Shaping Community Forestry in Nepal: a solution for deforestation?

A study of two Community Forestry efforts in Nepal

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Abstracts

This research aims to give recommendations for the implementation of Community Forestry in a remote area of Nepal, namely Gumdel VDC. To do so, it focuses first on Jiri VDC, an accessible area where Community Forestry exists for at least ten years. Changes in the quality and quantity of natural resources after the implementation of Community Forestry were studied there from a local perspective. The influence of Community Forestry on the local livelihoods is also analyzed. Based on this data and secondary data collected from reports, literature and the internet, recommendations for the implementation of Community Forestry in Gumdel VDC are given.

Samenvatting

Dit onderzoek heeft tot doel aanbevelingen te doen voor de implementatie van gemeenschapsbosbeheer (Community Forestry) in Gumdel VDC, een afgelegen gebied in Nepal. In eerste instantie is het onderzoek gericht op Jiri VDC, een goed bereikbaar gebied alwaar gemeenschapsbosbeheer al minstens 10 jaar actief is. In dit onderzoek zijn de verschillen in zowel kwaliteit als kwantiteit van de natuurlijke hulpmiddelen na de implementatie van CF bestudeert vanuit een lokaal perspectief. Tevens is ook de invloed van gemeenschapsbosbeheer op de lokale levenonderhoudsstrategieën in het onderzoek meegenomen. De aanbeveling voor de implementatie van gemeenschapsbosbeheer in Gumdel VDC zijn op deze gegevens en op verkregen gegevens vanuit rapporten, literatuur en internet, gegrond.

Resumo

Esta pesquisa tem como objetivo principal propor recomendações para a implementação de um projeto de manejo comunitário (Community Forestry) para a comunidade Gumdel VDC, localizada em uma área remota no Nepal. Para isto, as atividades de manejo comunitário realizadas por uma comunidade localizada em uma área acessível chamada Jiri VDC foi avaliada. Na comunidade de Jiri VDC um projeto similar que envolveu os moradores na gestão comunitária dos recursos naturais foi iniciado há dez anos. Sob a perspectiva dos moradores locais, foram avaliadas as mudanças na quantidade e qualidade dos recursos naturais após a implementação do projeto. Foi analisada também a influência da implemetação do manejo comunitário na rotina diária dos moradores. Com base nas análises dos dados de Jiri VDC, dos dados coletados em relatórios, literatura e informações disponíveis na internet foram propostas recomendações para implementação do manejo comunitário dos recursos naturais utilizados pelos moradores de Gumdel VDC.

Executive summary

Deforestation is a major problem that affects many countries among which Nepal. FAO, the Food and Agriculture Organization of the United Nations (2005), estimates that the world's forests are disappearing at a rate of 13 million hectares a year. One of the actions undertaken to stop this process of deforestation is Community Forestry (CF), an instrument that aims for site specific sustainable use and conservation of natural resources as well as for improvement of local communities' livelihoods. Community Forestry was first introduced in Nepal in 1978. Here, patches of forest land that are traditionally used by the 'forest users' are allocated to forest-user-households that are willing to manage the forest as a group and to obtain legal authority to use and manage it in a sustainable way. This group is then organized in the form of a Community Forestry User Group (CFUG). While the ownership of the forest remains with the government, a CFUG is the highest authority in all decision making processes. They have full power, authority and responsibility to protect, manage and utilize natural resources in the areas designated to them. CFUGs are expected to make a constitution and a forest management plan (the Operational Plan) based on their own needs and on the particular forest conditions.

Various international organizations are involved in the implementation of CF in Nepal. One of these organizations is NSCFP, the Nepal Swiss Community Forestry Project. This NGO is operating in three districts of Nepal, namely: Dolakha, Ramechhap and Okhaldhunga. About 57% of the total potential CF forest area in the three districts has already been handed over to local communities. NSCFP is planning to expand these figures by stimulating the formation of new CFUGs in general and more specifically in remoter areas. This research contributes to these plans by providing recommendations for the implementation of CF in a remote area, namely Gumdel VDC. To do so, this research focuses first on a more accessible area, Jiri VDC, where CF exists for at least ten years. In Jiri VDC one CFUG is studied, namely Thulonagi CFUG. Here, changes in the quality and quantity of natural resources after the implementation of Community Forestry are studied from the local perspective. The influence of CF on the local livelihoods is also analyzed. Based on this data, as well as on secondary data collected from reports, literature and the internet, recommendations for the implementation of Community Forestry in Gumdel VDC are given.

