases against trade and enterprise are sometimes driven by vested interests of forest officials to maintain control over valuable resources.

Some of the limitations of Government bureaucracy, as reported by several respondents of in-depth interviews (n=18), are presented below:

- frequent changes in the government forest policies and lack of interest of government staff to hand-over forests in good condition, resistance of some forest professionals;
- target oriented CFUG formation and forest hand-over programs rather than quality based CF;
- limited technical capacity of available manpower of DFOs - this is due to lack of updated information and knowledge about new innovation in forest management;
- conflict between foresters and sociologists; and
- impractical, irrelevant and conventional forestry training at the Institute of Forestry.

Source: In-depth interviews, 2009 (CNTL1, CNTL5, CHI1, CHI20, CHI24, KBR1, KBR4, KBR6, KBR11, KBR14, KBR18, SIN1, SIN2, SIN5, SIN6, SIN7, SIN11 and SIN19).
However, in comparisons to the initial years of implementation of community forestry in the study sites, now, the CFUC members are increasingly becoming active and engaging in the OP revision process. The process is relatively more consultative though there are often complaints that the voices of the poor and the marginalised are not adequately heard or valued. Moreover, since DFOs and external support agencies provided support in preparing the first constitution and FOP as its legal documents, the traditional dependency on the DFO staff is decreasing. As a result, the recent FOP is relatively stronger in terms of securing users’ rights of management and utilisation of community forest resources.

### 7.3.6 Communication and information flow in CFUGs

A review of constitutions and forest operational plans of the CFUGs showed that the CFUGs’ general assembly is an important decision-making and information sharing forum where the direction of CF is decided. Mostly rules related to user mobilisation, member selection for their executive committees, rates of fines for rule breakers, forest product distributions, prices of forest products and collection and mobilization of CFUG’s fund are made or amended by users present in the assembly. In this context, presence of each member is crucial to secure their decision-making rights. The CFUC decides the date and venue of the assembly. The CFUC is responsible to take decisions and communicate to its users. A provision of representation of members from different hamlets was noted in the constitutions of all three CFUGs with the assumption of information being disseminated to the respective hamlets.

However, data analysis showed that only 20 percent to 40 percent of users have been informed by the CFUCs’ members (Figure 7.2). The communication and information flow mechanism within the CFUG was not so effectively developed. When comparing between the different wealth ranks, the majority of very poor and poor members had less access to information. As reported by the respondents of focus group discussions (n=16), the main reason behind this fact was information flow through public notices in public places was not applicable for very poor members who were illiterate. About one fourth of users of all well-being ranks had not got information about the general assembly so that these users are left out of CF activities as far as decision-making is concerned. It is an important aspect for the development of the CFUG because the general assembly is one of the best opportunities for all users to know about the provisions of constitutions and FOPs that the CFUG implements decisions made at the CFUC meeting and the assembly level. Lack of
information hindered the active participation of all users in CF process and in the generation of socio-economic outcomes of community forestry for supporting livelihoods of very poor and poor households. A poor Dalit respondent highlighted the problem of information flow in the KCFUG as,

“..we (poor and Dalit members) cannot attend all CFUG general assembly because we do not get information about date and agenda of general assemblies and meetings. The executive committee does not inform before the meetings. Sometime, we get information after the meeting. So, we do not know what they are doing? ...we cannot give up our wage work to solve daily hand to mouth problem... community forestry meetings cannot provide food for our children and families.” (CHI23, October, 2009).

**Figure 7.2 Communication and information flow in CFUGs**

![Communication and information flow mechanism in CFUGs](image)

**Source:** Researcher’s household survey, 2009 (n=138).

According to the in-depth interviewees (n=15), there are still big communication gaps between committee members and general members and between the DFOs and CFUGs. As reported by the respondents from DFOs’ staff, due to lack of resources and heavy workload of forestry field staff, the DFOs could not communicate and provide information to all CFUGs in effective ways. Consequently, CFUGs were ignorant about periodic changes in government’s forest policy and regulations. To illustrate the problem, DFO Kabhrepalanchok explained as,

...most of the FOPs are prepared for five years. After completion of this five years period, CFUGs need our support for revisions of their FOPs. But we do not have adequate budget and sufficient staff for providing post-formation supports. So, in this district, at we have more than 50 FOPs that need to be revised. These CFUGs are ignorant about legal provisions to revise their FOPs and are still implementing their outdated FOPs (KBR1, November, 2009).
Information collected during the focus group discussions showed that although many people are fully dependent on the existing community forests for their livelihoods and there have been many CFUGs so far, they have not been looked after well. There still exists a communication gap between the government’s forestry staff and CFUGs; this is a reason why users have no clear idea about existing forest policy and legal provisions to implement their community forestry. Also, the majority of user members are unaware of the contents of the CFUG constitution and unenthusiastic to implement management prescriptions that have been incorporated in their forest operational plans.

7.4 External support

The influence of external support on the generation of socio-economic outcomes of community forestry is evident in all three CFUGs. The support provided opportunities to build their capacity for planning and implementing community forestry through various technical training activities for users and informal literacy programs for women and poor members. As reported by the respondents from DFOs staff of Sindhupalchok and Kabhrepalanchok, (n= 6) and senior forestry officials of the DoF (n=3), external support and partnerships approach can have a vital role to generate adequate socio-economic outcomes of community forestry. For example, the NAFP, as the pioneer project of community forestry, had played central roles in initiation and development of community forestry in Nepal since 1978 to 2006. The project supported CF in Sindhupalchok and Kabhrepalanchok districts to improve the living conditions empower the target population with emphasis on equity aspects and sustainable management of natural resources. Therefore, the focus of CF in Nepal in general, and Sindhupalchok and Kabhrepalanchok, in particular, is to enable user groups to implement community forestry related activities leading to balanced and sustainable social, economic and ecological benefits. The NACFP-4 (1992-1996) and NACRMP (1997-2002) were actively involved in CFP to achieve sustainable, gender-balanced, poverty-oriented results through the implementation of CF with different partners like LNGOs, private organizations and GOs. Establishment of forestry-based microenterprises such as saw mills was one of the contributing approaches jointly developed by the actors involved in CFP to make community forestry successful.

One of the senior forestry officials of the DoF commented as,

“... the NAFP with various phases was the most successful project in Nepal to establish community forestry for improving living conditions of rural people of Sindhupalchok and Kabhrepalanchok districts. It assisted to empower women, poor and ethnic minorities with emphasis
on equity aspects and sustainable management of natural resources.”
(CNTL1, December 2009).

During in-depth interviews and focus group discussions, respondents of the DFO staff (n=6) and CFUGs’ members (n=30) of Kabhrepalanchok and Sindhupalchok districts explained and expressed their gratitude to the various phases of the AusAID funded NAFP for valuable contributions in establishment and development of people-centred forestry not only in these two districts but also throughout the country. One of the respondents of SDCFUG explained an important contribution of NAFP in bringing some changes to her community as,

“...we did not have access to schools in our childhoods. In 1998, with other 15 women, I joined a basic women literacy class supported by our Australian Project. This literacy class helped me to open my eyes, and now I can read and write. I never forget this invaluable contribution of the project in my life.” (SIN13, October, 2009).

During the interviews, almost all respondents of the DFOs (n=6) and CFUCs’ members (n=13) perceived a lot of socio-economic changes due to enormous contributions of the NAFP in establishment and development of community forestry programs in these two districts. According to them, apart from collection of fuelwood, fodder, timber and leaf litter, CFs have made a large contribution in changing the socio-economic status of rural communities. Discussions with DFO staff of both districts revealed that since the beginning of the community forestry program, the project had encouraged women’s participation in executive committees and CF process where women’s participation was sought on the grounds that they are the primary users of forest products because of gender roles. The support was channeled through DFOs at the CFUG level. In the fifth phase of the NAFP (NACRMP, 1997-2002), support was focused on the improvement of literacy and management abilities of the CFUGs through training, workshops, networking and increased access to external sources of support.

The external support has also motivated the executive members of the HJCFUG to commit for incorporation of pro-poor rules in the FOP. One of the executive members explained as,

“...the NAFP staff frequently visited us and supported us to monitor our activities. We could identify the basic needs of the poor members of our CFUG. We were encouraged to initiate some innovative activities to fulfill the needs of the poor members.” (KBR6, November 2009).

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A review of office records of the DFO Sindhupalchok also showed that the NACFP-4 (1992-1996), NACRMP (1997-2003) and NACRMLP (2003-2006) were actively involved in CFP to achieve sustainable, gender-balanced, poverty-oriented results through the implementation of CF with different partners like LNGOs, private organizations and GOs. About 22000 hectare of pines, as well as large areas of natural forests regenerated and conserved through various phases of Australian assistance in the districts, are now capable of yielding a range of forest products in excess of immediate local demand. Establishment of forestry-based microenterprises such as saw mills was one of the contributing approaches jointly developed by the actors involved in CFP to make the Community Forestry successful. The recent past experiences in the districts suggest that community forestry can yield more than subsistence needs and that the CFUGs can generate income from a variety of sources (DFO Sindhupalchok, 2009).

A report published by the AusAID (2006) reported that for planning and implementation of the NAFP and its various phases, the Australian Government spent about AUS $40 million over a forty year period (AusAID, 2006, p.1). Indeed, the project was the symbol of a successful partnership between Australia and Nepal which could make a difference not only to the forestry sector of Nepal but also played important roles in improvement of livelihoods of rural communities through the implementation of community forestry policy. The livelihoods and economic fortunes of rural communities are growing; clean water is being supplied; there is increasing stability in landslide areas; and productivity of soils is increasing. New generations of hill girls have got markedly improved opportunities for their schooling as a result of the implementation of community forestry with the support of NAFP in Sindhupalchok and Kabhrepalanchok districts. Rural people have become more skillful and confident forest growers as well as managers and guardians of their local natural resources. In addition, Australian aid in the reformation forestry sector policy of Nepal was outstanding for establishing an international prototype for grassroots engagement in natural management. This achievement was widely emulated, and a generation of outstanding Australian forestry scientists and aid workers went on to achieve big things in other projects and countries, including Australia (AusAID, 2006).

The invaluable contributions of the NAFP and its various phases in stabilising hill slopes and curbing erosion in the middle and upper hills area of the project districts were appreciated by the respondents. According to a senior forest officer of the DoF, the project was successful in implementing various conservation activities such as; planting more than
22000 hectares of new pine forest; helping to restore even larger areas of degraded forest; helping wildlife to recover; engaging hundreds of communities in managing vast areas of their own resources; creating new products and livelihoods out of successful community forestry; contributing to the education and empowerment of a generation of Nepali women, leading to changes in the social order; and training a cadre of highly professional Nepali forestry officers and researchers to spread their knowledge in their own country and in other countries (AusAID, 2006). The respondents of both DFOs (n=6) realised that over time, the project had not only contributed significantly to increased skills and knowledge of CFUGs and government forestry staff, but also played an important role in implementing community forestry programs in remote rural areas of Sindhupalchok and Kabhrepalanchok districts, and achieving socio-economic benefits to those rural communities. But it also played a vital role in the development of forestry policy and the institutional development of the MFSC and DoF of Nepal.

The influence of external support to generate socio-economic benefits for poor and Dalits is also evident in the KCFUG. An executive member of KCFUG explained the significant contribution of the CFUG’s linkage with the WWF Nepal for their motivation for pro-poor-poor activities:

“WWF Nepal has motivated and supported us in well-being ranking to identify very poor households. We had not thought of prior to implementation of community forestry. The project supported by the WWF Nepal has helped us to develop our capacity, and also motivated us to implement women’s empowerment and conservation activities through our own CFUG fund. We have six local persons now who are capable of facilitating participatory wealth ranking exercise to identify the needs of women, poor and Dalits. (CHI10, September, 2009).

There was donor support for the implementation of community forestry and conservation of forest bio-diversity in the KCFUG. The influence of external support has created opportunities to build capacity for technical training and provide women’s literacy programs; as a result attendance of women and poor members in assembly meetings has increased. Increased literacy skills have provided women with confidence to attend the meetings. Such skills also increase women’s opportunities to be selected for executive members of the all three CFUGs.

Despite the external support being good in the CFUGs, the poor, women and Dalits, however, reported that they still face discrimination with regard to access to the forest and its socio-economic benefits. The local facilitators still tend to make contact with higher
caste members and elite rather than the poor and Dalits, who are often unaware of the socio-economic outcomes of community forestry to support their livelihoods.

**Shortfall of use of foreign aid for community forestry**

Investment in the forestry and conservation sector of Nepal is heavily dependent on foreign aid. Foreign aid for the forestry sector and for the role of government officials is significant in achieving sustainable management and development of the forestry sector of Nepal. INGOs and NGOs also contribute to improve forestry policy in Nepal. According to an estimate of the Department of Forests, donors have put in up to 120 million dollars in Nepal’s community forestry since 1980, which is rather high compared to the Government’s investments (DoF, 2010). However, regardless of the positive effects of external support in the development of community forestry policy, more than 50% of the respondents of the FECOFEN and Government offices (n=4) made some negative criticisms in the utilization of foreign aid for planning and implementation of forestry programs and projects. According to the respondents, some personal influences played an important role in maintaining relationships and interests with policy makers and donors. Many forestry projects in Nepal cater to the interests of donor, not the Government or the local communities. The aid politics of the elite is undermining the very process of civic empowerment. One of the respondents of the Central FECOFUN Office expressed their own dissatisfactions about the utilization of foreign aid as,

“...foreign aid is colonising intellectuals by bribing Government’s senior officials. In most of the projects, Government just acts like a sub-contractor of the aid provided to the nation rather than bargaining for better benefits for the communities or the intended recipients and compromises by agreeing to the terms and conditions of the donors. The scattered projects in the interest of different groups have dispersed the money but have gained little...” (CNTL4, December 2009).

The respondent further claimed that most of the projects are designed in the capital, setting ambitious objectives. But the real assessment of the activities conducted in the field is rarely done and disclosed to the public with constructive feedback. Indeed, receiving huge funds means nothing if the intended recipients do not get the benefits.

**7.5 Forest characteristics**

Community forests serve as important resources to support the livelihood of members of CFUGs in all three villages, but in different capacities. For example, in the case of
SDCFUG and HJCFUG, forests consist of planted pine trees with relatively few other broad-leaved species and therefore less diversified use in an economic production system. These forests are mainly used for local consumption rather than for surplus income. In both CFUGs, there is a small market demand for pine timber for small saw mill. However, these two forests are located in relatively remote areas and undulating topography leads to high costs of harvesting and transportation from forests to markets.

On the other hand, the KCFUG consists of natural sal (Shorea robusta) forest with a high value of timber and non-timber products that provide a range of opportunities for use. Moreover, the close proximity of the community forest to a local government forest office increases socio-economic outcomes. As compared to the Kankali community forest, the other two forests are located relatively far from the local forestry offices and generate less direct economic benefits from their community forests [see Chapter 5, Table, 5.1 and Chapter 6, Table 6.20]. Access to market has also increased the economic value of forest products; consequently, it enhances economic outcomes of community forests for their users.

One of the interviewees from DFO Chitwan commented as:

“...the closely located CFUG can get access to the forest office more easily than the CFUG located at relatively far distance. This makes these CFUGs closer and better informed in terms of forest management practices, forest related rules and regulations. CFUGs also have to get approval from the government forest office before implementing any activities such as harvesting and distribution of various forest products. Easy access to government staff may reduce the time and costs for acquiring these approvals.” (CHI1 September, 2009).

One respondent of DFO Sindhupalchok expressed his view regarding distance of CFUG from the forest office as,

“...forests which are located close to the government forest office usually receive priority for handing over to communities. We have the propensity to form CFUGs first, in closely located communities, rather than relatively distant communities because less effort is required to hand-over a closely located forest.” (SIN2, October, 2009).

My field observation revealed that a forest area also has a significant impact on generating socio-economic outcomes. A CFUG with a smaller forest area can carry out adequate silvicultural activities such as thinning, pruning more actively. These activities are useful to ameliorate natural regeneration and growth-limiting factors and thereby enhance the
availability of multiple forest products. Data from this study showed that community forests managed by SDCFUG and HJCFUG are relatively smaller in size than the Kankali, and users are implementing various silviculture operations to get benefits from collecting forest products for their domestic purpose and small scale commercial selling outside the CFUGs, and also to improve the biophysical condition of their community forests. However, a community with a large number of households may have a small CF and vice-versa; in this situation, inadequate socio-economic outcomes of community forests cannot support rural livelihoods. A CFUG largely uses voluntary labour in forest protection and management [see Chapter 5 Section 5.5.1 and Chapter 6 Section 6.2.1]. When a large forest area is handed over to a smaller community, the forest users may not be able to manage their forest by using different forest development and silvicultural activities due to a shortage of labour. In such a situation, the CFUG is unable to receive adequate socio-economic outcomes from the community forest to support local community development activities and rural livelihoods.

7.6 Market access and control

Links to the market is an important factor for generating socio-economic outcomes of community forestry. The lack of direct market access means forest-based income from marketing of forest products outside the CFUGs is almost nil and further competition for greater access to forest product is limited. Better market access is a pre-condition to generate optimum socio-economic benefits from community forestry to support rural livelihoods. The positive relationship of production of forest products in community forests with links to the local market may have practical implications for supporting livelihoods of CFUGs’ members by generating higher economic benefits. In this context, government and non-governmental agencies can facilitate a link between CFUGs and markets. However, as reported by the respondents from the CFUC members (n=6), the existing market conditions of community forestry products are distorted and users do not have bargaining power to fix prices for their own forest products so there is not sufficient government market policy to get full economic benefits to forest users. The forestry stakeholders including senior forest officials, community networks, development agencies and experts appear to realise the need to promote trade and enterprise development. However, there is still a situation of confusion among forestry staff, CFUC members and CFUG members. Either they are sceptical of the role of the market or overestimate the challenges in establishing or operating forest based enterprises. Consequently, there has been a lack of adequate
pressure, even from the community network such as FECOFUN. Many development agencies have had a failed experience of enterprise development and are therefore not very enthusiastic. Others have realised that this is a role for the market and not for development agencies. As a result, no effective processes have been initiated to transform the subsistence oriented forest sector. During the field work, I noticed a limited or no bargaining ability of users with the local forest products traders influences the prevailing market conditions. One of the respondents of DFO Kabhrepalanchok reported that the traders’ networking was stronger than the CFUGs’ networking, so the price controlling mechanism highly depends on the traders and this condition creates monopoly markets at local levels.

“...monopoly markets of relatively powerful forest products traders and contractors hinder the optimum socio-economic outcomes of community forestry for rural communities.” (KBR2, November 2009).

In addition, legal power to control harvesting and logging activities remains with the government’s forestry staff who control the roles of DFOs’ field staff and CFUGs for production of sufficient volume and good quality forest products from their community forests. This affects the continuous supply of products to meet market requirements. The lack of knowledge and experience of CFUG members on marketing or trading of forest products creates a big difference in the profit margin between collectors and traders. Discussions with executive members of CFUGs (n=4) revealed that the market price for forest products is higher relative to the price within community (Table 7.1). This price difference might have increased economic benefits to those CFUGs which can sell surplus forest products in the markets. However, the CFUGs are still lacking the organisational capacity to negotiate with forest product traders independently. The respondents anticipated a CFUGs network to enhance its negotiating capacity for the higher value of forest products of the community forests.

Table 7.1 Price rates of forest products within the CFUGs and local markets

<table>
<thead>
<tr>
<th>CFUG</th>
<th>Average price of forest products</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timber per cft</td>
</tr>
<tr>
<td></td>
<td>within CFUG (NRs)</td>
</tr>
<tr>
<td>KCFUG</td>
<td>320</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>26</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>20</td>
</tr>
</tbody>
</table>

Note: Timber is referred as log timber. The average price of timber in the KCFUG is sal (Shorea robusta), and pine timber in HJCFUG and SDCFUG. One head load is equivalent to 50kg. All price rates were determined in 2009.

Source: In-depth interviews, 2009 (n=10)
This research also shows that geographical constraints further increase the cost of harvesting and transportation of forest products and restricts full benefits to CFUGs. For example, in hilly areas, forest product marketing is not possible due to the lack of road and other transportation facilities. Therefore, because of the complication of marketing timber, most of the community forests are overstocked and underutilised. If CFUGs can utilise their trees, they will have a significant source of income.

7.7 Summary

The generation of socio-economic outcomes of community forestry depends on factors associated with community, and forest characteristics [see Appendix 18]. The size of KCFUG is larger than the other two groups. The larger group could have better heterogeneity; it is more difficult to communicate; there is less cooperation. Therefore, the larger group is less likely to address equity issues adequately in decision making and benefits sharing during the implementation of community forestry for optimizing socio-economic outcomes of community forestry for rural communities.

Although community forestry policies of Nepal are emphasizing poverty reduction and the forest management system by all users, due to power disparity, most socio-economic benefits are still controlled and captured by local elites and better off members of the rural community. Other socio-economic factors include the number of households involved, whether forest products are sold in the local markets or not, heterogeneity of the CFUG, and forest product dependency, external support, governance and bureaucracy. In addition, communication within the groups is also important to disseminate decisions to implement community forestry. Community participation in decision-making and benefit sharing mechanisms by all users, poor and rich, upper and lower caste, women and men, and a focus on poverty reduction have all contributed to a change in perception in how decisions are made.

The basic forest characteristics which affect socio-economic outcomes are: forest types, forest areas, applications of forest management techniques, forest condition (density, natural regeneration, quality and quantity of forest products available for harvesting, and species diversity), area, and accessibility. The results of this research demonstrate that after implementation of community forestry, bio-physical conditions of all three community forests have improved. Substantially, improved forest conditions mean that community
forests are better able to meet subsistence needs for basic forest products of CFUGs than in the past. There are still some additional costs and constraints involved to protect forest resources and for the implementation of community forestry programs for CFUGs in general. In particular the poor and Dalits members who are to a certain extent, determined by the existing rural social structures, and the pro-poor have not achieved success through collective action. The next chapter discusses the implications of the research and strategies for further improvements of community forestry to generate optimum socio-economic outcomes for rural communities to support their subsistence livelihoods.
Chapter 8
Discussion and conclusions

8.1 Introduction

This chapter discusses the key research findings in relation to international literature and the theoretical implications of my research. The logic of community forestry (Figures 1.1 & 3.2) and the framework for analysis of socio-economic outcomes of community forestry (Figure 3.5) were used as the basis for answering key research questions one, two and three in Chapters 5, 6 and 7 respectively. The logic, upon which community forestry is based, provides a theoretical ‘road map’, whereby hopefully sustainable forest management and improved livelihoods for local communities can be achieved. In essence, community forestry puts communities at the centre of the change process. However, on the basis of my research findings, I challenge some of the more common assumptions in the wider literature, as well as government rhetoric in relation to logic upon which community forestry is based, namely that:

- improvement in forest condition and increased economic income of CFUGs always leads to improved wellbeing of all rural households;
- community forestry leads to equitable empowerment, as well as community development; and
- population growth invariably leads to forest degradation.

On the basis of my research, I present recommendations whereby community forestry can hopefully be improved. As a result of my findings, I conclude this chapter with some key implications regarding community forestry policy and practice, not only in relation to Nepal, but also in a global context. Finally, I suggest that there are several areas where further research, regarding community forestry, is needed, in order that our understanding of socio-economic outcomes be clarified.
8.2 Key finding 1: Community-based forest management leads to improved forest resources, but does not always lead to socio-economic transformation

8.2.1 CFUG management can lead to improved forest condition

The results of my research indicate that, prior to the introduction of the community forestry program; the government excluded local people, whose livelihoods were largely dependent on forest resources, from becoming involved in forest management. The government’s ‘command and control’ forest management system was ineffective, regarding the protection of forests. Forest resources were virtually unprotected. So, forestland was subjected to abuse, primarily because the government failed to enforce its policy in relation to the sustainable management of forest resources. Consequently, the forests in all three study areas deteriorated. Eventually forest resources were reduced to the point that it was extremely difficult for the subsistence needs of local rural people to be met [see Chapters 3 and 5]. This is consistent with the findings of other researchers (e.g., Joshi, 1998; Heltberg, 2001; and Nagendra & Gokhale, 2008).

On the basis of my research, I have found that the biophysical condition of forests in all three study areas has improved since the forests there were handed over to local communities (i.e. CFUGs). Wildlife conservation, in relation to the community forests, has been achieved via bans having been placed on hunting, and heavy fines having been imposed for the killing of wildlife. Because of the improvement in the habitat, and proper protection measures, animals such as leopards, porcupines, deer and, game birds are being seen more often compared to before which seems to be resulted from improving habitat and food availability in the community-managed forests.

This improvement and the increase in the numbers of wildlife are regarded as being positive signs that biodiversity is being conserved in the community forests [Appendix 14.1]. This result is consistent with the findings of other researchers (e.g., Charnley & Poe, 2007) who have concluded that local control, regarding forest management, has been successful in relation to positive ecological outcomes being achieved. These outcomes include the reduced rate of deforestation, increased forest cover and biodiversity, and the present maintenance of forest density.

Furthermore, CFUGs have been successful in relation to carrying out management and reforestation tasks and responsibilities. They have achieved these by adopting effective
measures, such as gully and landslide control, and water conservation. They are also protecting the forests from fire, grazing, illegal tree felling, and unregulated extraction of forest products [see Chapter 5]. This is consistent with the findings of other researchers (e.g., Branney & Yadav, 1998; Kanel & Kandel, 2004; Nagendra et al., 2008a). From 1994 until 1997 Branney and Yadav (1998) assessed the change, regarding management of the biophysical condition of community forests in four eastern middle hill districts of Nepal, and found the overall condition of the forests there during that period to have improved.

Kanel and Kandel (2004) claimed that the earlier trend, regarding forest degradation, had decreased since the national forests were handed over to local communities. Nagendra et al. (2008a) conducted a comparative study, regarding community forests and government-protected national forests, near the Chitwan National Park in Chitwan District, in order to assess the difference regarding forest cover. Those researchers have found that the CFUGs have been successful, in relation to producing more forest cover, reducing deforestation, and encouraging forest regrowth, when compared to government employees who have been managing government forests.

The existing community forestry logic of the government of Nepal [see Chapter 3] is based on an assumption that the effective implementation of community forestry operation plans encourages the production of a variety of good quality, economically valuable forest products, such as timber, fuelwood, and fodder; as well as non-timber products such as wild mushrooms, fruits and medicinal plants (GoN, 1989). I have found this productivity to be to true in practice, and to be consistent with the success of the community forestry program, regarding improvement in the biophysical condition of community forests. Thus my research indicates that community forests, which have been handed over to local communities, are being conserved better than those forests which are being managed by government employees.

Many other researchers (Dev et al., 2003; Gautam, Webb, & Eiumnoh, 2002; Jackson et al., 1998; Tachibana & Adhikari, 2009) have also found that community forestry leads to improvements, regarding forest condition and regeneration. By using data from a range of CFUGs in Nepal, Varughese and Ostrom (2001) have found that the condition of community forests has improved because of the collective actions of CFUGs, regarding the protection and development of forests. The results of this research support the findings of Charnley and Poe (2007), namely that local control regarding forest management has been successful in
bringing about positive ecological outcomes, including a reduced rate of deforestation, increased forest cover, and the maintenance of forest density.

8.2.2 Improved forests do not always lead to improved social equity

In principle, community forestry should exemplify social justice, regarding decision making and benefit sharing [see Chapter 3]. Female and poor members of CFUGs should be encouraged to participate in the decision making process. A CFUG executive committee should be comprised of at least 50 percent of members who are either female or poor (DOF, 2009). Although the existing forestry policies and legislation of Nepal include provisions so that local communities can have equitable use and access rights regarding forest resources, not all CFUGs are adequately enforcing those provisions. My research indicates that any improvement, regarding forest condition, is easier and faster to achieve, than is any social transformation within rural communities, through the implementation of community forestry.

In relation to community forestry, there is still a lack of social equity, regarding CFUG committee membership, decision-making, and benefit sharing [See Chapter 6]. This is occurring because of the power disparity between elite and disadvantaged users; an inadequate supply of information at the local level regarding policy; and a lack of interest amongst some DFO and forestry field staff [see Chapter 7]. Office records of the CFUGs in the study areas indicate that the executive committees, which have been in operation since the first year the forests were handed over, are dominated by high caste wealthy men, and medium wealth upper caste women [see Chapters 6 and 7]. The results of my research indicate that the participation of women, poor people, and disadvantaged groups on executive committees, and in the decision making process, is very low, whilst local elites (i.e., people who are wealthy, well educated, and of high social status) are influential and dominant, regarding community forestry processes [see Chapter 6].

My research indicates that the socio-economic characteristics of CFUGs are still influenced by traditional beliefs in Nepal. In all three of the study area communities, rich residents, who receive regular amounts of cash income, are often upper or middle caste, and dominate socio-economic life. The subsistence concerns of the minority and oppressed groups are easily overlooked. The caste system, which is comprised of unequal layers in a form of social stratification, suppresses lower caste users, regarding access to, and control
over, forest resources. The majority of lower caste (Dalit) members are socially suppressed and economically poor.

Lack of access to, and inability to use, technology, reduces the number of options regarding livelihood strategies. This result is consistent with the findings of other researchers (e.g., Malla, 2000; Malla et al., 2003; Springate-Baginski, 2003) who argued that because of the exclusion from the CFUG decision making process of women, poor people, and disadvantaged members, the community forestry program has not been fully successful, regarding improving social equity amongst forest users.

In an analysis of the joint forest management program in India, Upadhyay (2005) found that the social exclusion of poor people and women from the decision-making process is one of the main reasons that poor and disadvantaged groups are unable to become empowered through the implementation of the program.

8.2.3 Constraints to achieving gender equity in community forestry

The results of my research indicate that the involvement of women in community-based forest management is important, not only in order that equity between genders be promoted, but also so that effective management of forest resources be obtained [see Chapter 6]. This finding is consistent with those of other researchers (e.g., Giri & Darnhofer, 2010a; Agarwal, 2009a) who have noted the beneficial impact of the contributions of women, regarding improving forest protection. Although there are one or more provisions, in relation to the promotion of gender equity, within the existing community forestry guidelines, these appear to have been poorly implemented in practice, because of a lack of awareness, amongst general members of the CFUGs and forestry field staff, regarding gender equity and social inclusion [see Chapter 6 and 7].

My research indicates that, within the study area CFUGs, women, as in most other parts of Nepal, hold a lower social position when compared to that of men. Because Nepal is a patriarchal society, there are currently fewer women involved in decision-making processes than men, even though in recent years policymakers have encouraged more participation by women. However, this situation varies from one CFUG area to another, because each community differs in terms of wealth, ethnic composition, and women’s participation [see Chapter 6].
Although any improvement, regarding gender equity, implies an improvement in the capabilities of women and Dalits, their representation on executive committees of CFUGs is lower than that of men and non-Dalits. That is occurring not only in relation to the community forestry process, but also in relation to other aspects of Nepalese society. Nepal Human Development Reports 2009 indicates that there is a lower amount of participation of women and Dalits in political, economic and professional domains generally (UNDP, 2009). Therefore, I argue that the representation of women and Dalits is lower not only because of low income, but also because of traditional social structures; and exclusion regarding the decision making and benefit sharing processes of community forestry.

Gender inequity is highly entrenched in other countries as well. In an analysis of power, structure, gender relations, and community-based practices in Rajasthan in India, Torri (2010) has found that any attempt, regarding increasing the participation of women in village activities, has to be factored into the complex socio-cultural system which exists there. Gender inequity limits the amount of participation, even when women are not formally excluded. In Indian rural communities, which are highly stratified by caste, class, ethnicity and gender, women are likely to be disadvantaged because of their caste, class, and the locality where they live (Torri, 2010). Therefore careful consideration, regarding gender inequity in relation to the CFUG decision-making and benefit sharing processes, must be given, in order that the permanent participation of women in the community forestry program be assured.

8.2.4 Improved forests do not always lead to improved economic equity

Although the biophysical condition of community forests is improving because of CFUG management, the community forestry program still faces organisational, structural and societal challenges [see Chapters 6 and 7]. My research indicates that the occupants of rich and middle income households benefit most as a result of the community forestry program. Income which is produced as a result of community forestry varies from one economic class to another.

The CFUGs’ members of high income households receive the greatest share of income from community forestry. They are followed by the medium rich class [see Chapters 6 and 7]. The contribution to household income from agriculture, off-farm activities, and livestock, has been found to be highest for the rich class in all three study areas. This could be occurring because the rich have more landholdings, and greater opportunities to engage
in off-farm activities, whilst the poor have less land, and less in the way of access to off-farm activities. In addition, the occupants of rich and middle income households are far less dependent on community forestry. In view of the fact that they possess more land and livestock, they are therefore able to cultivate more cash crops than people in poorer households [see Chapter 6]. The occupants of rich and middle income households can afford to buy timber, and other forest products. Poor people cannot afford to buy timber and firewood, even at the subsidised rate.

My research indicates that there has been an overall improvement in the economic condition of CFUGs. For example, not only has there been an increase, regarding the quantity of forest products being acquired and used, but there has also been an increase in the quality of those items. But improvement has not necessarily occurred in relation to the social condition of all individuals - especially poor and disadvantaged families. However, improvement, regarding social condition, had been expected to occur, given the present government logic upon which community forestry is based.

Because of a lack of access to forest products, poor people and Dalits do not receive economic benefits from community forestry to the same extent that well-off residents do, because product distribution decisions are influenced by elites and powerful people. The inability, of certain people to participate, often leads to disinterest regarding participation. Occupants of medium income households benefit the most from community forestry, when compared to other people in the community. The occupants of higher caste and rich households are not interested in community involvement; whereas poor people are suffering because they cannot afford to participate [see Chapter 6].

This result is consistent with the findings of Gautam (2009), who conducted a case study involving seven CFUGs in Kabhrepalanchok District. That researcher argues that the protection-oriented approach, regarding forest management, which is adopted by CFUGs, may negatively affect the occupants in marginalised households, because those people have very little in the way of private land to produce items that would supplement their restricted supply of forest products.

Poor CFUG members do not have enough trees on their private land, and consequently those people rely on community forests. They either have to wait for the forest harvesting times, which are set by the CFUCs, or steal forest products at night, in contravention of the FOPs [see Chapter 6]. The restriction, in relation to the supply of forest products, leaves an
unfavourable impression, regarding any hope that the participation of poor people and Dalits in the implementation of community forestry may be increased. This is consistent with the findings of other researchers (Adhikari, 2005; Kanel, 2004; Kumar, 2002; Kumar, 2002a; Malla, et al., 2003; Springate-Baginski et al., 2007), who have found that the community forestry program has not been successful in addressing inequity issues.

8.2.5 Contributions of community forestry to poor households

On the basis of my research results, I argue that community forestry is a ‘user group focused’ program, rather than a ‘poverty reduction’ one, because rich people cannot be excluded from the use of forest resources [see Chapter 6]. Although other researchers who have conducted studies have claimed that, as a result of community forestry, there has been an improvement regarding the biophysical condition of forests in Nepal, factors such as different interests of users, heterogeneous ethnic composition, conflicting political beliefs, and different cultural backgrounds within each community, can create problems in relation to equitable benefits being provided by community forestry [see Chapter 7].

This mirrors Pokharel’s (2008) results, which indicate that 74 percent of the total benefits that result from community forestry are received by the non-poor, whilst only 26 percent are received by the poor members of rural communities in Nepal. Gilmour et al. (2004) have presented empirical evidence that community forestry provides tangible benefits for poor people in Asian countries. However, those researchers argue that there is no clear evidence that such benefits for the poor can be increased, despite the huge potential that community forestry may have, regarding pro-poor outcomes.

The main issues, regarding poor users, are lack of access, or limited access, to fodder and fuelwood for daily requirements, the increased burden regarding forest management, lack of purchasing power, and nonparticipation in decisions regarding forest use. These may be occurring because of various constraints such as lack of time, no access to private land resources, low level of education, low level of awareness, and lack of confidence [see Chapters 5, 6 and 7]. However, some researchers (e.g., Banjade et al., 2006; Bhattarai, 2006; Kunwar et al., 2008) have reported that several CFUGs have begun to include provisions in their FOPs so that money can be lent by CFUGs, micro enterprises that are controlled by women and poor people can be set up, and areas of community forest can be set aside for fodder collection, so that there can be equitable benefits for women, poor people, ethnic minorities and disadvantaged groups. However, my research findings
indicate that elite members of CFUCs are reluctant to put such provisions into practice. DFO staff are unable to monitor CFUC activities, and are therefore unable to influence elites in relation to the development of pro-poor practices. Other researchers (e.g., Agrawal, Chhatre, & Hardin, 2008; Chhatre & Agrawal, 2008) argue that weak governance structures, and weak institutional arrangements, in of many developing countries, prevent the sharing of benefits, such as those from community forestry, at the local level.

My research results indicate that elite people are more able to influence decisions or to reap benefits [see Chapters 6 and 7]. CFUC members hold a greater level of decision making power, regarding issues such as charcoal distribution, and what is going to be discussed at meetings and in the annual general assemblies. The decision making process, regarding community-based forest management, is in the hands of local elites. So the concerns of women, poor people and Dalits, who depend more on forest resources for their livelihoods, are not being properly addressed. This is consistent with the findings of several other researchers (e.g., Agrawal, 2001; Graner, 1997; Malla et al., 2003; Nightingale, 2002; Pokharel, Banney, Nurse, & Malla, 2007; Paudel et al., 2010; Thoms, 2008; Warner, 2000), who claim that the majority of occupants of poor and disadvantaged households are excluded from the decision making and benefit sharing processes, regarding community forestry, because of their low socio-economic status.

8.2.6 Challenges to implementing pro-poor initiatives in community forestry

The government’s logic, upon which community forestry is based, is that intervention is necessary not only in order that the subsistence livelihoods of the poorest forest users be improved, but also so that opportunities can be provided for the poor to lift themselves out of poverty through the use of forest product microenterprises. These could perhaps be developed and managed by poor members of CFUGs on an entrepreneurial basis [see Chapter 3]. However, local elites have been allowed to capture many of the benefits from community forestry at the expense of poor members.

There is a provision in the existing forestry policy whereby some part of local community forestland could be set aside for occupants of poor households so that NTFPs could be cultivated. There is also a provision regarding other income generating schemes (DoF, 2009). Some researchers (e.g., Paudyal, Neil, & Allison, 2006) indicate that what has been expected, as a result of community forestry having been implemented, is that forest management become socially inclusive and capable of safeguarding human livelihoods,
natural resources, and the rights of poor people and those who are socially excluded. However, my research findings indicate that some provisions in the existing community forestry guidelines have not effectively been put into practice. In other words, there has been little in the way of progress regarding the utilisation of one or provisions in FOPs for the well-being of the poorest community forest users. That does not bode well for the subsistence needs of those people [see Chapters 5 and 6]. Pro-poor activities constitute only a small proportion of CFUG efforts. Moreover, the capacity of CFUGs to use their funds to reduce poverty is often limited. Thus poor people and Dalits are not benefiting fully from community forestry.

The existing community forestry guidelines also contain provisions whereby affirmative action can take place on behalf of women, poor people, and occupants of marginalised households. The guidelines include a provision whereby at least 35 percent of total CFUG income can be allocated for the improvement of livelihoods of occupants of poor households. Any such assistance would be based on an assessment regarding well-being. Any decision making process, whereby particular castes and ethnic groups are not involved, would also be taken into consideration. However, in relation to the three study area CFUGs, only six percent of total income has been spent on income generating activities and pro-poor programs [see Chapter 6]. Other researchers (e.g., Andersson & Agrawal, 2011; Malla, 2009; Malla et al., 2003) have found that socio-economic inequities not only have negative effects, regarding community forestry outcomes, but that they also significantly reduce the capacity of local institutions to act collectively.

8.2.7 Protection-oriented forest management does not always produce livelihood benefits

Whilst the government of Nepal’s logic, upon which community forestry is based, is directed not only at protecting and rehabilitating the existing forests, but also at improving the livelihoods of people in local communities through the wise use of community forest resources [see Chapter 3], in reality not all of these are occurring properly [see Chapter 6]. A review of the FOPs of the CFUGs in the three study areas, and an analysis of the data collected during my fieldwork, indicate that the CFUGs are ‘protecting trees’, rather than ‘managing forests’. The FOPs are really protection-oriented, and are conservative prescriptions regarding the types and quantities of forest products that local people can harvest [see Chapters 5, 6 and 7]. Little in the way of attention is given to silvicultural and
other management aspects. This produces a situation whereby there is a minimum flow of forest products to user members.

The harvesting prescriptions in the CFUG operation plans have been found to be very conservative. The average annual quantity of forest products harvested from community forests is less than the annual allowable harvest (AAH) of forest products. Because of the implementation of conservative FOPs, the harvesting and thinning of trees are being delayed. As a result, forestland is becoming dense, rather than being properly managed.

Although the quality and quantity of forest products have increased because forests are being protected by local communities, CFUGs have not been able to harvest sufficient quantities of forest products so that the basic needs of all community members can be met. There are restrictions regarding the harvesting and selling of forest products [see Chapter 6]. This trend is mirrored in other developing countries, such as Tanzania and Thailand, where subsistence-based forest use has been adopted (Blomley, Ramadhani, Mkwizu, & Böhringer, 2008). Those researchers indicate that CBFM is not only spreading widely, but that it is spreading so rapidly in Tanzania that the livelihoods of people in rural communities there can be supported. But much of the management activity of community members is focused on protection, conservation, and restricted use, in order that control over forest resources can be maintained by the government.

In an assessment, regarding the implementation of a community-based forest management program in the northeast of Thailand, researchers have found that the prohibition of logging, hunting and grazing has effectively been able to protect community forests there (Ting, Haivun, Shivakoti, Cochard, & Cochard, 2011). In fact, Ting et al. (2011) indicate that the enormous effort which has been made by local communities in that country has helped improve the biophysical condition of community forests there. However, because of the protection-oriented forestry management approach, local forest communities in Thailand have not been able to receive a sufficient enough quantity of economic benefits from their community forests. My results are consistent with those of Ting et al. (2011), in that improvement, regarding forest condition, does not automatically mean that rural livelihoods improve. In other words, biophysical and economic characteristics can be misleading indicators, regarding changes in social condition. This problem can be exacerbated by the implementation of policy or CBFM programs which have not been carefully thought out and properly implemented.
8.3 Key finding 2: CFUGs can be effective local institutions for community development, but addressing equity issues remains challenging

8.3.1 Community forestry as a vehicle for local community development

My research indicates that community forestry is regarded as being a rural development program, in which virtually all aspects of development can be implemented through community participation and the investment of CFUG funds. Over the last 10 years, CFUGs have substantially contributed to a wide range of community services, such as infrastructure development, and forest resources conservation [see Chapter 6]. So, CFUGs can be useful institutions, regarding local community development intervention [see Chapter 6]. CFUGs can also be essential, regarding the planning and implementation of local community development projects.

A CFUG functions partly as a forum, whereby local community members can discuss local development issues, and share their experiences and ideas with other users. A CFUG also functions as a contact point for development agencies [see Chapter 6]. However, in all three study areas the CFUGs can, at best, be regarded as providing token support for the occupants of most local disadvantaged households, because certain CFUG investments have not been beneficial for those who are disadvantaged. Indeed, the success of community forestry is officially determined by the enforcement of existing forestry policy which results from the decision-making process which is associated with community participation.

Although many community development activities, such as the establishment of drinking water facilities, serve the rural poor, those activities are not included in any pro-poor investment planning [see Chapter 6]. About 24 percent of the total income of CFUGs is invested in local community development, such as the construction of schools, community buildings, roads, culverts, and drinking water facilities [see Chapter 6]. The decision making process, regarding the investment of CFUG money in relation to various local community development activities, is still largely controlled by elite members of the community. So, investments, regarding pro-poor activities, are not the priority of CFUGs. My findings are largely consistent with those of Kanel (2004), who has estimated that no more than about 36 percent of total CFUG income has been spent on local development activities, such as rural roads, schools, irrigation channels, temples, community buildings, and drinking water facilities. Furthermore, my research indicates that rich and medium
CFUG members are in the best position to take advantage of most community development activities [see Chapters 6 and 7]. For example, whilst any improvement, regarding school facilities, can be of considerable benefit to rich members, it can be of far less benefit to poor people in the community who cannot afford to send their children to school, because the children have to stay at home to look after animals and younger siblings.