Community Forestry in Nepal, and particularly in Thulonagi CFUG, has achieved many positive outcomes, which, in general, can be seen as improvements in forest condition, better participation and income generation for rural development and institutional building at grass root level. Community Forestry has furthermore improved the general characteristics of the forest such as coverage area, regeneration capacity, quantity and diversity of species. It devolved traditional rights to the local communities regarding use of forest resources, enhanced local level capacity building through stimulation of democratic processes and self-governance, encouraged participation of minorities such as women, poor and *dalit* (lower castes), stimulated establishments of national and local CFUG networks and supported livelihood improvements mainly of the poor through direct financial support and through the creation of sustainable income generating activities.

Curiously, although Thulonagi's self-monitoring report states that after the implementation of CF the number and species diversity of plants and wildlife increased, the majority of its members did not experience an increase in access to forest resources such as firewood. Seventy percent of the interviewed households do

not have access to firewood from Community Forestry, simply because the forest is too far. Community Forestry therefore did not have a direct positive effect on the access people have to natural resources. However, and in addition to the positive outcomes mentioned above, CF had various other positive side-effects. CF improved local consciousness about forest conservation and economic use of natural resources through the involvement of the local community into the fight against deforestation. Through the formation of a communal fund, CF furthermore improved the human and physical capitals of its members. Also, through the provision of scholarships to specific children and through the building of bridges, improving quality of drinking water, constructing and maintaining roads and trails or guaranteeing access to electricity, both the human and physical capitals were enhanced. Finally, CF augmented CFUG member's social capital by stimulating the participation of minorities, building new relationships of trust or guaranteeing equal access to resources (although often only in theory).

Community Forestry in Thulonagi CFUG faces, however, many challenges that still need to be overcome, among which: 1. achieve maximum profit from the communal forests, that is to say, reach the harvestable rates for resource extraction, 2. improve access and distribution of resources, 3. stimulate effective and non-wasteful use of natural resources, 4. stimulate small enterprise development and business initiation through, for example, provision of loans and training on financial management to members, 5. stimulate full participation of all its members in CF matters (specially of minorities), 6. reduce caste discrimination and enhance social acceptance.

These challenges, together with other important issues, should be kept in mind while implementing CF in new areas, like in Gumdel VDC. The last Chapter gives different recommendations that are essential while implementing CF in Gumdel VDC. These can be roughly summarized as:

- Guarantee the possibility to evaluate successes and failures of CF and to be able to learn from them.
- Forests that are going to be handed over to the local community and its users should be carefully and properly selected.
- Assure maximum profit from the forest resources.
- The use of firewood saving mechanisms should be stimulated and new firewood saving mechanisms should be developed with as little side-effects as possible.
- The financial capital of Gumdel's inhabitants should be enhanced by stimulating income generating activities. One way to achieve this is by providing users with micro-credits through saving and credit schemes.
- It is essential to enhance Gumdel's inhabitant's food security as food deficit is a major problem in the high altitude areas of Nepal.
- Investments in the community's physical and human capital is needed to, respectively, guarantee basic infrastructure and training and education possibilities
- Users should be genuinely involved in decision making processes. Only then will they be more likely to follow rules that affect their use and to monitor others.
- Policy objectives should be redefined from basic needs to poverty alleviation to avoid that the benefits from CF end up in hands of a few.
- Fair distribution of natural resources from communal forests is needed, whereby the amount of forested private land a user owns is taken into account.