Furthermore, investment in the construction of rural roads helps to link villages with local markets. But users, who can produce buffalo milk, green vegetables, potatoes, and other cash crops on a commercial scale, benefit more from the building of such roads than poor users do. The latter have virtually no surplus agriculture products for marketing [see Chapter 6]. This finding is consistent with those of other researchers (Malla et al., 2003; Paudel et al., 2010; Thoms, 2008) who have indicated that CFUG funds are mostly being invested or spent according to the interests and priorities of elite members of rural communities. Those interests and priorities include electrification, irrigation, and roads that directly benefit the richer people in the communities.

8.3.2 Challenges to developing inclusive micro-enterprises for poverty reduction

Despite the limited contribution of community forestry in relation to reducing poverty, the developments which have occurred anyway have increased the amount of income for CFUGs [see Chapter 6]. However, the occupants of poor households have been found to benefit less from this increased income than wealthier people in the communities do.

None-the-less, Baral, Vacik and Sekot (2008) have found that community forestry has not only been successful regarding forest conservation, but that it can also help in relation to the setting up of forest-based microenterprises (e.g., the making of handmade paper; and jam production), whereby income could be produced for CFUGs that would enable pro-poor programs to be introduced. My findings indicate that in the study areas it is mostly rich and medium income people, as well as upper and middle caste CFUG members, that are being provided with opportunities whereby income can be generated through the establishment of microenterprises. However, not all CFUGs have set up microenterprises [see Chapters 6 and 7]. This is consistent with the findings of Adhikari (2003, 2005), Bampton and Cammaert (2007), Dhakal, Bigsby and Cullen (2007), Brocklesby and Fisher (2003), Gilmour et al., (2004), and Malla et al. (2003). Those researchers have reported that most of the livelihood benefits from community forestry in Nepal have been received
by elite members of the communities there, and not by the occupants of poor and *Dalit* households.

**8.3.3 Community forestry provides a promising platform for local leadership**

The existing community forestry guidelines contain certain provisions whereby affirmative action can take place. They also contain provisions that look after the interests of poor people, women, and occupants of marginalised households. Furthermore, the guidelines contain a provision regarding proportionate representation, on decision making bodies, of women, different castes, and ethnic groups (DoF, 2009). There have been some indications that women and poor CFUG members realise the importance of their leadership roles and responsibilities, regarding socio-economic development and the improvement of their livelihoods [see Chapter 6].

Before the implementation of the community forestry program, some disadvantaged people could not speak confidently in public, or even share their views and ideas with elite or male members of their communities, because of fear of reprisals. After the implementation of the community forestry program, and the engagement of disadvantaged people in the community forestry process, some of those disadvantaged people have become empowered. They have benefited through various community forestry training programs and workshops, in such a way that their leadership skills have developed. They can now express their views, and share ideas with other members of their communities, and can even speak with outsiders [see Chapter 6]. So, there has been a gradual increase in the participation of women, poor people and disadvantaged groups, in relation to CFUG activities, because of the improvement regarding the leadership skills of those people. This result is consistent with the findings of other researchers. For example, in relation to a case study regarding community forestry in the Dhading District of Nepal, Regmi (2007) has reported that, despite ongoing gender discrimination and domination by elites, the local leadership capability of women and poor members is slowly improving, *via* the implementation of the community forestry program. Regmi has further suggested that there should be equitable participation, regarding the decision-making process, so that women and poor people can not only improve their leadership skills, but also contribute in relation to community forestry management.

My research indicates that any improvement, regarding the forest governance capability of CFUGs, helps in relation to the resolving and managing of local problems and conflicts.
[see Chapter 6]. It seems that CFUG members will adhere to CFUG rules that enable those people to remain cohesive. Dalits and poor members of CFUGs appear to have a basic desire to develop and foster meaningful social relations. This apparently helps them, regarding their mental and physical well-being. The CFUG can help to develop cohesive relationships amongst its members, on the basis that each member’s sustainable livelihood is dependent on the sustainability of forest resources.

8.3.4 Establishing social networks through community forestry

My research indicates that community forestry in Nepal has led to the development of decentralized social networks there [see Chapter 6]. So, community forestry in that country can be regarded as being a major form of decentralized forest management. Community forestry has led to the creation of robust institutions throughout Nepal over a number of years, which are now regarded as having great importance regarding the livelihoods of rural people there (Iversen et al., 2006). My research indicates also that community forestry plays a key role regarding increasing the links between CFUGs and different governmental and non governmental institutions [see Chapter 6]. CFUGs have links even at international level. FECOFUN is an example of a CFUG network which has strong links at local, national and international levels, whereby government can be urged to continue implementing a forestry policy that provides positive outcomes for local communities [see Chapter 3 and 6].

As of January 2010, there have been about 14,500 CFUGs associated with FECOFUN (Dahal et al., 2010). The networks which have been established through this large association have been useful, not only in relation to the sharing of general information and ideas, but also regarding the supply of information about the rights of CFUGs. The networks have also helped CFUGs become more aware as to what their roles and responsibilities are. Hence, rural people have been able to expand their capabilities through these networks. There are still some CFUGs which are not associated with the FECOFUN. This has occurred not only because of a lack of effective communication, but also because of a lack of exposure to new skills and techniques, regarding the implementation of community forestry. However, Dev et al. (2003), after having conducted an assessment of 11 CFUGs, have concluded that even the least organised of CFUGs have established new social networks. These networks have been created in relation to the planning and implementing of local community development activities. The three CFUGs which I have studied require external support so that their capabilities can be strengthened.
8.3.5 CFUGs have the potential to act as local service providers

During the 30 years that community forestry has existed in Nepal, it has evolved from being a small exploratory forest management program to becoming a major national one, involving approximately 42 percent of the country’s population (DoF, 2011). The emphasis, in relation to the program, is on making sure that the supply of essential forest products is sustainably managed, and that rural community development occurs, given that CFUGs can benefit from access to key institutional and technical services. The community forestry program is expected to play an increasingly important role regarding improving rural livelihoods and the environment. However, the link between community forestry, and desirable social and environmental outcomes, is not straightforward. There are multiple factors involved, which could shape the outcome [see Chapter 7].

My analysis of field data indicates that the emergence of CFUGs as Community Based Organisation (CBO) service providers has been another achievement, regarding community forestry in Nepal. For example, the NAFP encouraged all involved actors to make special provisions like compulsory involvement of women and Dalits during the preparation of CFUG constitutions and FOPs (especially in Kabhrepalanchok and Sindhupalchok districts), to select poor and deprived groups of people for scholarships, ensure representation of the poorest people on CFUG committees, encourage expression of basic needs and concerns of the poorest members during the CFUG formation, provide support for access to low interest credit, include poor people and so on [see Chapter 7].

In Sindhupalchok and Kabhrepalanchok Districts, post-formation support (e.g., NACRMP and NACRMLP) was provided for CFUGs between 1978 and 2006 [see Chapter 6]. The ‘Training of Trainers’ (ToT) has been another very effective program, in those trainers and facilitators have been produced in local areas. Consequently many young men and women have become facilitators or social workers in local areas, and have been able to provide services to CFUGs in relation to conflict situations. Such achievements have also been reported in relation to the Nepal-Swiss Community Forestry Project (NSCFP), which provides support in the districts of Dolakha, Ramechhap and Okhaldhunga (NSCFP, 2011). The NSCFP has even used capable CFUGs so that services could be provided to other less capable CFUGs. Out of the 44 service providers which were involved in 2004 in relation to the implementation of the community forestry program, five of them were CFUGs which delivered services to other CFUGs (NSCFP, 2007b). This indicates that the farmer-to-
farmer extension approach has been effective, whereby learning has been disseminated in a cost effective way.

8.4 Key finding 3: An increasing population does not always lead to deforestation

8.4.1 An increase in population does not always lead to deforestation

Part of the logic, upon which the government of Nepal’s community forestry program is based, is that agricultural land expansion, the extraction of fuelwood and forage, and grazing are the major causes of deforestation and degradation of forests in Nepal (GoN, 1989; GoN, 2000; GoN, 2008). In fact, many demographers and resource economists have suggested that overpopulation and the subsequent needs of those people lead to over-harvesting (Agrawal & Yadama, 1997). However, my research indicates that increases in population within the CFUG study areas do not directly correlate with deforestation. In other words, there has been an increase in population in areas where forest condition has improved [see Chapter 5]. This challenges a commonly held view that population growth is a major factor regarding deforestation.

Some authors (e.g. Barraclough & Ghimire, 2000; Eckholms, 1976, Joshi, 1997; Tamarakar, 2011) have argued that increasing population and deforestation are closely linked, however other authors (e.g. DeFries et al. 2010; Dhital, 2009; Gautam et al., 2002; Gilmour, 2009; Ives and Messerli, 1989) argue that the link is more complex and nuanced. This research illustrates the complexity of the population-deforestation debate. Therefore, in this context, I argue that the negative effects, regarding population pressure in relation to forest condition, can be reduced if effective protection measures are adopted by local forestry institutions. Institutions such as CFUGs are especially important, in relation to mitigating deleterious effects which are caused by the over-exploitation of common pool resources (CPRs) such as public forests. Community forests are, in effect, a common property resource. But ownership of community forests lies with defined user groups. North (1990) has argued that institutions often originate spontaneously, in response to the particular needs of a group of individuals. Healthy institutions (e.g., those that are functioning and appropriate) grow and evolve in order that the needs and demands of the society they serve are met. Although population pressure has been a factor in relation to the unsustainable use of key natural resources such as forests in Nepal (Joshi, 1997), the threats to natural resource sustainability are not limited to population growth alone. My
findings indicate that uncontrolled forest grazing, lack of effective forestry institutions, and bad governance regarding enforcing forest management regulations, are factors which are much more relevant in relation to deforestation and degradation of forest resources, than population growth.

Furthermore, a viable and appropriate institutional framework, that is responsible for natural resource stewardship, appears to be a necessary condition for socio-economic development and natural resource sustainability to occur. In fact, some authors (e.g., Dhital, 2009; Gautam et al., 2002; Gilmour, 2009) claim that community forestry is positively contributing in relation to the restoration of forests, rather than escalating deforestation. However, in a study in India, Jodha (1985) found that the decline of common property resources is mainly due to population growth, along with institutional change, in the form of land reform, and increased commercialisation regarding forest resources.

On the basis of my field observations in the case study sites and findings of this research [Chapters 5, 6 and 7], I also argue that the link between population growth and deforestation is complex. In addition to the existence and protective functions of the local forestry institution (i.e. CFUG), the improvement of community forest conditions can be also linked with several other factors, such as changing patterns of use of forest products by CFUGs, for example, use of alternative fuels (e.g., kerosene, biogas, liquefied petroleum gas (LPG) and electricity) instead of fuelwood, replacement of traditional inefficient cooking stoves by improved cooking stoves, and use and availability of alternative building construction materials (e.g. cement, bricks, slate, tiles and metal sheets/rods).

### 8.4.2 Unsecured rights and ownership for local users of community forest resources

Because the ownership of community forestland, and the ultimate decision regarding any handover of forest, rest with the MFSC, not all CFUG members feel that they have ownership rights in relation to community forests. Some CFUC members and FECOFUN representatives are still concerned that these ownership rights are not fully protected by the government, in terms of national forestry policy [see Chapter 7]. Government revisions of acts, rules and regulations can virtually be regarded as threats. The respondents of FECOFUN have argued that CFUG members should be consulted, and their views incorporated, when the forests acts and rules are being revised by the government. In
addition, user rights are not equally distributed amongst different socio-economic groups. So, community forestry has not enabled lower income groups to increase their economic well-being, even though the cost of forest products for CFUG members is generally low [see Chapter 6]. The disinterest, by lower income and lower caste members regarding CFUG matters, could be resolved by allowing them to participate at a greater level regarding forest management and community development.

I have found that the existing community forestry policy is inadequate, in relation to conducing local communities to be engaged in long-term protection, management and development of forest resources. Therefore, recognition, regarding equitable rights, is required. If the rights of rural communities to local forestland are legally recognised, then long-term commitment to manage a community forestry program on a sustainable basis, whereby there are outcomes which support rural people’s livelihoods, can be achieved.

8.4.3 CFUGs reaching beyond the existing forestry policy

The existing community forestry policies primarily emphasise protection and regeneration, regarding forests. The Forest Act 1993, and Forest Regulations 1995, do not permit the building of any permanent structures within community forest areas (GoN, 1993; GoN, 1995). However, my research indicates that, within one of the three study areas, community funds have been used for the construction, on forestland, of a swimming pool, picnic spots and buildings, so that ecotourism and other income generating activities can occur [see Chapter 6]. The CFUG did not get permission from the DFO to use forestland in that way. During in-depth interviews, DFO staff in the study area expressed dissatisfaction, regarding these illegal activities which had been conducted by the CFUG, given that the activities go beyond existing forestry legislation. However, the DFO staff have not taken any legal action in relation to these matters, because (a) they fear that there would be reprisals from local elites, and (b) DFO staff lack the capacity to enforce the existing rules and regulations.

8.4.4 Challenges to policy reform

Whilst the existing community forestry policy in Nepal is regarded as being one of the best people-centred policies, my research indicates that it is far from being perfect, regarding benefits being provided to local people [see Chapters 6 and 7]. For example, when a tax was imposed on any CFUG which sold surplus forest products to non-CFUG members, it had to be pointed out to the appropriate government authorities that the tax contradicted
community forestry policy, and created confusion and tension between CFUGs and
government authorities (Dahal & Chapagain, 2008; Ojha et al., 2007). After a considerable
amount of pressure was exerted by CFUGs, FECOFUN and other organisations, those tax
provisions have gradually been revised, in accordance with an agreement between
FECOFUN and the government. The success or failure, regarding the implementation of
community forestry in Nepal, will depend not only on how well the policy has been
formulated, but how well government authorities consult with local people, in order that
the latter’s rights and control over forest resources become firmly established.

Therefore, in order that the community forestry program in Nepal becomes even more
people-centred, the existing forestry policy has to be reformulated, so that the poverty
problem can be properly addressed. Poverty reduction programs require that power
relationships, and inequities regarding the participation of poor and disadvantaged
members in decision making and benefit sharing, be identified, so that relevant pro-poor
activities can be developed and implemented (Maryudi et al., 2011). All pro-poor
activities, and strategies regarding microenterprise development, need to be incorporated
into the existing forestry policy, and FOPs, and acted on accordingly, so that benefits that
flow from improved forest resources can be provided to all CFUG members equally - rich,
poor and disadvantaged - in order that rural communities properly develop.

8.4.5 Effective implementation of forestry policy

A pro-poor policy is specifically designed to increase the well-being of the poor
(Springate-Baginski & Blaikie, 2003). My research indicates that the implementation of
the existing forestry policy at local levels is inadequate, especially in relation to enabling
equitable opportunities and benefits to be provided for poor people, women and
disadvantaged members of CFUGs [see Chapters 6 and 7].

In relation to forestry policy, the full outcome has to be borne in mind, not just the
intention to conserve forests and increase community funds. There have to be specific
enforceable provisions, regarding the well-being of poor and disadvantaged members of
CFUGs [see Chapter 6]. For example, effective implementation of forestry policy means
ensuring that certain social structures, whereby certain groups of people remain uneducated
and are therefore not regarded as being capable of participating in community decisions,
change. So, among other things, there has to be equal education for all. Hence, although
the outcomes regarding forestry policies may not include the total elimination of poverty,
those outcomes can, in part, be designed so as to constitute a first step towards reducing poverty, and properly changing the present negative social structures. My field data indicates that weak enforcement of the existing community forestry policy is one of the main reasons that poor and ethnic minorities of CFUGs are not properly benefitting from the community forestry program [see Chapters 6 and 7]. So, an examination of the existing forestry policy, and enforcement of a pro-poor policy, would assist in relation to equitable benefits being provided for poor and disadvantaged groups of rural communities.

**8.5 Implications and recommendations for strengthening community forestry**

**8.5.1 Implications for community forestry and common property rights**

The first implication of this research is in relation to the theoretical links between forest condition and income for CFUGs. The government logic, upon which community forestry is based, is that community forestry should be implemented for the improvement of forest resources and the economic welfare of CFUGs [see Chapter 3]. The reality, regarding the implementation of community forestry, is that this program has improved the biophysical condition of community forests, which were degraded at the time of the handover. My findings in the three CFUG study areas not only indicate this, but they reveal also that community forests provide the main source of income for CFUGs. However, CFUG funds have been invested mainly for community infrastructure development, rather than in support of poorer and disadvantaged people in rural communities.

Pro-poor activities currently involve the expenditure of only a small proportion of CFUG funds. This sort of expenditure does not produce improvement, regarding the well-being of poor and disadvantaged members of rural communities. Thus the government logic, upon which community forestry is based, should be reviewed, so that special provisions are incorporated, whereby direct economic subsidies, and financial support, can be provided for poor and disadvantaged members of communities.

The second implication, regarding this research, relates to the theoretical aspect of CFUG governance. Principally the logic, upon which community forestry is based, is that the program be implemented so that those who are without power and voiceless become empowered, and be able to demand their rights, understand responsibilities, and receive equitable benefits from community forestry in rural areas [see Chapter 3].
However, my findings indicate that, despite the success of community forestry regarding improving forest condition, inequity and social exclusion of certain CFUG members remain controversial. In view of the fact that CFUGs are comprised of a mixture of different wealth groups, castes, and classes of people, benefit sharing, which is based on equality, may not enable the basic needs of poor and disadvantaged people to be met. None-the-less, most of the wealthier people appear to be benefiting more than poor and disadvantaged people are, in terms of the distribution of forest products, and training and extension programs being provided.

The third implication, regarding this research, is in relation to population growth and deforestation. The literature, regarding changes in land use and population, indicates that rapid population growth is strongly associated with massive deforestation (FAO, 2011; Myers, 1991; Preston, 1994). However, in the three CFUG study areas I have not found direct links between population growth and deforestation. This indicates that population growth is by no means the only direct causal agent regarding deforestation. Instead, it appears much more likely that deforestation results from the political economy. Deforestation may be caused mainly by (a) the failure of governments to provide forestry rights to local rural communities; (b) lack of effective forestry institutions; and (c) ignorance, in relation to forest protection and management, by government institutions.

A fourth implication, regarding this research, relates to common property theory. My findings are that, although the purpose of community forestry is to provide long-term benefits to all members of CFUGs, power disparity, and inequitable decision-making and benefit sharing, exist. CFUG members with more in the way landholding and income are regarded as being wealthy users, and are involved in a higher level of decision making. However, members with not much in the way of landholding participate far less in the decision making process. That difference, regarding the level of participation, results in more benefits going to wealthy and elite people than to poorer members of rural communities.

The prevailing inequality, in terms of class and gender, threatens equity within the common property regime (Hobley, 1990). There is a need for one to examine the community in more detail. For example, very poor Dalit women may require more access to forest resources and CFUG funds than rich higher caste women do. The common property literature, regarding collective action, has remained oblivious in relation to this issue. The matter requires both theoretical and empirical examination. This issue is of great
significance in Nepalese rural society, where power primarily resides with privileged wealthy members, high caste people, and prominent males.

The fifth and final implication relates to the conceptual framework regarding this research. The conceptual framework reveals that community forestry is based on an interface between natural and social systems. The former constitutes the forest ecosystem and its management. The latter is comprised of three different components, namely community development; development economics; and policy and legislation [see Chapter 1]. My research indicates that, in addition to timber and non-timber products, Common Property Resource Institutions (CPRI) also provide socio-economic benefits that attract elite members, who then proceed to control the management of those institutions. Socio-economic incentives, which are derived from participation within CFUGs, outweigh the cost regarding participation. Consequently, elite rich members, who are less dependent on community forestry for their livelihoods, often use their participation in forest management for socio-economic gain. Therefore, apart from forest products, the outcomes of community forestry, for people who hold positions of power regarding forest management, should be taken in to account when one is assessing the socio-economic benefits of community forestry.

My research indicates that there is no available explanation as to how the collective behaviour of CFUG members is affected by external agencies. As has been shown in Chapter 6 and 7, the level of outside support (i.e., the flow of technical and financial support); the links between CFUGs and other agencies; the action and reaction of CFUGs and other external agencies; and the relationships between them, have a great deal of influence regarding what, exactly, is generated, in terms of socio-economic outcomes from community forestry.

Besides all of this, my research indicates that local formal institutions (i.e. CFUGs) are often dominated by non-formal local institutions (i.e., traditional norms, cultures, values, social systems, and so on). Therefore it could be argued that CFUGs are enmeshed in both formal and non-formal elements. However, it is insufficient for one to focus on just formal structures and institutional designs, when one is attempting to explain the gap between expectation and reality, during any evaluation of CFUG performance. Therefore, in relation to deliberative governance theory, I have identified four desirable socio-economic outcomes from community forestry. They are:
(a) The creation of clear and enforceable equitable property rights arrangements;
(b) The empowerment of poor people, women and disadvantaged groups so that they have better access to community forestry resources and community funds;
(c) The development of pro-poor forestry strategies and silvicultural practices; and
(d) Equitable participation, regarding the decision making and benefit sharing mechanisms.

8.5.2 Policy implications

An examination of social structures within rural societies in Nepal can help one understand how Nepalese society operates. The distribution of benefits and costs, or opportunities and constraints, regarding the implementation of community forestry, is to a great extent determined by social structures within rural communities. Consequently, pro-poor community forestry policies in Nepal will not necessarily lead to poor people being better off. A wider structural transformation is required if policy changes are to have a positive and long-term effect on poor and disadvantaged people in rural communities. Social structures (e.g., the caste system) that keep people marginalised or poor or disadvantaged in Nepalese society, are difficult to change through the implementation of policies. Any such change has to occur through structural transformation. Consequently, if social structures are the main reason that people remain poor or disadvantaged, then those structures will have to be the main target of any policy reform if they are to be broken down.

The government should reform any existing forestry policies by incorporating enforceable and equitable access rights that can provide opportunities for all members of CFUGs, including women, poor people and Dalits, to participate equally in the decision-making and benefit-sharing processes. Finally, my research has led me to the conclusion that generating socio-economic outcomes from community forestry is not the same everywhere. But the adoption of an adaptive paradigm is likely to lead to rural livelihoods of people, in many developing countries, being supported through sustainable management and development of forest resources.

8.5.3 Recommendations for reforming community forestry policy in the global context

My findings indicate that reforms to government forestry policy globally are necessary if improvements are to be made, regarding the generating of positive socio-economic
outcomes, namely, that people’s livelihoods be supported, sustainable forest management and biodiversity conservation be achieved, and global climate change be addressed.

### 8.5.3.1 Holistic approach to policy development

My research indicates that community forestry has the potential to contribute socio-economic benefits within rural communities. However, those contributions are merely a panacea, regarding rural livelihood problems, because the community forestry program cannot operate in isolation from other programs or sectors, and should not attempt to occupy any space that should be occupied by another actor who is involved in political and rural development (Gilmour, 2009).

Regulatory frameworks, regarding community forestry, often prevent the value of forest products from being maximised. Those frameworks need to be reformed and harmonised, in accordance with the national development agendas of other developing countries, before substantial economic benefits can be expected to flow to rural communities. Thus governments should reform forest policies by adopting a more holistic approach in relation to the multiple ways in which community forestry can support rural livelihoods.

In addition to this, community forestry is a dynamic process, and socio-economic outcomes are constantly changing. So, the community forestry policy development process should also be dynamic rather than static, in order that the policy readily be able to provide answers, regarding the changing conditions in the internal and external environment. Therefore, an adaptive paradigm, regarding community forestry in many developing countries, is needed, so that the rural livelihoods of people can be supported through sustainable management and development of forest resources.

### 8.5.3.2 Incorporation of clear, secure and fair rights in forest policy

The literature, in relation to CBFM, indicates that secure forest tenure is fundamental, regarding any socio-economic outcome occurring as a result of community forestry. There may be a number of socio-economic outcomes, including improved livelihoods, and the sustainable management and development of forest resources (FAO, 2011). However, governments should reform existing forestry policies, by incorporating enforceable and equitable access rights that provide equal opportunity for all members of forest user groups, including women, poor people, and ethnic minorities, to participate in the decision
making and benefit sharing processes (Acharya, Adhikari, & Khanal, 2009; Giri & Darnhofer, 2010c).

My findings indicate that governments should develop policies with strong political goodwill, so that not only are people’s traditional rights to forest resources acknowledged, but so that there are also community rights. Both customary and formal rights should be supported by government policy, in order that all CFUG members, especially poor people, disadvantaged individuals, and ethnic minorities, not only know their rights and responsibilities, but have the capability of obtaining benefits which are provided by having access to community forest resources.

My findings also indicate that CFUG members frequently have a limited amount of knowledge regarding their rights and responsibilities, under reformed tenure arrangements, as well as a limited capacity to exercise those rights. In relation to all aspects of community forestry tenure reform, government policy should be focused on the empowerment of poor people, women and disadvantaged CFUG members. Government officials should also be required to acquire the skills needed to operate in the reformed environment.

8.5.3.3 Exploring the potential of carbon and biodiversity trading

Global issues are currently emerging that are likely to lead to forest tenure reform. For example, in international debates, over the last few years, there has been quite a lot of attention placed on community forestry, because of the potential role that forests could have, regarding carbon sequestration; and mitigating, among other matters, climate change, energy shortage, and food shortage (FAO, 2011). In the overall debate, regarding climate change, REDD+ approaches could well have a role regarding future forest management in developing countries. This is leading to a lively debate, as well as a rethink, regarding the objectives of community forest management, and the consequences regarding inappropriate tenure. This essentially means that internationally important objectives should be added to the existing mix, regarding local community forest management objectives.

However, the carbon-related aspects of community forestry seem likely to dominate REDD+ policy, rather than the rights and interests of indigenous peoples and local communities. For these reasons, it is imperative that relevant governmental and
nongovernmental organisations engage in the climate change debate, so that the rules of engagement can be influenced, particularly in relation to protecting community rights. Therefore there is an urgent need to do more work in relation to considering the role of community forestry, which will be affected by climate change policies and actions.

Pro-poor reforms also need to be considered, regarding community forestry, so that livelihood benefits that forests provide for poor and disadvantaged people are protected. If all of this occurs, then rural communities will need, among other things, more secure forest tenure, effective forest governance, equitable benefit sharing, and new policies regarding climate change, if they are to be involved in managing and protecting large areas of forests globally.

8.5.3.4 Integrating forest policy with national poverty reduction strategies

Recently, criticism was leveled at supporters of community forestry for failing to produce any evidence that there has been significant reduction in poverty as a result of the program having been introduced. My findings indicate that community forestry should be regarded as being one of the key drivers of socio-economic transformations, and that forest management should be regarded as being one of the national poverty reduction strategies. Key national forestry policy should be developed and implemented effectively, so that recognition can be provided for people who are dependent on the forestry sector. There should also be a more people-centred approach, regarding forestry policy. Moreover, CBFM should be adopted, especially in rural areas, as one of the major ways by which community development can be stimulated (FAO, 2011). Finally, poverty is being reduced where pro-poor activities are supported by CFUGs.

However, it cannot be assumed that, overall, rural livelihood improvement equates to household level poverty reduction. Poverty reduction requires the explicit identification of poor people, and the implementation of specific pro-poor activities. Therefore, for community forestry to play a significant role, regarding poverty reduction, several factors, such as the policy context; the socio-economic condition of rural communities; the nature and diversity of forest products which are accessible to them; community management capacity; and the availability of infrastructure to support production, processing and marketing of forest products, need to be considered during the policy formulation process. So, I have a number of suggestions as to how developing countries and international donors can move forward, thereby also ensuring the future of community forestry.
Government authorities could improve benefits and equitable benefit sharing, as a result of community forestry, by:

(a) handing over natural forests (not just degraded forestland);
(b) allowing community foresters to harvest and sell timber and non-timber forest products;
(c) enabling a share of income from forestry to be allocated to poor people in the community, thereby enabling them to cope;
(d) creating an environment in which income/livelihood sources could be diversified, by making community forestry more responsive to the demands of small and medium size enterprises; and
(e) putting more effort into strengthening the capacity of poor and marginalised people to cope, whereby they acquire greater autonomy and trust.

In addition, international donor agencies and organisations need to provide adequate amounts of financial and technical support, networking, knowledge, and policy and market reforms. Those agencies also need to challenge the status quo, so that there is not only widespread support for pro-poor strategies, but positive developments as well, at the global level.

8.5.4 Recommendations for community forestry policy in Nepal

8.5.4.1 Reforming forest policy

Good forestry policy can create an enabling environment, whereby there is active community participation regarding the implementation of community forestry, and proper protection and management of community forests. However, static government forestry policies; reluctance amongst government staff to hand over forests in good condition to communities; and resistance by some forest professionals to a developed community forestry system, are limiting factors, regarding generating socio-economic outcomes.

There are a number of flaws, regarding the current government policy and legislation in relation to community forestry. The existing forest handover policy should be reformulated. Furthermore, each forest in Nepal, which is managed by government employees, should be handed over to the nearby community.
The community forestry policy should contain provisions whereby poor people, women, and disadvantaged individuals can improve their socio-economic status through the implementation of community forestry. There should also be provisions whereby poor and disadvantaged people can engage in forest-based income generating activities.

The existing forestry policy does not allow community forestland to be used for the construction of any permanent non-forestry structure. As a community forestry practitioner, and a scholar, I suggest that the existing policy be amended to allow multiple uses of community forestland, in accordance with the landscape and any productivity potential. In some sections of community forestland, where regeneration of forest is almost impossible because of harsh climatic or edaphic conditions, an alternate use of the land should be explored, in order that the community benefits, and that the existing environmental conditions be improved.

The existing forestry policy and legislation are unclear, regarding offences which are committed by outsiders. CFUGs face problems when such offences are committed. Even DFO staff have no authority to take action for offences which are committed by outsiders in community forests, unless wildlife are causing a problem. The only option is for CFUGs to seek court action, which is a lengthy process, and generally involves more expense than can be recouped from offenders by any court action. These flaws, regarding policy and legislation, discourage CFUG members, whose job is to protect community forests. Furthermore, the implementation of FOPs is affected, because the capacity of CFUGs to function is hindered. Therefore the existing Forest Act 1993 should be amended, so that there is enough legal authority to punish offenders from anywhere, if offences are committed in community forests.

In addition, the current restriction by the government, regarding the transport and sale of timber outside the CFUG district, should be immediately lifted so that CFUGs can manage their forests to their full potential. The main efforts, by CFUGs and the government forestry authority, should be in relation to the implementation of pro-poor programs, through sustainable forest management.

The existing community forestry policy needs to shift from being protection-oriented to being production-oriented. The current policy implementation process barely enables CFUGs to be acknowledged, in relation to the job opportunities which they create for poor and disadvantaged members through the introduction of new initiatives.
The existing regulatory barrier, that restricts the trade of forest products outside the CFUG area, discourages outside buyers. Only professional traders are able to cope with such bureaucratic hurdles. CFUGs cannot financially afford to deal with these expensive problems. Even timber traders prefer to obtain timber from sources other than CFUGs. Timber traders are supplied mainly from government managed forests. This has reduced the competition between the traders for timber from CFUGs.

There is a particularly serious problem regarding the trade in NTFPs, because a large part of this trading occurs on the black market. CFUGs and forest product collectors are in a weak position, regarding NTFP trading, because a virtual monopoly is held by just a few buyers. Therefore, CFUGs and local forest product collectors often end up receiving low prices for their products.

The government should formulate a community forestry policy whereby forest dependent communities are encouraged to develop income generating skills. The focus, regarding such a policy formulation, should be on poor people, women and disadvantaged individuals being assisted, so that they can gain access to markets and increase their income. The government should provide subsidies, financial assistance and tax exemptions, so that community forest-based enterprises can be encouraged. The government should also provide training, technology and equipment, so that higher levels of skill can be developed within communities.

8.5.4.2 Decentralisation of the community forestry program

Community forestry in Nepal is an example of a decentralised and successful community-based forest management and development program. However, this program still has ‘a long road ahead’, regarding certain goals, in relation to decentralisation, being achieved. Indeed, decentralisation is a topic of growing interest, regarding community forestry. Decentralisation helps socio-economic outcomes from community forestry to occur, so that the livelihoods of people in rural communities can be supported.

All three aspects of decentralisation, namely fiscal, political, and administrative powers, are handed over to CFUGs as prerequisites, in order that sustainable forest management, development of forest resources, and poverty reduction be achieved. So, any transfer, of decision-making power from elites to poor people, women and disadvantaged CFUG
members, is an urgent requirement, whereby equitable socio-economic outcomes from community forestry can also be achieved.

In Nepal, there are inconsistence between the Local Self-Governance Act (LSGA) 1999, and the Forest Act 1993. Therefore the powers of DDC and VDC staff are inconsistent with those of DFO staff and CFUGs, regarding the collection of forest products such as gravels, sand, pebbles and stones from community forests. However, the LSGA clearly states that that the DDC and VDC, as local government authorities, should obtain approval from the DFO, or forestry authorities, before attempting any forestry related activity, such as the establishment of a plantation in a forest area, or collecting or transporting any type of forest product from forestland. However, misinterpretation of the LSGA directive is creating some confusion for CFUGs and other people who are involved in some way in community forestry. That misinterpretation is creating mistrust amongst local government authorities and CFUGs. Therefore the Ministry of Local Development should intervene and provide a remedy, whereby any LSGA directive is clear.

**8.5.5 Recommendations for the effective implementation of community forestry**

My findings indicate that community forestry is a dynamic approach, whereby its socio-economic outcomes can vary, in accordance with changing political and socio-economic conditions. However, a number of measures can significantly improve community forestry, whereby desirable socio-economic outcomes, which support the livelihoods of people in rural communities, can be achieved.

**8.5.5.1 Capacity building of community forest user groups**

Training, study tours, networking, and adult literacy classes are by far the most important ways whereby CFUGs can increase their knowledge and skills. In view of the limited number of DFO staff, other organisations, such as FECOFUN, should be involved, regarding training and extension programs. In addition, any increase in the knowledge of CFUG members, regarding community forestry policy, legislation and CFUG rules, can be of use, not only in order that community forestry be successful, but also so that the capability of the CFUG as an institution increases.

My findings indicate that CFUGs’ funds are controlled by elite members. Poor people, women, and disadvantaged members are not involved in any of the decision-making process, regarding the funds. As a result, CFUC decisions, in relation to investment and
spending, are not representative of every CFUG member. The empowerment of poor, women and disadvantaged members of the CFUGs to bring them in mainstreaming of community forestry process is a big challenge. Unless they are empowered, there will be little chance that there will be equity in sharing benefits and they will be welcomed in executive committee. Knowledge on silviculture (pruning, thinning, lopping, felling tree and so on), nursery (including grafting, scioning, germinating, not only forest and horticultural and agricultural species), plantation and protection, plant insect, pest and disease management – for both forest plants and also horticultural and agricultural species, small trade training such as plumbing and electrification – need to be incorporated into CFUG training. Community forestry is a part of social development therefore training should not just be focused on forestry. More knowledge will be provided to the poor, so the elite will have a greater dependence on the poor for their increasing skills.

In addition, CFUCs have failed to be transparent, regarding the collecting and spending of CFUG funds. The leakage of money is a serious problem, regarding community forestry. The rampant corruption and ambiguity, in relation to the collecting and spending of CFUG money, occur mainly when elite members control the funds. This is one of the main problems, regarding the implementation of community forestry. In addition, a CFUG’s fund is used primarily for the well-being of the group as a whole. This sort of spending seems to benefit wealthy and elite members more than it does poor and disadvantaged people. The socio-economic status of poor and disadvantaged members seems to be largely disregarded by CFUCs.

However, CFUGs have little in the way of fiscal capacity, and are restricted regarding the use of their resources. Their income-raising activities are highly dependent on forest products, membership fees and fines. Most members have no proper skills and knowledge regarding the collecting, investing and spending of money. Not only does this make CFUGs dependent on external financial advice and support, but it also makes CFUG members less motivated to properly manage their community forest resources. This indicates not only that the financial management skills of CFUGs need to improve, but that there should also be regular monitoring of CFUG funds by the government.

8.5.5.2 Improving forest governance

Good governance is a crucial factor, regarding the capability of community forestry to generate optimum socio-economic outcomes. Good governance is essential also if there is
going to be restructuring and reformulation of policy, and devolution of authority to local communities. The results of my research indicate that weak governance, regarding community forestry, tends to exacerbate poverty, because incompetent governance tends to hinder the emergence of socio-economic outcomes that would support rural livelihoods.

Although good governance can have different meanings in different contexts, for poor and marginalised CFUG members good governance means that there is greater opportunity for them to be involved in public policymaking, greater likelihood of being treated equally, more opportunity to associate with other people and pursue common interests, and being provided with a better chance of having bureaucrats behave responsibly towards them. The prevailing composition of rural communities in Nepal, namely rich and poor, low caste and high caste, male and female, is the greatest challenge to the smooth functioning of any development endeavor. Because of this community mixture, there is a degree of exclusion experienced at social, political and economic levels. For the most part, women and ethnic minority groups are ignored, and left out of the mainstream of community development, because they lack confidence, power, representation, and access to economic opportunities. Therefore there should be periodic reviewing, and reformulation of forest policies and legal provisions, not only so that good forest governance can be maintained, but so that social environments can be produced which are much less marginalised socially and financially.

Although the revised *Community Forestry Development Guidelines 2009* refers to both a male and a female as being members of a household within a CFUG, according to each CFUG constitution only one male or female from each household is to be included as a member of a CFUG. So it seems that efforts should be made to raise awareness, amongst CFUG members, about gender equity, so that women can be encouraged to become involved in forest management. In other words, both male and female household members should be registered as user members of a CFUG. A review of the literature, regarding community forest management, reveals that the successful implementation of community forestry requires cooperation amongst all members of the CFUG. The inability to cooperate leads to confusion; degradation of forest resources; and negative outcomes regarding the community forestry program [see Chapters 2 and 3].

My findings indicate that there is a significant information gap between DFOs and CFUCs, and also between CFUCs and CFUGs [see Chapters 6 and 7]. In order that the problem, regarding information asymmetry, be overcome, the government should ensure that
effective recordkeeping systems are introduced at various levels. Moreover, my research indicates that the appointment of a local CFUG member as record keeper, rather than someone who is chosen by the central government, is an especially sensitive topic. The appointed person needs to be someone who can bridge the information gap with accurate details which can be readily understood by local people. Furthermore, communication is not only important during a policy formulation process, but it should be ongoing, so that local people and community forestry stakeholders can be informed about what is happening.

8.5.5.3 Market development

My findings indicate that the development of networks, in relation to locating markets for forest products, is an essential prerequisite regarding generating optimum socio-economic outcomes from community forestry. Markets for timber and non-timber forest products really have to be found. They can be located via CFUG networks. These networks have to work with local traders during the initial stage. But they can subsequently develop a capacity to take over the major marketing roles. Thus it is recommended that CFUG networks be strengthened, regarding marketing capacity, so as to eventually replace marketing middlemen. It is also recommended that market facilities, such as collection centres and wholesale markets, be developed together, so that the capacity of CFUG networks to manage these centres and markets increases.

In order to improve the trade in timber and non-timber forest products, CFUGs require improved marketing skills and knowledge. Creation of a new position of market expert or a market coordinator in each district forest office will be helpful to support CFUGs in researching in marketing of community forest products within and outside their districts. Furthermore, in order for their expertise to increase in regard to bargaining, CFUGs should consider forming cooperatives or associations or networks, either at the local or district level.

8.6 Conclusions

The emergence of community forestry in Nepal results from the failure of the previous government-managed forestry policy, which was ineffective primarily because it did not involve local people in the management and development of forest resources. The government-centered forestry policy is characterised by ignorance regarding local people’s potential management roles, needs, and use rights.
My findings indicate that exploitative behaviour by upper caste males and male elites dominates the CFUGs. The composition of the executive committees is influenced by socio-economic characteristics, such as class, caste and gender relations. Just a handful of community members, who have more land, higher incomes, better education and more involvement in community activities, occupy the key decision making positions on executive committees. This applies to all CFUGs in all three study areas.

The key findings, regarding this research, are that community-based forest management builds on political goodwill and strong community institutions. The adoption of community forestry has resulted in substantial improvements, regarding forest cover and condition. Thus the community forestry program has been successful in relation to forestry conservation. It is a viable option for improving forest condition in developing countries.

I conclude this research by highlighting a number of my key findings:

- There have been improvements in forest condition; but not necessarily improvements in the social and financial well-being of all CFUG members. Therefore biophysical outcomes can be misleading indicators, regarding social and financial outcomes. Investment, in relation to producing biophysical change only, can be misguided. It can entrench social inequity at the local level.

- CFUGs are useful institutions regarding local community development and forest governance. But there is still a lack of equity regarding CFUG committee membership and decision-making. Changes, regarding spending by CFUGs, may not occur until poorer members of village communities become more active, and engage in the decision-making processes of CFUGs, when local elites are prepared to relinquish some of their power.

- An increase in population does not necessarily lead to deforestation, because the relationship between these two factors is often complex. Despite a growing population, poverty can be reduced with good forest governance. Although Nepal’s community forest management policies are still largely constructed on the basis of forest conservation (i.e. preventing deforestation), some CFUGs have moved beyond this paradigm, into advanced enterprise development. Community forestry policy needs to be more supportive of pro-poor enterprise development. CF needs to be proactive, in relation to enabling disadvantaged people to benefit.
Community forestry cannot reach its full potential without adapting quickly and effectively to external changes. The reproduction of traditional power structures, within community forestry, is a major obstacle to a pro-poor focus being achieved. It is difficult for women, poor people, and disadvantaged individuals to participate actively in the decision making and benefit sharing processes, partly because employer-employee relationships hinder whatever choices they might otherwise make freely. Furthermore, the domination of CFUG committees and the decision making process by elites and rich members leads to a lack of acknowledgement of the needs and interests of poor people, women and disadvantaged individuals. Thus community forestry currently offers little in the way of socio-economic transformation and poverty reduction, unless the policy is reformulated so as to include additional provisions.

None-the-less, my findings indicate that there has been increased participation from women, poor people and disadvantaged individuals in relation to the community forestry program. So decision making processes may be changing slowly. However, in order to be successful, community forestry, and community foresters, must adapt to change; adjust to new opportunities; address good governance and equity issues; and develop new products for new markets. Community forestry has the potential to improve the livelihoods of poor people, women and disadvantaged individuals. None-the-less, research must continue as to how this can best be achieved.

8.7 Recommendations for further research

My aim has been to describe and analyse socio-economic outcomes of community forestry for rural communities in Nepal. However, there are related areas where further study could take place. That study may be helpful in relation to evaluating the contributions of community forestry in different settings (e.g., in other developing countries), so that there can be more understanding as to how community forestry improves environmental conditions, and supports the national economy and the livelihoods of rural people. Possible areas for further research are as follows:

(a) An assessment of the long-term impact of community forestry on forest resources and rural livelihoods.

Community forestry forms a complex relationship with rural communities. Even when we find evidence that community forestry provides positive change (e.g., an increase in literacy), poverty can be very difficult to overcome (e.g., no employment opportunities).
Therefore, a separate study, regarding the long-term impact of community forestry on forest resources, and livelihoods of people in rural communities, would contribute substantially to the present body of knowledge. Indications that there have been long-term improvements regarding health, education, transportation, wildlife conservation, agriculture, enterprise development and heritage conservation, as a result of the community forestry program, would require further research.

(b) Evaluation of pro-poor community forestry policies and implementation

As governments move towards more pro-poor community development, with links to community forestry, there will need to be rigorous evaluation of the effectiveness of policies and programs. An essential component of such an evaluation would be the monitoring of changes regarding CFUG committee representation, decision making, and the use of funds. Changes in attitudes and behaviour, amongst both elites and poor members, would also have to be measured.

(c) Evaluation of CFUG investments in enterprise development

As enterprises develop, as a result of community forestry funds being made available, it will be necessary to assess the viability and social benefits of such schemes. Equity, regarding wealth classes, could be evaluated in terms of employment, increased capacity to cope, income, safety, health, happiness, job satisfaction, assets, etc. The business enterprise could also be researched, in terms of markets, supply chains, profitability and technology.