Acronyms

BCN	Caste group including the Brahmin, Chhetri and Newar
CBO	Community-Based Organisations
CF	Community Forestry
CFUG	Community Forestry User Group
CBNRM	Community-Based Natural Resources Management
CPR	Common Pool Resources
CSPM	Conflict Sensitive Program Management
DDC	District Development Committee
DFID	UK Department for International Development
DFO	District Forest Office
DoF	Department of Forest
FAO	Food and Agriculture Organization of the United Nations
FECOFUN	Federation of Community Forestry User Groups in Nepal
GNI	Gross National Income
GoN	Government of Nepal
IC	Intercooperation
IP	Identified Poor Households
LRP	Local Resource Persons
NGI	National Gross Income
NGO	Non-Governmental Organisation
NRs	Nepali Rupees
NSCFP	Nepal Swiss Community Forestry Project
NTFP	Non-Timber Forest Products
OP	Operational Plan
PAF	Poverty Alleviation Fund
Pvt.	Private
SDC	Swiss Agency for Development and Cooperation
VDC	Village Development Committee

1. Introduction

The world's total forest area is estimated at 30% of the total land area (FAO, 2005). However, this forest area is unevenly distributed. Two-thirds of the total forest area is concentrated in the ten most forest-rich countries (Butler, 2005). Many of the world's forests are being threatened. FAO estimates that the world's forests are disappearing at a rate of 13 million hectares of forest a year, which is equivalent to 3 times the total area of Holland. The depletion of forest area, also known as deforestation, is defined by (FAO, 1999; 17) as "a non-temporary change of land use from forest to other land use or depletion of forest crown cover to less than ten percent. Clear cuts (even with stump removal) if shortly followed by reforestation for forestry purposes are not considered deforestation". Deforestation did, unfortunately, not miss out Nepal. In Nepal, about 25% of its land area is covered with forests. The Nepali forests, however, suffered a loss of 25% due to deforestation between 1990 and 2005 (Butler, 2005).

Many attempts have been done to stop the world's deforestation process. One of these attempts is called 'Community Forestry' (CF). As it can take many forms, there is no unique definition for the concept of 'Community Forestry'. Its nature differs noticeably between developed and developing countries and between programs within countries. There are, however, some common characteristics. Community Forestry basically aims for site specific sustainable use and conservation of natural resources as well as to improve the livelihoods of local communities. In Community Forestry, forestry is usually small-scaled, and local communities are involved in both the planning and management of the forest. Usually, a CF project receives some financial support from governments and non-government organisations (Harrison and Suh, 2004). This relatively new strategy for forest management was proposed in the 1970s when it became clear that the former top-down, state controlled forest management approach was not beneficial to the welfare and wellbeing of local communities (Wiersum, 2004).

There are many terms to refer to Community Forestry, among others; Community Based Conservation, Social Forestry, Communal Forestry, Participatory Forestry, Co-Management, Collaborative Management or Conservation and Development. Although these terms are used somewhat interchangeably, Wiersum (2004). explains a significant difference between 'Social Forestry' and 'Community Forestry'. He defines Social Forestry as a "development strategy of professional foresters and other development organizations with the aim of stimulating active involvement of local people in small-scale, diversified forest management activities as a means to improve the livelihood conditions of these people". Community Forestry is, according to him, defined as "any forest management activities undertaken by rural people as part of their livelihood strategies. Such activities may be self-initiated or proposed by external development programs". The project under which this research was carried out is best defined, using the definition above, as 'Community Forestry'. Furthermore, as it calls itself as the 'Nepal Swiss Community Forestry Project' (NSCFP), this report will from now on only use the term 'Community Forestry'.