(d) Ecosystem and carbon related income generation

Timber and non-timber forest products, membership fees, fines and donations, are considered to be the main sources of a CFUG’s income. Apart from these, the possibilities for producing income from community forestry are gradually expanding, particularly regarding environmental protection and carbon sequestration (Acharya et al., 2009; Nightingale, 2009; Staddon, 2009). There are ample new emerging opportunities, such as Payment of Ecosystem Services (PES), Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+), and payments for carbon sequestration and other environmental goods and services, whereby CFUGs could generate additional income. But how these policy instruments may improve forests, and people’s livelihoods, remains to be fully analysed.
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Appendices

Appendix 1 An overview of community-based forestry in selected Asian countries

Community forestry, as it is currently practiced in most developing countries, has been shaped by national and international thinking, and by specific political and historical elements. Community forestry involves many mainstream development ideas. The most recent of these is the concept of sustainable development. However, sustainable development is practiced differently in various countries, depending upon social, cultural, political and resource conditions. Community forestry in some countries (such as the Philippines, India and Nepal) has already evolved from being in an elementary stage to being an implemented mainstream program (Gilmour et al., 2004). However, in countries such as Bhutan, Cambodia, China, Indonesia, Lao PDR, and Sri Lanka, community forestry is still in the elementary stage, regarding implementation.

In the following sections the practices, regarding community forestry in the Philippines, India and Nepal, are briefly discussed.

1.1 Community-based forest management in the Philippines

In the Philippines, community forestry began with the government’s desire to address upland poverty, and to solve deforestation problems which had occurred mainly as a result of lowland farmers migrating to the upland forest zones (Lasco & Pulhin, 2006).

According to Calderon and Nawir (2006), CBFM is the major forestry strategy in relation to areas which extend from degraded lands to natural forests, and where upland communities can participate in the protection and utilisation of forest resources. The main objective, regarding CBFM, is that the rights of Filipino people to a healthy environment and good socio-economic conditions be protected. This objective can be achieved through the promotion of social justice, equitable access to, and sustainable development of, forestland resources. Consequently poverty can be alleviated, soil productivity can be conserved, forest resources can be sustained, and various income-generating activities for the poor can be provided so that their livelihoods can be improved (Lasco & Pulhin, 2006).

Calderon and Nawir (2006), as well as Johnson (1999), have explained that CBFM is practised whereby forestland is given to people by means of leasehold tenure. Those people are then given incentives to protect, manage, rehabilitate and develop the forest area. CBFM applies not only to degraded watershed areas, but also to ancestral land of indigenous communities. A 25 year tenure is provided to each local people’s organisation, regarding the managing and utilisation of forest resources. This provision gives people legal rights, which encourages them to extract, process, and sell forest products (Calderon & Nawir, 2006; Dahal & Capistrano, 2006).

CBFM in the Philippines is one step advanced, in relation to JFM in India, in that user groups (called people’s organisations in the Philippines) obtain logged-over or degraded natural forestland on lease for a period of 25 years, and can manage sustainably, and utilise, forest products there, without any interference from the government. The people’s organisations reap the full benefits from the forest. However, they have to pay 40% of their total income from forestry to the local government unit (Penafiel, 1995). Associated with each CBFM lease is the possibility that it will be renewed for another 25 years, after the first period of 25 years has expired.

However, under the terms of the Community Based Forest Management Agreement (CBFMA), any tenure regarding forestland, as well as any CBFM right to till the land in accordance with the
Certificate of Stewardship Contract (CSC), are not guaranteed after 25 years (Dahal & Capistrano, 2006).

Thus CBFM members have no guarantee that their tenure period will be extended after the 25 year period has been completed. In addition, the literature, regarding CBFM, shows that major problems have arisen because of inappropriate production, utilisation, and conservation attempts, under different biophysical and social conditions. Dahal and Capistrano (2006), during their study of CBFM in the Philippines, have noted some degree of despair among community people, regarding ownership, not only because of the presence of elites in power centres, but also because of the emergence of new collaborative forms of corruption. Those researchers have also found that certain attitudes, which reflect the traditional command and control approach by the central government regarding forest management, are still held by some bureaucrats. So some communities tend to be excluded by those bureaucrats from managing forest areas.

1.2 Joint forest management in India

The growing fuel crisis during the 1970s made the Indian government seek alternative sources of energy. So the government instructed its forestry authorities to work with local communities. These trials were highly successful, regarding the protection of forest resources. So the Joint Forest Management (JFM) model emerged in the 1990s, whereby local people have become involved in the protection of nearby forests and plantations (Singh, Pandey, & Prakash, 2011; Springate-Baginski et al., 2007).

In India, JFM was developed after widespread tree-planting had been implemented during an earlier period. The JFM program, which is also referred to as ‘Co-Management’, is now implemented because of continued natural forest destruction and the failure of social forestry in a number of states. The intention, regarding this initiative, is that the local community be fully involved in the protection and management of the natural forest; rather than simply establish a plantation in accordance with government initiatives. JFM is based on a partnership arrangement between the local community and the state forest department, regarding sustainable forest management and joint benefit sharing (Kant & Nautival, 1994; Murali, Murthy, & Ravindranath, 2006; Poffenberger & Singh, 1992).

The sharing of authority and forest products motivates local communities to participate in community forestry, because local people are dependent on forest resources for their sustenance, food security and, to some extent, livelihood (Singh et al., 2011). Community forestry, as practiced in India, provides ownership rights in relation to trees which have been successfully planted, tended to, and protected (Shyamsunder & Ghate, 2011).

The exploratory phase of this system has been so successful that the original sites have become models. Consequently, forest protection committees have been established in several states. Arabari in West Bengal was the first, in 1972 (Hobley & Malla, 1996). However, civil society still has a strong influence, regarding the success or failure of community forestry, which is a site-specific operation. None-the-less, limited rights, to what are still officially regarded as being public lands, have been devolved to local communities so that they can manage forests and benefit from them. Local people are given livelihood use; access to non-wood forest products (NWFPs); and a 25% share of the net ‘final harvest’ (Springate-Baginski et al., 2007). However, the state forest departments still possess the decision-making power; and the program is not yet protected by suitable legislation. Although community forestry has been implemented in India, no adequate provision has yet been made, regarding transferring land ownership to local communities.

1.3 Community-based forest management in Nepal

Amongst developing countries, Nepal is one of the leading nations regarding the initiating of innovative community-based forest management programs, which involve local communities (Agrawal & Ostrom, 2001; Nagendra & Gokhale, 2008). By the late 1970s, it had become clear
that forestry management, which did not include the local community, was virtually doomed to be a failure. So it was felt that there was a need for a new approach regarding forestry, whereby the community could participate in the management and development of forest resources (Malla, 2009).

Since then, there has been an increasing amount of attention given to sustainable forest management and rural development. In Nepal, four types of community-based forestry, involving local communities, have been introduced. These include:
(a) a buffer zone management program;
(b) leasehold forestry;
(c) collaborative forestry; and
(d) community forestry.

All of these programs involve participatory forest management in country areas and sections of national forests, whereby user rights are given to local groups of people in accordance with approved forest management plans. The aims, regarding each of these programs, are that the forest condition, and the livelihoods of forest dependent rural poor people, be improved.

1.3.1 Buffer Zone Management

In 1994, the Government of Nepal amended the National Parks and Wildlife Conservation Act 1973, thereby authorising park authorities to implement buffer zones on the peripheries of existing protected areas. Furthermore, the amendment allowed 30-50% of total park income to be recycled into local communities, so that natural resources could be managed. Management activities include anti-poaching measures; forest protection; and soil and water conservation. Community development activities include making sure that there are adequate supplies of drinking water; adequate irrigation; biogas promotion; road construction; poverty reduction provisions; and compensation for any loss of life or property damage by wildlife.

Thereafter, the Buffer Zone Management (BZM) Regulations, 1996, and BZM Guidelines, 1999, were approved so that programs, which are compatible with national park management, could be implemented; and so that public participation regarding the conservation, design and management of buffer zones could be facilitated (GoN, 1996; GoN, 1999a; GoN, 2002a).

The BZM Regulations, 1996, advocate a community-based approach, regarding the conservation of park resources. This is being achieved through the forging of partnership agreements between community organisations and park authorities (GoN, 1996). So, new livelihood opportunities, and the use and development of alternative natural resources such as buffer zone community forests, are being introduced. Thus community self-reliance, whereby dependence on biological resources is minimised, is being promoted (Budhathoki, 2004). The mobilisation of a community, whereby the BZM regulations can be used effectively, is based on equitable development regarding human, social and environmental resources (Budhathoki, 2003).

So the community-based BZM concept is a key ingredient, and is being widely applied to the conservation of natural resources, as well as to the reduction of absolute poverty in Nepal. National conservation strategies are limiting the amount of damage being done to protected areas. This includes the impact of local communities on those areas. The BZM initiative has been acknowledged as being one of the means by which people’s participation in the management of protected areas can be achieved (GoN, 2002a).

So the emphasis has shifted away from State bureaucratic interests to local priorities. As a result, there has been a high level of acceptance of the BZM program. The program is helping regarding improvements in local environments. It is also helping in relation to improvements in socio-economic conditions, and in relation to the reduction of absolute poverty. Local people regard the BZM program as presenting the best opportunity for the benefits of forestry to be obtained, and for community development to be achieved (Budhathoki, 2004).
1.3.2 Pro-poor Leasehold Forestry Program

The Master Plan for Forestry Sector (MPFS) (1989-2010) of Nepal is the main forestry policy document that guides forestry development. It is part of a comprehensive framework which is comprised of six primary, and six supportive, programs (GoN, 1989).

In relation to that Master Plan, leasehold forestry is the second priority, regarding the National and Leasehold Forestry Program. The Agricultural Perspective Plan (1995) refers to both leasehold forestry and a livestock development program (APP, 1995; GoN, 1989; GoN, 1993; GoN, 1995). The Forest Act 1993, and Forest Regulations 1995, provide the legal basis for leasehold forestry. They also provide for any person living below the poverty line (i.e., who is living in a poor household with less than 0.5 hectare of land, or receiving an annual income below USD$110).

Because of the leasehold forestry program, a patch of national degraded forest can be handed over, free of tax and royalties, to occupants of a group of 5 to 10 poor households. However, The Forest Regulations 1995 clearly state that ownership of trees at the site at the time of the handover remains with the government. Any such leaseholder is bound by the terms of the lease to protect such trees. The government of Nepal has also formulated the Leasehold Forestry Policy 2002, and Leasehold Forestry Guidelines 2003. The Leasehold Forestry Policy 2002 states that the forestland at the time of the handover should be degraded; or encroached upon; or in the process of rehabilitation from the effect(s) of a natural calamity; or an area which has been subjected to soil erosion; and have less than 20% crown cover.

The philosophy, regarding the pro-poor leasehold forestry program, is that degraded forestland be provided for groups of poor people. The aims, regarding the implementation of this program, are that poverty be reduced, and that environments be restored. It is hoped that these improvements can be achieved via the offering of 40 year leases, regarding small plots of degraded public forest land, to occupants of the poorest rural households (GoN, 2002). If the user group satisfactorily manages the leasehold forest, according to the plan, then the lease may be extended for another term of 40 years (GoN, 2003). Each group of occupants, of each household in the arrangement, is equally responsible for ensuring that the terms of the lease agreement are not violated. If the group of people who hold the lease are proficient enough, then the better their chances are, regarding maintaining and improving the site.

Lease groups rehabilitate the degraded land by adopting Sloping Agricultural Land Technology (SALT) and bio-engineering practices, regarding soil conservation; preventing grazing; stall feeding their livestock; cultivating legumes, grasses, fodder, vegetables, fruits, medicinal plants; aromatic plants, cash crops; and multipurpose tree species. The lease groups also can use and sell forest products such as timber, fuelwood, and fodder. The leases provide rural poor people with long-term land tenure, and give them incentives to regenerate, protect and manage degraded forest areas, whilst offering benefits which improve their livelihoods.

The pro-poor leasehold forestry program was initiated in 1993, through the pilot scheme ‘Hills Leasehold Forestry and Forage Development Project’ (HLFFDP), in the Sindhupalchok, Kabhrepalanchok, Ramechhap and Makawanpur districts. The scheme was supported by the FAO and IFAD. It was the first project in Nepal to include both forestry and livestock elements, whereby the poorest of rural people could be helped (Albano, Regmi, Kumar, & Blicher, 2008). The scheme was then adopted as a national program. It has since been implemented in 26 districts in Nepal.

According to the Department of Forests, the number of leasehold forestry groups which have been formed, up till August 2011, is 6,712. The number of households involved in this program total 62,745. The amount of forest area which was handed over to these groups is 38,918 hectares; and the average number of families per group is 9.3 (DoF, 2011a). Hence the average forest area per household is about six hectares. Those who are involved in these leaseholds for poor rural people
acquire additional income through various kinds of activities such as the cultivation of NTFPs and beekeeping; and also because of livestock development programs (DoF, 2011a).

Evaluation and impact studies, which were done by Ohler (2000) and IFAD (2003), regarding leaseholds for poor rural people, reveal that the program had had the following effects:

- the amount of animal feed and forage increased significantly;
- women spent, on average, 2.5 fewer hours a day collecting forage and fuelwood;
- women’s self-esteem and confidence rose, because they had more time to devote to income-earning activities, and attend meetings, appropriate training, and adult literacy classes;
- school attendance increased because there was less of a need for children to herd grazing animals;
- annual household incomes rose, on average, from NRs 20250 (US$270) to NRs 30375 (US$405);
- higher incomes produced greater food security and improved diet for children, and more than 25 percent of additional income, on average, could be invested (as savings) in productive works;
- environmental degradation was reversed at most sites, and ground cover increased, on average, from 32 percent to 50 percent after just one growing season; and
- biodiversity increased significantly, whereby the number of plant species increased up to 86 percent.

None-the-less, after having read through the literature review, and after having taken into account my own field experiences, I have realised that the pro-poor leasehold forestry program is not free of difficulties and challenges. Although this scheme is generally regarded as being one of the key initiatives regarding poverty reduction, the existing legislation and policy regard it as being only a secondary priority scheme after community forestry. So the legal status and policy, regarding the leasehold program for poor rural people, need to be revised. The first priority should be to ensure that there is an easy handover of the lease; and subsequently, that inheritance factors and insurance against fire and other natural calamities are properly considered.

### 1.3.3 Collaborative forest management

The Master Plan for Forestry Sector 1989 of Nepal relates to the management of timber supplies from forests in the Tarai and Siwaliks areas, so that the needs of urban, and timber deficit areas of the country, can be met (GoN, 1989). The revised Forestry Sector Policy 2000 indicates that forests in the Tarai and the Siwalik areas, which are of high economic and national importance, should be managed and utilised in accordance with collaborative forest management plans (GoN, 2000). Collaborative Forest Management (CFM) is a relatively new practice, regarding community-based forest management, and it is still in an early phase of development. One reason that it should be implemented is that the supply of forest products increases because of the application of scientific procedures. The sustainable management and development of those resources, in order that the needs of both local and non-local users be met, are additional reasons that CFM should be implemented.

The revised forestry policy has been formulated in the hope that a number of issues, regarding CFM in the Tarai and Siwalik areas (GoN, 2000), can be addressed, given that:

- the full potential of the forests is not being realised via the existing forest management approaches, despite there having been various attempts at ‘scientific’ management and government ‘patrolling’ in order that encroachment and forest ‘crime’ be prevented (Baral, 2002).
- the use of the community forestry program does not guarantee that the forests will be managed scientifically (Sigdel et al., 2005), and that there will be equitable access and benefit sharing, even for distant traditional Madhesi users (Bramton & Cammaert, 2007).
CFM is a forest management approach which is based on collaboration between local communities and government bodies (i.e., Village Development committees and District Development committees) so that forest resources can be protected and managed. This program is different from community forestry and pro-poor leasehold forestry programs, regarding forest management and benefit sharing. According to the current guidelines, local user groups can obtain small amounts of timber and fuelwood from local depots at a subsidised rate, in accordance with approved forest management schemes. Larger size quantities of timber, non-timber forest products, and surplus fuelwood, are auctioned. Forest users groups and local governments share 25% of the proceeds, whilst the remaining 75% goes to the central government treasury (GoN, 2003).

Since 2003, the CFM program has been implemented with the support of a Dutch government-funded bilateral project. Four pilot collaborative forest management schemes, such as Sabaiya in the Parsa district, Sahajnath and Halkhoriya in the Bara district, and Rangapur in the Rautahat district of the central Tarai region, have been approved, and have been implemented in a pilot phase (Paudyal, 2007). Although this program involves joint control by local communities and government bodies, regarding forest resources, there are no provisions in relation to local autonomy. So there are many challenges that have to be addressed, regarding this scheme. These include the management of high value forests in the Tarai and Siwalik areas; forestry activity at high altitude; closer working relationships between government bureaucracy, local governments and communities; and the issue of equity regarding the most vulnerable groups in society.

Since the early 1970s in Nepal, there have been various approaches, regarding participatory forest management. These experiments, when combined with (a) a growing awareness that local communities could manage common property, and (b) an awareness of the negative impact which nationalisation of forest resources has had, led to the introduction of the Forest Act, 1993; the Forest Regulation, 1995; and the Buffer Zone Management Regulations 1996, which relate to community-based forest management. In Table 1 is a summary of different types of community-based forest management in Nepal.
### Table A summary of community-based forest management regimes in Nepal

<table>
<thead>
<tr>
<th>Institutions/other factors</th>
<th>Buffer zone management</th>
<th>Pro-poor leasehold forestry</th>
<th>Collaborative forestry</th>
<th>Community forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorised agency for approval of management plan</td>
<td>National Park or Protected Wildlife Reserve Warden</td>
<td>DFO</td>
<td>Minister, MFSC</td>
<td>DFO</td>
</tr>
<tr>
<td>Forest management responsibility</td>
<td>BZM Group/council; National park &amp; Wildlife Management Authority</td>
<td>Pro-poor leasehold FUG</td>
<td>District Forestry Coordination Committee (DFCC) &amp; Collaborative forest user group</td>
<td>CFUG</td>
</tr>
<tr>
<td>Main objective of forest management</td>
<td>Protection and ecotourism</td>
<td>Improvement of degraded land &amp; livelihoods of poor people</td>
<td>Production of forest products &amp; collection of government revenue</td>
<td>Improvement of forest condition &amp; livelihoods of people in the local communities</td>
</tr>
<tr>
<td>Revenue distribution (benefits) to User Groups</td>
<td>30-50%</td>
<td>100%</td>
<td>25%</td>
<td>100% (Mountain and Hills) 85% (Tarai &amp; Inner Tarai)</td>
</tr>
<tr>
<td>Right to withdrawal</td>
<td>Yes, but limited to those forest products authorised by strict guidelines</td>
<td>Yes, but restricted to leasehold group members</td>
<td>Yes, but only small quantities of logs and fuelwood to the community</td>
<td>Yes</td>
</tr>
<tr>
<td>Rights to manage</td>
<td>Yes, but remarkably little or no control over modifications to management systems</td>
<td>Limited due to social conflict with non-members</td>
<td>Limited due to government control</td>
<td>Yes, limited degree of control over modifications to the management system</td>
</tr>
<tr>
<td>Rights to exclude</td>
<td>Limited; the Warden decides membership</td>
<td>Mostly unavailable due to a high degree of social conflict</td>
<td>Limited; the DFCC decides membership</td>
<td>Limited; the DFO decides membership</td>
</tr>
<tr>
<td>Rights to alienate equity</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Initial forest condition</td>
<td>Varies from degraded to good quality forest</td>
<td>Extremely degraded forest</td>
<td>Often good quality blocked forest</td>
<td>Varies from degraded to good quality forest</td>
</tr>
<tr>
<td>Impacts on forests</td>
<td>Regeneration &amp; improvement in biomass and biodiversity</td>
<td>Improvement in most areas</td>
<td>Low improvement due to short period of implementation</td>
<td>Good regeneration improvement in biodiversity</td>
</tr>
</tbody>
</table>

Appendix 2 Description of case study districts

1. Chitwan District

Chitwan had heavy forest cover until the 1950s. After the collapse of Rana rule in 1950, the government’s policy was that the economic base in the Tarai be expanded, so that revenue could be generated and that forests there be converted into farmland in order that there be a food supply for Kathmandu. Before the 1950s, people in Chitwan were highly vulnerable to malaria. But in 1952 the government launched a malaria eradication program; with assistance from the USA and the World Health Organization (WHO).

In 1953, devastating floods washed away hundreds of hectares of farmland and displaced many families in the hilly regions of Nepal. In 1955, the government sponsored a re-settlement program - the Rapti-Valley Multi-Purpose Development Project – whereby the Hill people were encouraged to migrate to Chitwan. Although those people were afraid of malaria, a contractible disease, the government encouraged them to re-settle by providing them with the opportunity to own as much land as they could clear for cultivation.

After the malaria eradication program had been implemented in 1956, the area gradually became known as suitable for human settlement (DDC Chitwan, 2004). Simultaneously, road construction, industry, agricultural cooperatives, irrigation and communication facilities were initiated in the area. This strategy was successful in encouraging an in-flow of migrants to the district and consequently the population of the area has been increasing rapidly ever since (DDC Chitwan, 2008; Muller-Boker, 1999) (Figure 1).

Figure 1 Population in Chitwan District

![Population Graph](image)

**Note:** Projected population and HHs in 2011.

**Source:** DDC, Chitwan, 2004. District profile of Chitwan (pp17-18).
DFO, Chitwan, 2011. VDC level forest resource identification (p3).

Because of advantages regarding location and the fast-growing infrastructure development, Chitwan valley has been the main destination for both permanent and temporary migrants, especially from surrounding hill districts such as Gorkha, Lamjung, Tanahun, Kaski, Parbat and Baglung. In fact, the valley is inhabited by various ethno-cultural groups from all over the country. Tharu, Darai and Kumal are the native or Indigenous groups of this district.

According to the development indicator database, prepared jointly by the Central Bureau of Statistics (CBS) and the International Centre for Integrated Mountain Development (ICIMOD), Chitwan District is ranked second overall, in the composite index regarding national development (CBS 2006).

According to the Five Year District Forest Management Plan (2008), five main forest tree species, namely (i) Chir pine (*Pinus roxburghii*); (ii) Hill *Shorea robusta*; (iii) Tarai *Shorea robusta*; (iv) Riverine *Acacia catechu-Dalbergia sissoo* and (v) Riverine broad-leaf trees, are found in the district’s forests (Map 4.2). The climax vegetation in the area is comprised of evergreen and semi-
deciduous tropical forests (DFO, 2009). Sal (*Shorea robusta*) is the most valuable tree species in Nepal and it is also the most predominant tree species in Nepal’s sub-tropical forest areas. The forest tree species in the district vary from tropical to subtropical. The forests near human settlements are mostly fragmented and grow in patches. Moreover, the forest area is decreasing rapidly because agricultural expansion is accelerating and this is posing a threat to environmental sustainability (Sharma, 1998).

After the restoration of democracy in 1990, the community forestry program was introduced into the district. That program deals mostly with forests, which are progressively being handed over to CFUGs in order that the forest areas be protected, managed and properly utilised (DFO, 2009). However, the momentum regarding handing over those forests to local people has been slow, because government decisions regarding the community forestry program in the Tarai and Inner-Tarai districts have frequently been changed.

On the basis of the spatial and temporal mapping of forest conditions in the district, Panta (2008) has commented that although the forests in that area appear to be deteriorating, the Tarai sal (*Shorea robusta*) numbers increased in some locations between 1989 and 2001. That researcher believes this increase could be linked to the community forestry program. The DFO has handed over degraded patches of sal forest to local communities in the past; and CFUGs have been actively conserving their own forest areas. So it seems that community-managed secondary forest patches of the sal tree species have been positively altered between 1989 and 2001. None-the-less, this district is the least developed, in terms of household access to Community Forests (CFs) and the number of livestock which are owned per household (CBS/ ICIMOD 2003).

2 Kabhrepalanchok District

Kabhrepalanchok is a hilly area where population and household numbers have gradually been changing (Figure 2).

**Figure 2 Population in Kabhrepalanchok District**

![Population graph](image)

*Note: Projected population and HHs in 2011.*  
*Source: BSO, Kabhrepalanchok, 2006.*

With the growth in population, land-use habits have changed. Agricultural areas, pasture lands, forestlands and shrub lands are the most predominant land-use activities in the area (Figure 4.4). Terrain, climate, soil, accessibility and human population have an effect, regarding the use of land. The lower slopes, flat hilltops and alluvial plains, along the Indrawati, Sunkoshi Bagmati, and Roshi rivers, serve as agricultural land; whilst the steep slopes and inaccessible areas in the district are covered with forests, shrubs and pasture land (DFO, 2008).

According to the latest development indicator database (2004), prepared jointly by the Central Bureau of Statistics (CBS) and the International Centre for Integrated Mountain Development
(ICIMOD), this district is ranked fifteenth overall, in the composite index of national development (BSO, 2006).

The forest tree species of the district vary from subtropical (sal forest) to alpine. Prior to the implementation of the community forestry program, the forests near human settlements in the district were mostly degraded because of the uncontrolled presence of people and livestock. This degradation of the forests was typical throughout the Middle Hills during the 1980’s (Metz 1987; 1989). The forests in the more mountainous area are less affected. However, forests near human settlements are mostly fragmented and occur in patches of varying size, ranging from less than 5 hectares to more than 200 hectares. The community forestry program of the government is mostly directed at these forests, which are progressively being handed over to CFUGs so that they can be protected, managed and properly utilized.

The community forestry program gained momentum in the Kabhrepalanchok District after the government’s new forest policy or Master Plan for the Forestry Sector of Nepal 1989, had been created. At the implementation phase of CF, the emphasis was placed on identifying real forest users of particular forest patches and handing over the management responsibility, of those areas, to those people. The CFUGs were assisted by DFO staff, to prepare their constitutions and the FOPs for their CFs.

3 Sindhupalchok District

Sindhupalchok District is predominantly comprised of rural settlements; with the average population density being 103 people per square kilometre. According to the latest population statistics in 2006, the total population of the district is 261,830, of which 131,500 are males and 129,500 are females. The total number of households is 51,219, and the average number of family members in each household is 5.1 and this number is smaller than the average national household size of 5.6 (BSO, 2007). Figure 3 shows the increasing population trend of the district and the number of households over time. None-the-less, the population size of that district is the smallest among the three districts. This may be due to remoteness and lack of a sufficient number of development activities in the area.

Figure 3 Population in Sindhupalchok District

![Population in Sindhupalchok District](image)

Note: Projected population and HHs in 2011.

There are various castes and ethnic communities in the rural areas. Major groups in the southern part of the district include Brahmins, Chhetris and Newars. In the northern section there are Tamang, Sherpa and Thamis groups. The livelihoods of people are dependent upon a range of annual and perennial crops, shrubs and trees, which provide food, firewood, fodder, timber and a
number of other products. Rice, maize, millet, potatoes and wheat are the major food crops, whilst buffaloes, cows and goats are the major livestock in the district. According to the latest development indicator database (2004), prepared jointly by the Central Bureau of Statistics (CBS) and the International Centre for Integrated Mountain Development (ICIMOD), this district is ranked forty-eighth overall, in the composite index of national development (CBS, 2004).

The forest tree species of the district vary from subtropical to alpine. The forests in the southern part of the district are mostly degraded as a result of the uncontrolled presence of human settlements and grazing (DFO, 2010). The forests in the remote mountainous area are less affected. The forests near human settlements are mostly fragmented and the government’s community forestry program is mostly directed at these forest areas, which are progressively being handed over to CFUGs so that they can be protected, managed and better utilised.
Appendix 3 Location of the study sites

Site 1: Kankali CFUG and community forest

Site 2: Hilejaljale (Ka) CFUG and community forest

Site 3: Shreechhap Deurali CFUG and community forest

5 August 2009

Mr Binod Devkota
School of Environmental Sciences
ALBURY CAMPUS

Dear Mr Devkota,

The Human Research Ethics Committee has approved your proposal “Socio-economic outcomes of community forestry for rural communities in Nepal” for a twelve month period from 5/8/2009.

The protocol number issued with respect to this project is 2009/117. Please be sure to quote this number when responding to any request made by the Committee.

Please note that the Committee requires that all consent forms and information sheets are to be printed on Charles Sturt University letterhead. Students should liaise with their Supervisor to arrange to have these documents printed.

You must notify the Committee immediately should your research differ in any way from that proposed.

You are also required to complete a Progress Report form, which can be downloaded from www.csu.edu.au/research/forms/ehre_annrep.doc, and return it on completion of your research project or by 13/8/2010 if your research has not been completed by that date.

The Committee wishes you well in your research and please do not hesitate to contact the Executive Officer on telephone (02) 6338 4628 or email ethics@csu.edu.au if you have any enquiries.

Yours sincerely

Julie Hicks
Executive Officer
Human Research Ethics Committee
Cc: Dr Digby Race Dr Joanne Millar Dr Rik Thwaites
8 September 2010

Mr Binod Devkota
School of Environmental Sciences
ALBURY-WODONGA CAMPUS

Dear Mr Devkota,

The CSU HREC operates in accordance with the National Health and Medical Research Council’s *National Statement on Ethical Conduct in Research Involving Humans*.

The Human Research Ethics Committee has reviewed your report requesting an extension for your research project "*Socio-economic outcomes of community forestry for rural communities in Nepal*", protocol number 2009/117 and I am pleased to advise that this request for an extension meets the requirements of the *National Statement*; and an extension for this research is granted for a twelve month period from 8/09/2010.

Please note the following conditions of approval:

- all Consent Forms and Information Sheets are to be printed on Charles Sturt University letterhead. Students should liaise with their Supervisor to arrange to have these documents printed;
- you must notify the Committee immediately in writing should your research differ in any way from that proposed. Forms are available at [www.csu.edu.au/research/forms/ehrc_annrep.doc](http://www.csu.edu.au/research/forms/ehrc_annrep.doc);
- you must notify the Committee immediately if any serious and or unexpected adverse events or outcomes occur associated with your research, that might affect the participants and therefore ethical acceptability of the project. An Adverse Incident form is available from the website; as above;
- amendments to the research design must be reviewed and approved by the Human Research Ethics Committee before commencement. Forms are available at the website above;
- if an extension of the approval period is required, a request must be submitted to the Human Research Ethics Committee. Forms are available at the website above;
- you are required to complete a Progress Report form, which can be downloaded as above, by 8/09/2011 if your research has not been completed by that date;
Appendix 5 Information sheet and participant consent form

INFORMATION SHEET
Research Project: Socio-economic outcomes of community forestry for rural communities in Nepal
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ABSTRACT
Forests can play a crucial role in the livelihoods of rural communities in developing countries. Such communities mostly use forest resources for their subsistence household economy. In recent decades, many government and non-government agencies have viewed that community-based forest management (CBFM) can be a powerful and practical way of planning and implementing both forestry and community development programs. The CBFM concept has been implemented in many developing countries, including Nepal, as an option for stopping deforestation and reducing poverty.

Research background: Nepal is regarded as a pioneer of the community forestry (CF) – a program based on the CBFM with major programs initiated in 1970s. Despite considerable investment in CF over the past 30 years, the full socio-economic outcomes of the CF program are yet to be comprehensively assessed and thus, the socio-economic outcomes of the CF initiatives to sustain the livelihoods of the rural people are still not clearly understood. Therefore, this research aims to analyse the nature and range of socio-economic outcomes of the long-term investment in the CF for different segments of rural communities in Nepal, particularly those groups identified as the target audience for the CF (e.g. women, poor villagers).

Key research questions: For investigation of the main socio-economic outcomes of community forestry, this research aims to answer the following key questions:
1. What are the socio-economic characteristics and forest management practices of rural communities involved in community forestry?
2. What have been the socio-economic outcomes from community forestry for rural communities?
3. What are the most influential factors that have shaped the socio-economic outcomes from community forestry?

Methodology: The researcher is using a multi-method research approach for this study, during his post-graduate training at Charles Sturt University-Australia during 2008-2011. Both quantitative and qualitative methods will be used for collecting primary and secondary data for undertaking a comprehensive assessment of the socio-economic outcomes of community forestry. This research will be focused on three selected Forest user Groups (FUGs) from different districts of Nepal. Confidentiality will be protected by assigning a code number to each respondent and personal information will not be disclosed to other parties. The collected data will be analysed by using thematic analysis, and statistical and mathematical tools.

Implications of the research: It is expected that the research will provide an evaluation framework for socio-economic outcomes of CF. While this research will be grounded in the experiences of the CF in a small number of villages in Nepal, it is intended that the results will be helpful in terms of informing the CF policies and implementation elsewhere in Nepal and internationally.

If you have any query in regarding to research, please do not hesitate to contact to the Principal Researcher or the Principal Supervisor, as indicated above.

Note: Charles Sturt University’s Ethics in Human Research Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Officer:
The Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29, Bathurst, NSW, 2795. Australia.
Tel. +61-2-63384628; Fax. +61-2-63384194
Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.
PARTICIPANT CONSENT FORM

Research Project: Socio-economic outcomes of community forestry for rural communities in Nepal

Contact details:

**Principal Researcher**
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[Note: The Principal Researcher will interpret the following statements in Nepali language so that all respondents or participants can be fully informed about their voluntary consent to be/not be involved in this research.]

“I understand that I am free to choose to be involved, or not involved, in this research at any time. It is also clear to me that if I withdraw my participation, I will not be subjected to any penalty or discriminatory treatment. The purpose of the research has been explained to me and I have been given the opportunity to ask questions about the research and received satisfactory answers. I understand that this interview [focus group discussion] will be recorded in both written and audio forms as part of this project. I understand that any information or personal details gathered during this research about me are confidential and that neither my name nor any other identifying information will be used or published without my written permission. I understand that Charles Sturt University’s Ethics in Human Research Committee has approved this study, and I understand that if I have any complaints or concerns about this research I can contact”:

Executive Officer
Ethics in Human Research Committee
Academic Secretariat
Charles Sturt University
Private Mail Bag 29
Bathurst NSW 2795
Ph: +61 2 6338 4628
Fax: +61 2 6338 4194
Signed by: 

..........................................................
Date....................................................
Appendix 6 Guidelines for in-depth interviews

A. In-depth interviews with CFUG/CFUC representatives

1: What have been the socio-economic outcomes from community forestry for you (household)?
   - What changes has your family (household) experienced from CF?
   - What benefits has your family (household) received from CF?
   - What costs has your family (household) received from CF?
   - What is the level of social cohesion and strength of networks?
   - What is the trade in forest products and services for your households?
   - Have these benefits & costs changed since the FUG commenced?

2: What are the most influential factors that shape the socio-economic outcomes of community forestry for you (household)?
   - Could you please, describe the CFUG formation and implementation of community forestry?
   - How do CFUG and CFUC function?
   - How inclusive of the local community (who is a member, how do they participate)?
   - What is the level of knowledge and skills about CF in your family (household)?
   - How informed/aware are members?
   - What type of supports are you getting from the concerned DFO staff?
   - What is the existing your tenure and rights over land/forest and/or forest products?
   - What is change in the forest condition?
   - To what extent & quality of forest resources have been changed since implementation of CF?
   - What extent CF supports to meet household and commercial values?
   - What is the condition of local forestry market?
   - How competitive do you think the local market is?
   - What type of market information is available to you (what value, quality)?
   - What is about market accessibility for you – physical, competition?

3: How can community forestry be improved for you (household)?
   - In your view, how can CF be improved to increase the socio-economic outcomes for your family (household)?
   - Who should make (be responsible for) these changes?
   - What changes do you plan to make to your role in CF in next five years?

B. In-depth interviews with government forestry staff and FECOFUN representatives

1: What have been the socio-economic outcomes from community forestry for rural communities?
   - What benefits have CFUGs received from CF?
   - What costs/other changes have CFUGs experienced from CF?
   - What is the level of knowledge and skills about CF in CFUGs?
   - What is the trade in forest products and services for CFUGs?

2: What are the most influential factors that shape the socio-economic outcomes of community forestry?
What is a general practice of CFUG formation and implementation of community forestry?
How do CFUG members and committees function?
What is the level of social cohesion and strength of networks after implementation of CF?
How inclusive of the local community?
How informed/aware members are?
What resources do CFUGs have (how shared with members)?
What is the relationship between DFO and CFUGs?
What is change in the forest condition?
Extent & quality of forest resources?
What extent CF meets household and commercial values?
What is the condition of local forestry markets?
How competitive do you think the local market is?

3: How can community forestry be improved?

In your view, how can CF be improved to increase the socio-economic outcomes for rural communities?
Who should make (be responsible for) these changes?
What changes do you plan to make to your role in CF in next five years?
Appendix 7 Community forest user group profile checklist

Name and address of CFUG…………………………District: ………VDC………Ward No.……
Population: ………Male…………….Female………Total population: ………
Total HHs: …….… Year of handed over: ..........
CFUC members………………Male…………….Female………….
Year of CFUG registration: …………………Year of forest handed-over: …………
No. of amendments in CFUG the constitution: ………………………………………
No. of amendments in the CF operational plan: ………………………………………
Date of CF operational plan renewable: ………………………………………

A. Community participation and awareness
1. a. Did FUG amend constitution? Yes/No. If yes, how many times?  ………………….
b. What were the changes introduced? ………………………………………………..
2. How many times the CFUC changed during the past five years? …………………
3. Have you amended your FOP? Yes/No if no, state the reason …………………..
   If yes, what are the major changes introduced in the FOP?
   i.
   ii
   iii
   Part I Participation

4. Do you conduct monthly CFUC meeting according to your constitution? Yes/No.
   If no, why? …………………………………………………………………………………
5. Do you conduct general assembly meeting according to your constitution? Yes/No. If no, why?……...
   ……………………………………………………………………………………………
6. Did your assembly fail because of inadequate quorum or other reasons? Yes? No. If yes, how many times did
   it happen? ……………………………………………………………………………

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Number of general assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>According to the constitution</td>
</tr>
<tr>
<td>2004/05</td>
<td></td>
</tr>
<tr>
<td>2005/06</td>
<td></td>
</tr>
<tr>
<td>2006/07</td>
<td></td>
</tr>
<tr>
<td>2007/08</td>
<td></td>
</tr>
<tr>
<td>2008/09</td>
<td></td>
</tr>
</tbody>
</table>

What were the reasons for failure?
(a) Inadequate quorum    (b) CFUG not informed in time    (c) Income and expenditure not produced properly
(d) Elite dominated    (e) Others (specify)  

7. Do you invite the DFO staff in your general assembly? Yes/No. If yes, what is his/their role? Do you think
   their presence is necessary? ………………………………………………………

8. What was the level of awareness of FUG in your group at the beginning?
   (a) very poor    (b) poor    (c) fair    (c) good    (d) very good

9. How was the women participation at the beginning?
   (a) very poor    (b) poor    (c) fair    (c) good    (d) very good

10. How is the women participation now in mgt./protection/meeting/decision making etc
    (a) very poor    (b) poor    (c) fair    (c) good    (d) very good
11. In reality, who makes the decisions on forest management and distribution of products?
    (a). FUG assembly (b). CFUC (c) DFO staff (d). Chairman (e). Secretary (f). Other (specify)
Part II Knowledge and technical skills for implementation of FOP

12. How many people got training from your CFUG during the past five years?

<table>
<thead>
<tr>
<th>Types of programs</th>
<th>Number of trained CFUG members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>CF orientation workshop</td>
<td></td>
</tr>
<tr>
<td>Nursery management</td>
<td></td>
</tr>
<tr>
<td>Woman workshop</td>
<td></td>
</tr>
<tr>
<td>Administrative and book keeping</td>
<td></td>
</tr>
<tr>
<td>Study tour</td>
<td></td>
</tr>
<tr>
<td>CF management training</td>
<td></td>
</tr>
<tr>
<td>Networking workshop</td>
<td></td>
</tr>
<tr>
<td>Range level planning workshop</td>
<td></td>
</tr>
<tr>
<td>Adult literacy class</td>
<td></td>
</tr>
</tbody>
</table>

13. Is the CFUG getting technical support from the DFO field staff? Yes/No. Is it adequate?

14. What type of support is necessary for the development of your institution (CFUG) and forest resources?

15. Who are involved in pruning/thinning?
   - CFUC members only
   - CFUC members and persons who took management training
   - DFO staff and FUC members
   - All

16. How is the quality of overall pruning/thinning?
   - Nicely done
   - Over-pruned/thinned
   - Under-pruned/thinned

17. How is pruning/thinning organised?
   - Trees are marked beforehand and people were allowed to cut
   - Only few people called and given instruction with occasional checking
   - All invited and given demonstration and done
   - Others than above (specify)

18. How are the wood/forest products collected out of pruning and thinning operation disposed?
   - Equally distributed among those who took part in thinning
   - Collected at one place and sold by auction
   - Taken away by thinners according to what they alone thinned
   - Others (specify)

B. Forest protection and offense

19. What were the offenses against CF constitution and operational plan during the last five years?
   - Types of offence: CFUG/CFUC/outsider/unknown
   - Year
     1
     2
     3

20. What actions were taken (fine/confiscation of wood/others)?

21. What are the problems encountered by your group in the implementation of the constitution and FOP?
   - Forest protection
   - Forest development
   - Forest utilization
   - Constitutional aspects
   - People’s participation
   - Co-ordination within CFUG members
   - Co-ordination with other agencies
   - Collection and mobilisation of CFUG fund
   - Record keeping
   - Implementation of forest OP
   - Social-networking
   - Others
22. Did your group encounter any problem with DFO/staff in the implementation of OP? Yes/No. If yes, what were those? ………………………………………………………………..

23. Did you encounter conflicts during past five years? Yes/No, if yes, please indicate between whom?
   i. CFUG and CFUG members
   ii. CFUG and CFUC members
   (iii) CFUG and other CFUG
   iv. CFUG and DFO (v) Others
   Why? If solved, how? ………………………………………………………………………

24. Does the CF have clear boundary? Yes/No. if no, where is the conflict? ………………………………………………………………………………………

C. Forest condition
29. Please give the following information

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Before handing-over of forest</th>
<th>After handing-over of forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main plant species</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand density (tree/ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regeneration (seedling/ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed trees (tree/ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crown cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil cover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main species of wild animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest encroachment (ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest area (ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major forest products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of forest products (quality &amp; quantity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water resources</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil erosion/land degradation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall forest conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D Forest utilisation and benefit sharing
37. How much forest products did you harvest each year?

<table>
<thead>
<tr>
<th>Forest products</th>
<th>Quantity (unit)</th>
<th>Years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Round timber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole timber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fodder/grass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaf litter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicinal plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

38 Please, indicate in the following table about forest product shared to FUG and those sold to outsiders.

<table>
<thead>
<tr>
<th>Forest products</th>
<th>Initial year</th>
<th>Now (2009/10)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FUG quantity</td>
<td>CFUG quantity</td>
</tr>
<tr>
<td>Round timber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole timber</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fodder/grass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaf litter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicinal plants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
39. What criteria are used for the distribution of forest products? (Equality or equity)

<table>
<thead>
<tr>
<th>Forest products</th>
<th>Actual needs</th>
<th>According to the users' demand</th>
<th>Equal distribution</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round timber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole timber</td>
<td></td>
<td></td>
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<tr>
<td>Fuel wood</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fodder/grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaf litter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicinal plants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Why? .................................................................

40. What criteria are used for the distribution of forest products?

<table>
<thead>
<tr>
<th>Forest products</th>
<th>Actual needs</th>
<th>According to the users' demand</th>
<th>Equal distribution</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round timber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pole timber</td>
<td></td>
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</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fodder/grass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaf litter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTFPs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

E. Collection and mobilization of CFUG fund

30. Please give the following information

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Income</th>
<th>Expenditure</th>
<th>Balance (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sources</td>
<td>Items</td>
<td>Amount (NRs)</td>
</tr>
<tr>
<td>Up to 2004/05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005/2006</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006/07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007/08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008/09</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

31. Do you prepare and submit income/expenditure report during the annual meeting? Yes/No. Were those rejected by the general assembly? If yes, how were those corrected? ..............

32. How much budget has been spent for the development of forest resources since implementation of CF program?

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Forest development</th>
<th>Cash amount (NRs)</th>
<th>Physical labours (work days) from CFUG members or HH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Investment of CFUG fund</td>
<td>Individual CFUG HHs</td>
</tr>
</tbody>
</table>

33.a. How many forest watches have been appointed? ........ How much money has been allocated by the CFUC for forest watcher(s) per month? ..........................................................
(b) What is the source of monthly salary for the forest watcher(s)? (i) CFUG fund or (ii) Individual CFUG HHs
(iii) Any other source ..........................

34. Did you have an open area for afforestation? Yes/No if yes, what was the total area? ........ha.
Indicate the afforested area in below
(a). Planted by DFO/other institution……………………….ha.
Planted by CFUG …………………………………..ha.
Major plantation species ……………………………………………………………….

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (ha)</th>
<th>Estimated cost (NRs)</th>
<th>Natural forest or plantation done by CFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other external support

35. How much financial support did you get from the DFO in the last five years?

<table>
<thead>
<tr>
<th>Types of support</th>
<th>Fiscal year</th>
<th>Cash amount (NRs)</th>
<th>Fiscal year</th>
<th>Types of material support</th>
<th>Total amount (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training/workshop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

36. Is there any other agency/partner working together with your CFUG? If yes, which agency and for what purpose/activity? ............ ............................................... ..........

41. What types of forest based income generation activities have been initiated or implemented by the FUG?

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Income generation activities</th>
<th>No of HHs involved</th>
<th>Total investment (NRs)</th>
<th>Average annual income (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

42. What government rules and regulations disturb to the smooth functioning of your FUG? How? What changes do you expect? ...................... ........................................... ..........

Part III Community development

25. What community or rural development activities were conducted in your locality by using the FUG fund?

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Activities</th>
<th>% of people's participation</th>
<th>Total expenditure (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. What are the major contributions of community CFUG fund to the local community and economic development?

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Community development activities</th>
<th>Amount from the CFUG fund</th>
<th>Materials support</th>
<th>Voluntary labour contribution of HHs (Man days)</th>
<th>Other partners and their contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

27. Can you explain about major community development activities that have been focused specially for poor and disadvantaged groups in the CFUG? If yes,

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Community development activities</th>
<th>Total no. of benefited HHs</th>
<th>No. of poor &amp; disadvantaged benefited HHs</th>
<th>Who made decision?</th>
<th>Does it help to improve the condition of poor and disadvantaged members of the CFUG?</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
28. Which other agencies are working with the FUG for management and development of forest resources?

43. Can you explain major socio-economic outcomes of community forestry for poor and disadvantaged households?

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Positive</th>
<th>Negative</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
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</tbody>
</table>

44. Can you explain the major socio-economic outcomes of community forestry for the overall CFUG members?

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Positive</th>
<th>Negative</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

45. What are the major factors that influence to socio-economic outcomes of community forestry?

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Social</th>
<th>Economic</th>
<th>Forest condition</th>
<th>Forest policy</th>
<th>Implementation of constitution and OP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Additional information about FUG activities and socio-economic outcomes of CF:

Date:
Codes of Respondents:
(If you have willingness to give additional information, please write on any blank space of this questionnaire or attach a separate sheet of paper.)

Thank you for your time and support
### Appendix 8 Selection of respondents from CFUG and executive committees for in-depth interviews

<table>
<thead>
<tr>
<th>FUGs</th>
<th>Wealth categories</th>
<th>Respondents from CFUG</th>
<th>Respondents from CFUC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UC</td>
<td>MC</td>
<td>LC</td>
</tr>
<tr>
<td><strong>KFUG</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very poor</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
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<td>1</td>
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</tr>
<tr>
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<td>1</td>
<td>2</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
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<td>5</td>
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</tr>
<tr>
<td><strong>SCFUG</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very poor</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Rich</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>HJFUG</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very poor</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Poor</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Rich</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Grand total</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Total %</strong></td>
<td>25</td>
<td>25</td>
<td>20</td>
</tr>
</tbody>
</table>

**Source:** Participatory wealth ranking exercise, 2009. In-depth interviews, 2009.
Appendix 9 Household interview checklist

(Confidentiality Statement: The information will be treated as strictly confidential and shall not be revealed to any third party)

District: VDC: Ward No: Village:

CFUG Name: Household Number: ......... Wealth rank category: .......... Date:

Part 1: Socio-economic characteristics of CFUG members

Household definition: A household comprises people living together in the same house, eating from the same pot and members are more or less permanently available at home at least 6 months in a year.

A. Household characteristics
1. Family size: ..................
2. Household head: Male............... Female............
3. Demographic information

<table>
<thead>
<tr>
<th>SN</th>
<th>Members</th>
<th>Sex</th>
<th>Age</th>
<th>Marital status</th>
<th>Education</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>3</td>
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<tr>
<td>4</td>
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<td>5</td>
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<tr>
<td>6</td>
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<td></td>
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<tr>
<td>7</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sex: M - Male, F – Female
Marital status: U – Unmarried M- Married W - Widow

In 19...... Total numbers of household members
Above 5 years: ....... Male: ....... Female
Below 5 years: ....... Male, ....... Female
Illiterate members (above 5 years age) : ....... Male, ....... Female

4 Occupations

<table>
<thead>
<tr>
<th>Types</th>
<th>In 19......... year</th>
<th>In 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governmental/non-governmental employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5 Food security

5.1 In ..... year, for how many months do you have enough food for your family from your own production? ...... Months
If not enough, how do you cope?

i. Buy food
ii. Withdraw from previous saving
iii. Borrow money
iv. Hire out labour
v. Borrow from neighbours
vi. Other specify

5.2 In 2008, for how many months do you have enough food for your family from your own production? ...... Months
If not enough, how do you cope?
Livelihood strategies

<table>
<thead>
<tr>
<th>Sources of livelihood strategies</th>
<th>Contribution in percentage or part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before CF (In 19...)</td>
</tr>
<tr>
<td>Cereals</td>
<td></td>
</tr>
<tr>
<td>Vegetables and fruits</td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td></td>
</tr>
<tr>
<td>Timber products</td>
<td></td>
</tr>
<tr>
<td>Non-timber forest products</td>
<td></td>
</tr>
<tr>
<td>Service within Nepal</td>
<td></td>
</tr>
<tr>
<td>Service outside Nepal</td>
<td></td>
</tr>
<tr>
<td>Business</td>
<td></td>
</tr>
<tr>
<td>Daily wages</td>
<td></td>
</tr>
</tbody>
</table>

B. Sources of household income

7. Land holding category

<table>
<thead>
<tr>
<th>Types of land</th>
<th>Before CF</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (Ropani)</td>
<td>Land tenure status*</td>
</tr>
<tr>
<td>Irrigated land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-irrigated land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pasture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private forestland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 - Own 2 - Share in 3 - Share out 4 - Rented in 5 - Rented out 6 - Others, if any

8. Crops production

8.1 Before CF (In 19...)

<table>
<thead>
<tr>
<th>Types of crop</th>
<th>Quantity</th>
<th>Price/unit</th>
<th>Costs of purchased (NRs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manure</td>
</tr>
<tr>
<td>Rice</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash crop (sugarcane,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zinger and so on)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8.2 In 2009

<table>
<thead>
<tr>
<th>Types of crop</th>
<th>Quantity</th>
<th>Price/unit</th>
<th>Costs of purchased (NRs)</th>
<th>Manure</th>
<th>Fertilizer</th>
<th>Seed</th>
<th>Pesticides</th>
<th>Hired labour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hired labour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other cash crop</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Have you bought any land during the last five years?
10. Have you sold any land from the last five years?
   If yes, reason for sale? .............................................

11. Income from sales of livestock or animal product during the last 12 months

<table>
<thead>
<tr>
<th>Product</th>
<th>Before CF (In 19...)</th>
<th>In 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Total cash earned</td>
</tr>
<tr>
<td>Cattle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goat/sheep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk product</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishing/fish farming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part II: Community forest and forest management
A. Use of forest and forest products

12. How far is the location of CF from your house? ....... km
13. What is the distance of house to the market? ....... km
14. Forest product collected during the last 12 months

<table>
<thead>
<tr>
<th>Products</th>
<th>Unit</th>
<th>Price</th>
<th>Total collection of forest products</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community forest</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Harvesting period</td>
</tr>
<tr>
<td>Timber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fodder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedding material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTFPs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Number of grazing animals and grazing sites

<table>
<thead>
<tr>
<th>Animal type</th>
<th>Number</th>
<th>Months per year (for each site)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Community forest</td>
</tr>
<tr>
<td>Cow/ox</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goat/sheep</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B. Participation
16. Your position in FUG: i. Committee member ii. General member
17. Number of meeting attended/year .................. 
18. Number of training received (up to now) ........................., if yes, what types of training? 
19. How do you rate your participation in the following activities?

<table>
<thead>
<tr>
<th>Activities</th>
<th>High</th>
<th>Average</th>
<th>Low</th>
<th>None</th>
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</thead>
<tbody>
<tr>
<td>Forest protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest utilisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision-making</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CFUG meeting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community development activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

20. What are your contributions to increase CFUG fund in last five years?

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>2004/05</th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest products purchased</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Membership fee</td>
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</tr>
<tr>
<td>Voluntary contribution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Outcomes of community forestry

21. How do you rate the following outcomes of community forestry program?

<table>
<thead>
<tr>
<th>Contributions of CF</th>
<th>Do not know</th>
<th>Improving</th>
<th>Not improving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community forest management skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of forest management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community participation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CF awareness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social cohesion and networks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of forest products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time savings for collection of forest products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest markets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grazing facility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income generation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poverty reduction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions of CF in community development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good governance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compliance of constitution and forest OP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender equity in decision making and benefit sharing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall outcomes of CF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. What are the suggestions you would like to share in order to make community forestry more beneficial and sustainable in future?

Thank you for your support
## Appendix 10 Selection of respondents for household survey

<table>
<thead>
<tr>
<th>CFUGs</th>
<th>Wealth categories</th>
<th>Total number of HHs</th>
<th>Number of sample HHs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>UC</td>
<td>MC</td>
</tr>
<tr>
<td>KCFUG</td>
<td>Very poor</td>
<td>74</td>
<td>109</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>147</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>400</td>
<td>330</td>
</tr>
<tr>
<td></td>
<td>Rich</td>
<td>110</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>731</td>
<td>739</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>SDCFUG</td>
<td>Very poor</td>
<td>8</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>21</td>
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<tr>
<td></td>
<td>Medium</td>
<td>61</td>
<td>17</td>
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<tr>
<td></td>
<td>Rich</td>
<td>13</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>103</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>42</td>
<td>57</td>
</tr>
<tr>
<td>HJCFUG</td>
<td>Very poor</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>57</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>70</td>
<td>0</td>
</tr>
<tr>
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<td>Rich</td>
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<tr>
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<td>Total</td>
<td>225</td>
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</tr>
<tr>
<td></td>
<td>%</td>
<td>90</td>
<td>2</td>
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<tr>
<td></td>
<td>Grand total</td>
<td>1059</td>
<td>885</td>
</tr>
<tr>
<td></td>
<td>Total %</td>
<td>45</td>
<td>38</td>
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</tbody>
</table>

Note: UC - Upper caste, MC - Middle caste and LC - Lower caste

**Source:** Household survey, 2009
Appendix 11 Summary of characteristics of respondents of in-depth interviews and group discussions

I. Respondents of in-depth interviews

A. Government forestry staff and FECOFUN representatives

<table>
<thead>
<tr>
<th>S.N</th>
<th>Place/organisation</th>
<th>Date</th>
<th>Codes</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kathmandu/DoF</td>
<td>23/12/2009</td>
<td>CNTL1</td>
<td>57 Yr M, DG of DoF</td>
</tr>
<tr>
<td>2</td>
<td>Kathmandu/DoF</td>
<td>28/12/2009</td>
<td>CNTL2</td>
<td>55 Yr M, DDG of DoF</td>
</tr>
<tr>
<td>3</td>
<td>Kathmandu/MoFSC</td>
<td>25/12/2009</td>
<td>CNTL3</td>
<td>46 yr M, Joint Secretary, MFSC</td>
</tr>
<tr>
<td>4</td>
<td>Kathmandu/FECOFUN</td>
<td>27/12/2009</td>
<td>CNTL4</td>
<td>46 yr, Senior Forester, Planning Officer</td>
</tr>
<tr>
<td>5</td>
<td>Kathmandu/FECOFUN</td>
<td>27/12/2009</td>
<td>CNTL5</td>
<td>48 yr M, Chairperson</td>
</tr>
<tr>
<td>6</td>
<td>Kathmandu/FECOFUN</td>
<td>29/12/2009</td>
<td>CNTL6</td>
<td>56 yr M, Founding Chairperson</td>
</tr>
<tr>
<td>7</td>
<td>Chitwan/DFO</td>
<td>23/09/2009</td>
<td>CHI1</td>
<td>53 yr M, DFO</td>
</tr>
<tr>
<td>8</td>
<td>Chitwan/DFO</td>
<td>25/09/2009</td>
<td>CHI2</td>
<td>40yr M, AFO</td>
</tr>
<tr>
<td>9</td>
<td>Chitwan/DFO</td>
<td>24/09/2009</td>
<td>CHI3</td>
<td>45 yr M, AFO</td>
</tr>
<tr>
<td>10</td>
<td>Chitwan/DFO</td>
<td>24/09/2009</td>
<td>CHI4</td>
<td>44 yr M, AFO</td>
</tr>
<tr>
<td>11</td>
<td>Chitwan</td>
<td>25/09/2009</td>
<td>CHI 5</td>
<td>42 yr M, trader</td>
</tr>
<tr>
<td>12</td>
<td>Chitwan</td>
<td>24/09/2009</td>
<td>CHI 6</td>
<td>40 yr M, trader</td>
</tr>
<tr>
<td>13</td>
<td>Sindhupalchok/DFO</td>
<td>02/11/2009</td>
<td>SIN1</td>
<td>50 yr male, forestry graduates, 20 years experience in CF profession</td>
</tr>
<tr>
<td>14</td>
<td>Sindhupalchok/DFO</td>
<td>24/10/2009; 05/11/2009</td>
<td>SIN2</td>
<td>48 yr male, mid level forestry technician, 26 years experience in forestry profession both in Government and Nepal Australia Forestry Project</td>
</tr>
<tr>
<td>15</td>
<td>Sindhupalchok/DFO</td>
<td>25/10/2009</td>
<td>SIN3</td>
<td>40 yr male, local, Forestry Graduate more than 15 yr experienced in government forest service, working in the CF and leasehold forestry in the district since 1999</td>
</tr>
<tr>
<td>16</td>
<td>Sindhupalchok</td>
<td>01/11/2009 &amp; 04/11/2009</td>
<td>SIN4a &amp; SIN4b</td>
<td>2 - traders</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Trader 1: 25-year Male, small local Lapsi trader</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Trader 2: 46-year Male, local Forest products trader, experience in marketing of both timber and NTFPs in the district and export to China and India</td>
</tr>
<tr>
<td>17</td>
<td>Sindhupalchok/DFO</td>
<td>05/11/2009</td>
<td>SIN5</td>
<td>42 yr M, Office Secretary, FECOFUN Sindhupalchok District Level)</td>
</tr>
<tr>
<td>18</td>
<td>Sindhupalchok/DFO</td>
<td>04/11/2009</td>
<td>SIN22</td>
<td>30 yr F-Senior Forest Guard</td>
</tr>
<tr>
<td>19</td>
<td>Kabhrepalanchok/DFO</td>
<td>09/11/2009</td>
<td>KBR1</td>
<td>DFO Kabhre (56 yr Male, more than 25 years experience in forestry bureaucracy of Nepal)</td>
</tr>
<tr>
<td>20</td>
<td>Kabhrepalanchok/DFO</td>
<td>10/11/2009</td>
<td>KBR2</td>
<td>36 yr, forestry graduate and forest officer, 16 years work experiences in CF</td>
</tr>
<tr>
<td>21</td>
<td>Kabhrepalanchok/DFO</td>
<td>09/11/2009</td>
<td>KBR3</td>
<td>40 yr M, mid level forestry technician, 18 years experience in CF</td>
</tr>
<tr>
<td>22</td>
<td>Kabhrepalanchok</td>
<td>10/11/2009</td>
<td>KBR4</td>
<td>35 female, chairperson of FECOFUN, more than 10 year experiences in CF</td>
</tr>
<tr>
<td>23</td>
<td>Kabhrepalanchok</td>
<td>13/11/2009</td>
<td>KBR5a</td>
<td>40 male, local timber trader and a saw mill owner, more than 10 year experiences in trade of forest products</td>
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<tr>
<td></td>
<td></td>
<td>17/11/2009</td>
<td>KBR5b</td>
<td>35 yr M, CFUG member, 9 years experiences in trade of forest products</td>
</tr>
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</table>
### A. CFUGs’ and CFUCs’ representatives

#### 1. Kankali Community Forest User Group, Chainpur 1-9, Chitwan

<table>
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<th>Date</th>
<th>Codes</th>
<th>Remarks</th>
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<tbody>
<tr>
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<td>CHI7</td>
<td>38M, forest guard, more than 13 yr experienced in CF, poor UC</td>
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<td>01/10/2009</td>
<td>CHI8</td>
<td>40M, CFUC member, literate IGA coordinator, medium, UC</td>
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<tr>
<td>3</td>
<td>02/10/2009</td>
<td>CHI9</td>
<td>49M, illiterate, member of sericulture &amp; grass group, rich, MC</td>
</tr>
<tr>
<td>4</td>
<td>02/10/2009</td>
<td>CHI10</td>
<td>25M, CFUG office secretary, MC</td>
</tr>
<tr>
<td>5</td>
<td>02/10/2009</td>
<td>CHI11</td>
<td>62 M, CFUG member, very poor, UC</td>
</tr>
<tr>
<td>6</td>
<td>03/10/2009</td>
<td>CHI12</td>
<td>53M, CFUG member, illiterate, very poor, Dalit</td>
</tr>
<tr>
<td>7</td>
<td>03/10/2009</td>
<td>CHI13</td>
<td>55M, CFUG member, literate, rich, MC</td>
</tr>
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<td>8</td>
<td>03/10/2009</td>
<td>CHI14</td>
<td>25M, literate, CFUG member, poor, Dalit</td>
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<td>9</td>
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<td>CHI15</td>
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<tr>
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<td>04/10/2009</td>
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<td>48M, literate, CFUG Treasure, medium, Dalit</td>
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<td>48F, literate, CFUC vice Chairperson, medium, MC</td>
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<td>15</td>
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<td>18F, CFUG member, literate, poor, Dalit</td>
</tr>
<tr>
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<td>07/10/2009</td>
<td>CHI23</td>
<td>61 F, illiterate, poor, CFUG member, very poor, Dalit</td>
</tr>
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<td>17</td>
<td>08/10/2009</td>
<td>CHI24</td>
<td>53M, CFUC secretary, literate, rich, UC</td>
</tr>
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<td>08/10/2009</td>
<td>CHI25</td>
<td>52 M, CFUG member, illiterate, poor, UC</td>
</tr>
<tr>
<td>19</td>
<td>09/10/2009</td>
<td>CHI26</td>
<td>52M, former CFUC chairperson, rich, UC</td>
</tr>
<tr>
<td>20</td>
<td>16/10/2009</td>
<td>CHI28</td>
<td>32M, former CFUG office secretary, literate, medium, UC</td>
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</table>

#### 2. Shreechhap Deurali Community Forest User Group, Thulosirubari-6 Sindhupalchok

<table>
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<th>Date</th>
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<th>Remarks</th>
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<td>26, 28/10/2009</td>
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<td>65yr M, Literate, CFUC Chairperson, more than 25 yr experienced in forestry, working in CF since its inception phase, rich, UC</td>
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<tr>
<td>2</td>
<td>26/10/2009</td>
<td>SIN 7</td>
<td>38 yr M, Literate, Founder FUGC chairperson, rich, MC</td>
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<tr>
<td>3</td>
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<td>SIN 8</td>
<td>75 yr, M FUG member, illiterate, very poor, MC</td>
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<tr>
<td>4</td>
<td>27/10/2009</td>
<td>SIN 9</td>
<td>54 yr Female, CFUC vice chairperson illiterate, medium, MC</td>
</tr>
<tr>
<td>5</td>
<td>27/10/2009</td>
<td>SIN 10</td>
<td>35 yr female, CFUG member, medium, MC</td>
</tr>
<tr>
<td>6</td>
<td>28/10/2009</td>
<td>SIN 11</td>
<td>22 yr F, CFUG office secretary, literate, UC</td>
</tr>
<tr>
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<td>28/10/2009</td>
<td>SIN 12</td>
<td>46 yr, M, CFUG member, illiterate, poor, MC</td>
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<tr>
<td>8</td>
<td>28, 30/10/2009</td>
<td>SIN 13</td>
<td>38 yr M, blacksmith (Dalit), CFUG member, illiterate, very poor</td>
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<tr>
<td>9</td>
<td>29/10/2009</td>
<td>SIN 14</td>
<td>20 yr M, Dalit, CFUG member and NGO staff, literate,</td>
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<tr>
<td>10</td>
<td>29/10/2009</td>
<td>SIN 15</td>
<td>65 yr M, illiterate, CFUG member, medium, UC</td>
</tr>
<tr>
<td>11</td>
<td>30/10/2009</td>
<td>SIN 16</td>
<td>47 yr M, CFUG, member, literate, poor</td>
</tr>
<tr>
<td>12</td>
<td>30/10/2009</td>
<td>SIN 17</td>
<td>65 yr M, illiterate, very poor, Dalit</td>
</tr>
<tr>
<td>13</td>
<td>30/10/2009</td>
<td>SIN 18</td>
<td>25 yr F, CFUG member, poor, Dalit,</td>
</tr>
<tr>
<td>14</td>
<td>30/11/2009</td>
<td>SIN 19</td>
<td>28 yr M, CFUG member, literate, rich, UC</td>
</tr>
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</table>
### 3 Hilejaljale ‘Ka’ Community Forest User Group, Tukucha 6-7, Kabhrepalanchok

<table>
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<th>Date</th>
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<tr>
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<td>2</td>
<td>14/11/2009</td>
<td>KBR 7</td>
<td>49F, illiterate, CFUG member, poor, Dalit</td>
</tr>
<tr>
<td>3</td>
<td>14/11/2009</td>
<td>KBR 8</td>
<td>35F, CFUG member, illiterate, poor, MC</td>
</tr>
<tr>
<td>4</td>
<td>14/11/2009</td>
<td>KBR 9</td>
<td>55M, former CFUC member, rich, UC</td>
</tr>
<tr>
<td>5</td>
<td>14/11/2009</td>
<td>KBR 10</td>
<td>84M, literate, CFUG member, very poor, UC</td>
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<td>6</td>
<td>15, 18/11/2009</td>
<td>KBR 11</td>
<td>56M, CFUC secretary, literate, rich, UC</td>
</tr>
<tr>
<td>7</td>
<td>15/11/2009</td>
<td>KBR 12</td>
<td>45 yr M, CFUG member, very poor, MC</td>
</tr>
<tr>
<td>8</td>
<td>16/11/2009</td>
<td>KBR 13</td>
<td>30M, literate, CFUC member, medium, MC</td>
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<td>15/11/2009</td>
<td>KBR 14</td>
<td>62M, former CFUC chairperson medium, Dalit</td>
</tr>
<tr>
<td>10</td>
<td>17/11/2009</td>
<td>KBR 16</td>
<td>48M, CFUG member, medium, Dalit</td>
</tr>
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<td>11</td>
<td>17/11/2009</td>
<td>KBR 17</td>
<td>35 yr M, CFUG member</td>
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<td>17/11/2009</td>
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<td>18, 24/11/2009</td>
<td>KBR 19</td>
<td>39F, CFUG members, literate, poor, Dalit</td>
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### II. Respondents of group discussions

<table>
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<tr>
<th>S.N</th>
<th>CFUGs</th>
<th>Date</th>
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</thead>
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<td>KCFUG</td>
<td>05/10/2009</td>
<td>CHI19</td>
<td>24-participants,(12 F and 12 M) chairperson, vice chairperson, treasurer, secretary and 5 members, CFUG members including representatives of very poor to rich and higher to lower caste, age 25 to 70 yr</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>12/10/2009 CHI27 12 participants (6 F and 6 M), CFUG members including representatives of very poor to rich and higher to lower caste, age 20 to 75 yr</td>
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<td>2</td>
<td>SDCFUG</td>
<td>01/11/2009</td>
<td>SIN 20</td>
<td>15 participants (8 F and 7 M), CFUG members including representatives of very poor to rich and higher to lower caste, age 25 to 70 yr</td>
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<td></td>
<td></td>
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<td>SIN 21</td>
<td>F-20 participants (12 F and 8 M) CFUG members including representatives of very poor to rich and higher to lower caste, age 20 to 60 yr</td>
</tr>
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<td>HJCFUG</td>
<td>24/11/2009</td>
<td>KBR 15/21</td>
<td>F-22 participants (10 F and 12 M) including representatives of very poor to rich and higher to lower caste, age 24 to 63 yr</td>
</tr>
<tr>
<td></td>
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<td>KBR 22</td>
<td>28 participants (15 F and 13 M) including representatives of very poor to rich and higher to lower caste, age 30 to 80 yr</td>
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**Appendix 12** Summary of characteristics of selected respondents for household surveys

<table>
<thead>
<tr>
<th>CFWG</th>
<th>Respondent code</th>
<th>Caste</th>
<th>Gender</th>
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<td>Labour</td>
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<td>UC</td>
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<td>Ladaritole</td>
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<td>27</td>
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<td>Agriculture</td>
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**Note:** KCFUG: Kankali Community Forest User Group  
SDCFUG: Shreechhap Deurali Community Forest User Group  
HJCFUG: Hilejaljale ‘Ka’ Community Forest Group  
UC: Upper caste; MC: Middle caste; LC: Lower caste  
Gender: 1-Male, 2- Female  
Literacy: 1- Illiterate, 2- Literate

**Source:** Researcher’s field diary
## Appendix 13 Training and extension activities for CFUGs

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<th>CFUG</th>
<th>Training/workshop activities</th>
<th>Number of activities*</th>
<th>Total participants</th>
<th>Organisers/supporters</th>
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Note: *Total number of training/workshop activities since the initiation of CF program until December 2009.

Source: Compilation from CFUGs’ meeting minutes and DFOs’ office records, December 2009.
### Appendix 14.1 Biophysical characteristics and other statistics on the community forests

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<td>03/03/1998</td>
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<td>Geographical location</td>
<td>Inner-Tarai</td>
<td>Middle Hills</td>
<td>High Mountain</td>
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<td>Tukucha VDC, 6-7, Kabhrepalanchok District</td>
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<td>1200m to 1600m</td>
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<td>South and southwest</td>
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<td>Distance from local forestry office</td>
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<td>Canopy cover (%) (after CF)</td>
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<td>Average natural regeneration of tree species (seedlings /ha) (in 1998)</td>
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<td>Average natural regeneration of tree species (seedlings /ha) (in November 2009)</td>
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<td>Productivity in 2009</td>
<td>Average timber</td>
<td>Average annual increment 10m³/ha</td>
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<td>Sal: 32.32 m³/ha, 36.09 m³/ha</td>
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<td>Overall: 38.41 m³/ha</td>
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<td>Fuelwood: 54.75 m³/ha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forest type</td>
<td>Natural Sal (Shorea robusta) forest and Sissoo (Dalbergia Sissoo)-Khair (Acacia catechu) plantation</td>
<td>Pine plantation forest with natural broad-leaved</td>
<td>Pine plantation forest with natural regeneration of local broad-leaved species</td>
</tr>
<tr>
<td>Major vegetation species, before handover (KFUG in 1995, HJFUG and SDCFUG in 1998 )</td>
<td>Sal (Shorea robusta), Dalbergia sissoo, Lagerstroemia parviflora,, Phyllanthus emblica Eupatorium spp., ferns</td>
<td>Pinus wallichiana, Pinus roxburghii, Pinus patula, Schima wallchichii, Alnus nepalensis, Kaphal (Myrica esculenta), Gurans (Rhododendron arboreum), Eupatorium sp., ferns</td>
<td>Pinus roxburghii, Pinus patula, Eucalypts, Schima wallchichii, Phyllanthus emblica, Eupatorium spp., ferns</td>
</tr>
<tr>
<td>Major vegetation species (after handing-over, in 2009)</td>
<td>Sal (Shorea robusta), Sissoo (Dalbergia sissoo), Saj (Terminalia tomentose), Simal (Bombax ceiba), Khair (Acacia catechu),</td>
<td>Pinus patula, Pinus roxburghii, Schima wallchichii, Alnus nepalensis, Kaphal (Myrica esculenta), Khalhniyu (Ficus</td>
<td>Shorea robusta, Schima wallchichii,, Alnus nepalensis, Terminalia chebula, Terminalia tomentosa, Phyllanthus emblica,</td>
</tr>
</tbody>
</table>

Appendix 14.2 Forest land cover changes before and after CF

1 Kankali community forest

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest land cover</td>
<td>%</td>
</tr>
<tr>
<td>High forest</td>
<td>15</td>
</tr>
<tr>
<td>Shrubland</td>
<td>30</td>
</tr>
<tr>
<td>Barren area</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>


2 Hilejaljale ‘Ka’ community forest

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest land cover</td>
<td>%</td>
</tr>
<tr>
<td>High forest</td>
<td>15</td>
</tr>
<tr>
<td>Shrubland</td>
<td>30</td>
</tr>
<tr>
<td>Pine plantation</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>


3 Shreechhap Deurali community forest

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest land cover</td>
<td>%</td>
</tr>
<tr>
<td>Pine forest</td>
<td>95</td>
</tr>
<tr>
<td>Shrub</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Appendix 15.1 Average annual quantity of forest products harvested from community forests by per household of different income categories of users

<table>
<thead>
<tr>
<th>Category</th>
<th>Average annual harvesting by per household from CF</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timber (cft)</td>
<td>Fuelwood (large) (HL)</td>
</tr>
<tr>
<td></td>
<td>KCFUG</td>
<td>HJCFUG</td>
</tr>
<tr>
<td>Very poor</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Poor</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Medium</td>
<td>17</td>
<td>26</td>
</tr>
<tr>
<td>Rich</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Total average</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>

Note: HL: Head load; 1 HL = 50kg.
Source: Fieldwork (household survey), 2009.

Appendix 15.2 Average annual percentage of harvested forest products from community forests by per household of different income categories of users

<table>
<thead>
<tr>
<th>Category</th>
<th>Total proportion of benefits shared by per household (%)</th>
<th>Average total percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Timber (cft)</td>
<td>Fuelwood</td>
</tr>
<tr>
<td></td>
<td>KCFUG</td>
<td>HJCFUG</td>
</tr>
<tr>
<td>Very poor</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Poor</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>Medium</td>
<td>33</td>
<td>32</td>
</tr>
</tbody>
</table>

Note: HL: Head load; 1 HL = 50kg.
Source: Fieldwork (household survey), 2009.
Appendix 16 Examples of income generating activities through community forestry

1 Goat farming

A review of the office records of the CFUGs in the study areas indicates that CFUG funds have been used partly so that goat farming, as an income generating activity, can be established for poor and disadvantaged CFUG members.

KCFUG has allocated US$300 (NRs 22,500) so that goat farming can be established for the poor and very poor occupants of about 40 households. So far, the occupants of only about 10 of those households have received financial support, in relation to the buying of goats. The money (or the equivalent in goats) must be paid back to KCFUG within two years. Then that money will be lent to other poor CFUG members.

However, the data indicate that this activity does not provide poor people with income initially, if they have not had previous experience regarding the handling of goats. Group discussions have revealed that the poor occupants of only three households have permanently adopted goat farming as an IGA. This has been possible because they received a loan from the CFUG so that they could set up goat farming as an IGA.

Photo: A goat keeping scheme supported by KCFUG’s fund

Source: Field work, 2009.

In a group discussion in the KCFUG area, some of the poor people said that, in order to be able to pay back the loan that they have received from the CFUG, they have to collect fuelwood and sell it in the local market. Those people have confided that any income from other income generating activities (such as vegetable farming or livestock purchase) could not be generated soon enough, in order that their loan be fully repaid by the due date. That repayment could be required within a year or so, depending upon the amount of money which they have borrowed from the CFUG. However, the records, regarding any loan issued to poor people for the purpose of raising goats, have not been properly kept by KCFUG.
2 Investment for co-operative and micro-enterprises development

The Forest Act 1993, and Forest Regulations 1995, acknowledge CFUGs as being non-profit, non-government organisations (NGOs). CFUGs acquire their funds via a number of different ways (e.g., from the sales of timber and non-timber forest products; and from fines, charges, donations and financial support from outsiders). There is no provision regarding the use of a CFUG fund by members individually. The fund can be used only in relation to forest management and local community development activities. SDCFUG has been using its fund partly so that the Samaj Ruparantaran Bachet Tatha Rin Sahakari Santha (Social Transformation Saving and Credit Cooperative) could be established. SDCFUG had spent, until 2009, NRs 1,100,000 (US$14,667) in relation to this project. That cooperative invested money in order that the Lapsi Candy business be set up in 2009.

SDCFUG has invested money also in relation to the establishment and development of community owned micro-enterprises, in the hope that employment opportunities for CFUG members would be increased, and rural poverty would be reduced. SDCFUG invested, via the cooperative which it set up, about NRs 100,000 (US$1,333) in relation to the establishment in 2009 of a lapsi (Choerospondias axillaris) candy business.

Photo: SDCFUG’s owned Lapsi (Choerospondias axillaris) candy production

Source: Field work, 2009.

Lapsi is one of the most popular fruits in Nepal. It is grown mostly on private land and in community forests; and is used by local people as a cash crop. There is a high demand, by candy factories, for lapsi fruit, both inside and outside the district. Farmers who grow lapsi trees can obtain cash advances from NRs 500 to NRs 1,000 (US$7 to US$14), depending on the number of trees and the amount of lapsi fruit likely to be harvested. Farmers who are seeking an alternative way of deriving income will often plant lapsi trees on their private land. SDCFUG supports this activity by providing free seedlings, and assuring the farmers that their fruit will be purchased for use in its candy factory.

The candy enterprise provides income for some poor people and women. However, because this is newly established forest-based micro enterprise, it requires support from people outside the community, in relation to the proper marketing of the candy products, and so that the business can provide optimum benefits in a sustainable form to CFUG members.
SDCFUG has invested money also in relation to the establishment of a saw mill. It has done this with assistance, in a technical form, from the Nepal-Australia Community Resource Management Project. This mill is being used so that value can be added to timber, namely, by converting logs into sawn timber for the local markets. This mill has now been leased to contractor at NRs 64,000 (US$853) per year. SDCFUG has entered into an agreement, whereby there are certain conditions regarding the running of the mill. There is a provision whereby SDCFUG members can obtain timber from the mill at a discount rate, because of a subsidy which is provided by SDCFUG regarding the operation of the mill.

SDCFUG has provided money also in relation to the establishment of a rice and flour mill. That SDCFUG-owned mill provides rice and flour at a cheaper rate, which is especially appreciated by poor and disadvantaged CFUG members.

Photo: SDCFUG’s owned saw mill.

Source: Field work, 2009.

Photo: SDCFUG’s owned rice and flour mill.

Source: Field work, 2009.
SDCFUG has purchased a truck, by spending NRs 1,100,000 (US$14,667) in instalments, so that logs and other goods can be easily transported. This truck is often used by both the local people and the saw mill contractor. However, the truck is currently being leased to one of the members of the SDCFUG at NRs 20,000 (US$267) per month.

SDCFUG has been investing money also so that other income generating activities can occur.

Photo: SDCFUG’s owned truck

The HJCFUC has established, with the help of MADEP, a community workshop for the Kami occupants of 14 households. Furthermore, HJCFUG has provided training for those Dalit people in relation to bio-briquette production and marketing. MADEP has provided support, regarding the establishment of the bio-briquette production, as well as in relation to the marketing in Banepa and Kathmandu of the resultant products. These activities help improve the financial situation for the occupants of those fourteen Dalit households.

3 Eco-tourism development

Ecotourism plays an important role in relation to forest resource conservation and economic growth of rural communities. There is a growing body of literature that is emphasising the role that ecotourism can play, regarding the management of community forests. Currently, because of the ineffective capture of ecotourism revenue, public land is being used for logging, agriculture, and cattle grazing, so that the short-term financial return is adequate.

Ecotourism is a possible income source for CFUGs which are located near urban and tourist areas. KCFUG and HJCFUG are located near tourist centres, namely Chitwan National Park and Nagarkot, respectively. Although there is provision for each of those CFUGs to invest money regarding ecotourism, only KCFUG has spent money on ad hoc basis (without conducting a pre-feasibility study and assessment) in relation to the establishment of picnic spots, a botanical garden, a view tower, a swimming pool, a trekking trail, and swings inside the community forest area, so that that CFUG can obtain additional income as a result of those investments. However, KCFUG has not developed a business plan regarding any of that expenditure.
All of these eco-tourism developments (except the botanical garden) have been put in place via the use of KCFUG’s fund, in accordance with the Forest Act 1993, and Forest regulations 1995. The existing community forestry policy and legislation do not permit any permanent structures, such as a swimming pool, picnic spots, and buildings, on forestland. But, even so, by the end of 2009 these structures had been put in place, even though KCFUG did not obtain permission from the DFO. The DFO would have disagreed with KCFUG, because these sorts of construction activities are beyond that which is allowable via the existing forestry policy and legislation. However, CFUGs have little in the way of experience regarding ecotourism development in the form of guided tours or trekking activities.

Photo: KCFUG’s owned swimming pool

Source: Field work, 2009.
Appendix 17 Examples of local community development activities which are supported by CFUG funds

14.1 Investment in the construction and maintenance of rural roads

Rural road networks, which have been established within CFUG areas, link remote villages to local market places. The KCFUG office records indicate that that CFUG has spent more than NRs 120,000 (US$16,000) in relation to the construction and upgrading of local rural roads and culverts. A rural gravel road from Jalkine to Shreechhap has been upgraded by SDCFUG, via its fund, for the cost of approximately NRs 83,000 (US$1,107). HJCFUG has spent NRs 800,000 (US$10,667) in relation to the Nala-Ghimire Gaon Rural Road Project.

Whereas in the past, children would walk to school, nowadays, because roads have been constructed, they use either public buses or school buses to get to school. That saves the children a lot of time.

Photo: Nala-Ghimire Gaon Rural Road Project, which has the support of HJCFUG

My field investigations indicate that communities are benefitting economically from the construction of roads via the use of CFUG funds.

14.2 Support for the local schools

Because the majority of elder CFUG members have never received any formal education, given the lack of education facilities in villages in the past, CFUGs have outlaid money so that adult literacy classes can be conducted, especially for women and poor people. Consequently, about 60 percent of the formerly illiterate HJCFUG members are now literate. This provides a good example as to how community forestry can benefit a community. Apart from this, the HJCFUG fund is being utilised for the upgrading of the Swet Baraha Secondary School in the village. HJCFUG spent approximately NRs 900,000 (US$12,000) in 2009 in relation to this. Apart from financial and material support for the construction of the school building, HJCFUG has paid for two desktop computers and furniture. In addition, the HJCFUG fund is being used to pay four teachers.
Photo: Swet Baraha Secondary school, which is being supported by HJCFUG’s fund

SDCFUG has provided funding for the construction of class rooms at the Shiddi Ganesh Primary School, and at the Seti Devi Higher Secondary School. SDCFUG has also provided timber for furniture at those two schools. It has provided timber also for the construction of a community childcare centre. The office records of the CFUGs in the study areas show that, by end of 2009, more than NRs 4,161,000 (US$55,480) had been spent by the three CFUGs in relation to school education facilities. It would not have been possible to collect this much money from community residents. So only a CFUG fund can provide the necessary amount of money in order that this sort of community development can occur.

14.3 Support for the rural drinking water schemes

More than NRs 1,100,000 (US$14,667) have been invested by the three CFUGs in relation to drinking water facilities. The respondents of the CFUGs have reported that the improved water supply has the potential to provide major benefits, in terms of reducing the amount of water-fetching labour by women and children; and reducing health problems which are often associated with inadequate water supplies.

Photo: A rural drinking water scheme supported by KCFUG’s fund

The CFUGs are making use of unskilled labour effectively, and are using locally available construction materials such as stone and sand. The CFUGs’ funds are being utilised so that skilled labour can be used, and good construction materials, such as cement, taps, and high density polythene pipes, can be purchased. However, there has been some criticism, regarding certain aspects of the community forestry program. This includes the lack of consultation with women, poor people, and ethnic minorities, regarding how CFUG money should be spent.
### Appendix 18 Summary of key results

1. **Socio-economic characteristics of CFUGs**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical location</td>
<td>Inner-Tarai</td>
<td>Middle Hill</td>
<td>High Mountain</td>
</tr>
<tr>
<td>Clearly defined boundary of community forests and CFUG areas</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Congruence between appropriation and provision rules and local conditions</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Good</td>
<td>Medium</td>
<td>Poor</td>
</tr>
<tr>
<td>Caste/ethnicity</td>
<td>Heterogeneous</td>
<td>Medium</td>
<td>Less heterogeneous</td>
</tr>
<tr>
<td>Elite domination</td>
<td>Yes (High)</td>
<td>Yes (Medium)</td>
<td>Yes (Low)</td>
</tr>
<tr>
<td>collective-choice arrangements</td>
<td>Very weak</td>
<td>Very weak</td>
<td>Weak</td>
</tr>
<tr>
<td>Participatory monitoring of CF process</td>
<td>Very weak</td>
<td>Very weak</td>
<td>Weak</td>
</tr>
<tr>
<td>graduated sanctions</td>
<td>Yes but very weak in implementation</td>
<td>Yes but weak in implementation</td>
<td>Yes but weak in implementation</td>
</tr>
<tr>
<td>Mechanisms for conflict resolution</td>
<td>Yes but weak in implementation</td>
<td>Yes but weak in implementation</td>
<td>Yes</td>
</tr>
<tr>
<td>Minimal recognition of rights to organise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nested enterprises</td>
<td>Strong</td>
<td>Medium</td>
<td>Very strong</td>
</tr>
</tbody>
</table>

**Note:** Assessment made by researcher based on ordinal data in District Profiles and CFUGs’ records

**Source:** Fieldwork, 2009 & 2011.
### 2 Socio-economic outcomes of community forestry

<table>
<thead>
<tr>
<th>Socio-economic outcomes</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>SDCFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community participation in forest protection</td>
<td>Slightly improving</td>
<td>Improving</td>
<td>Improving</td>
</tr>
<tr>
<td>Equity in decision-making &amp; benefit sharing</td>
<td>Not improving</td>
<td>Not improving</td>
<td>Improving</td>
</tr>
<tr>
<td>Capacity building</td>
<td>Mostly of elite and rich male members</td>
<td>Mostly of rich and medium male members</td>
<td>Mostly rich and medium male and female members</td>
</tr>
<tr>
<td>Skill and knowledge on forest management</td>
<td>Slowly improving</td>
<td>Improving</td>
<td>Improving</td>
</tr>
<tr>
<td>Direct contributions in reduction of household’s poverty</td>
<td>No</td>
<td>No</td>
<td>Yes but it seems very little progress</td>
</tr>
<tr>
<td>Equitable access to poor &amp; Dalits</td>
<td>No</td>
<td>Provisions are in FOP but not in practice</td>
<td>Slowly improving</td>
</tr>
<tr>
<td>Social network</td>
<td>Medium</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Local leadership development</td>
<td>Mostly in elite &amp; rich (male members)</td>
<td>Mostly rich &amp; medium (male members)</td>
<td>Rich &amp; medium (male &amp; female members)</td>
</tr>
<tr>
<td>Enterprises development</td>
<td>Medium</td>
<td>Weak</td>
<td>Strong</td>
</tr>
<tr>
<td>Contribution of fund in community development</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

**Note:** Assessment made by researcher based on ordinal data in field work data and CFUGs’ records

**Source:** Fieldwork, 2009 & 2011.

### 3 Factors affecting socio-economic outcomes of CF

<table>
<thead>
<tr>
<th>Factors</th>
<th>KCFUG</th>
<th>HJCFUG</th>
<th>HJCFUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power disparity</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Elite domination &amp; gender differentiation</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Good governance</td>
<td>Slightly improving</td>
<td>Slightly improving</td>
<td>Improving</td>
</tr>
<tr>
<td>Market access &amp; control</td>
<td>Good</td>
<td>Medium</td>
<td>Poor</td>
</tr>
<tr>
<td>External support</td>
<td>Good</td>
<td>Medium</td>
<td>Good</td>
</tr>
<tr>
<td>Forest condition</td>
<td>Good but very dense natural regeneration</td>
<td>Good</td>
<td>Good</td>
</tr>
</tbody>
</table>

**Note:** Assessment made by researcher based on ordinal data in field work data and CFUGs’ records

**Source:** Fieldwork, 2009 & 2011.