In Nepal, Community Forestry was legitimized in 1978, when legislation enabled the Department of Forests (DoF) to legally hand over national forest land to local communities. However, it was only with the Forest Act of 1993 that full authority for management of resources was conceded to the forest users. To be able to execute this new policy, the Government of Nepal (GoN) called for help of the

international community. Switzerland's international cooperation agency of the Federal Department of Foreign Affairs, the Swiss Agency for Development and Cooperation (SDC), started to implement a forestry project in 1990 whereby implementing Community Forestry was central. This project is, until today, operating in three districts of Nepal, Dolakha, Ramechhap, Okhaldhunga, under the name 'Nepal Swiss Community Forestry Project' (NSCFP). As this research worked together with NSCFP, it was carried out in two of these districts, namely Dolakha and Ramechhap (see Figure 1.1). Each district is, for administrative puposes, divided in Village Development Committees (VDCs), which are subsequently divided into municipalities. This research was carried out in Jiri and Gumdel VDCs, situated in the districts of Dolakha and Ramechhap respectively (see figure 1.2). A more detailed description of Jiri and Gumdel VDC is provided in Chapters 4 and 5 respectively.

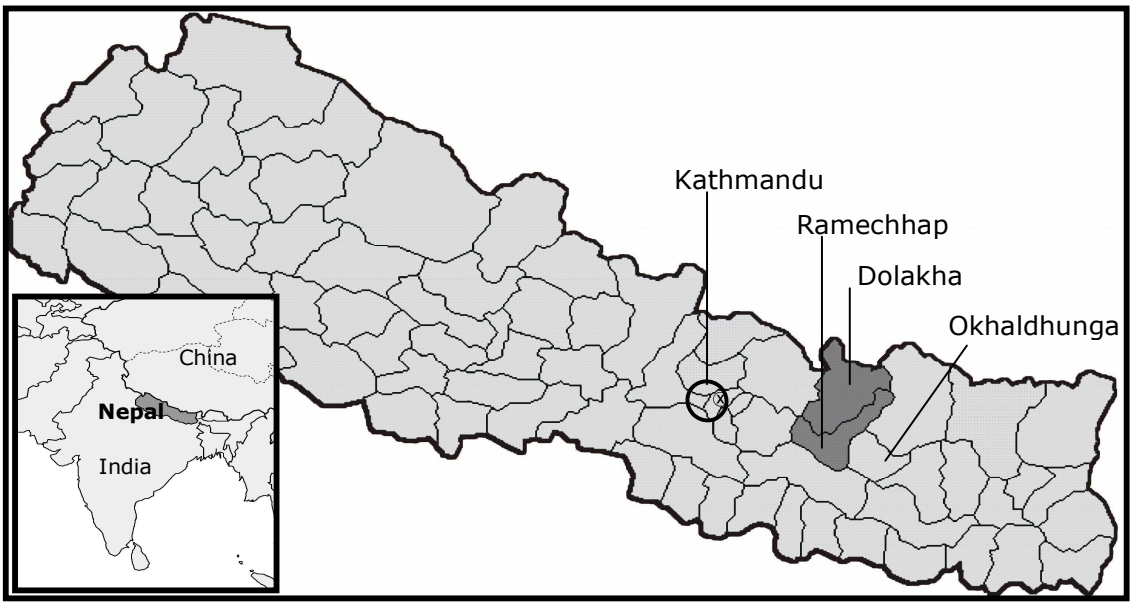

Figure 1.1: Map of Nepal. In focus (dark grey) the research districts of Dolakha and Ramechhap

NSCFP has, since its implementation in 1990, handed over about 890 patches of forest to local communities, which are organized in the form Community Forestry User Groups (CFUGs). These 890 CFUGs are mainly situated in relatively accessible areas. They manage about 57% of the total potential CF forest area in the three districts (NSCFP, 2007a). NSCFP is planning to expand these figures by stimulating the formation of new CFUGs in general and more specifically in remoter areas. This research contributes to these plans by providing recommendations for the implementation of CF in a remote area, namely Gumdel VDC. To do so, this research focuses first on an accessible area, Jiri VDC, where CF exists for at least ten years. In Jiri VDC one CFUG is studied, Thulonagi CFUG. Here, changes in the quality and quantity of natural resources after the implementation of Community Forestry are studied from the local perspective. The influence of CF on the local livelihoods is also analyzed. Based on this data, as well as on secondary data collected from reports, literature or the internet, recommendations for the implementation of Community Forestry in Gumdel VDC are given.

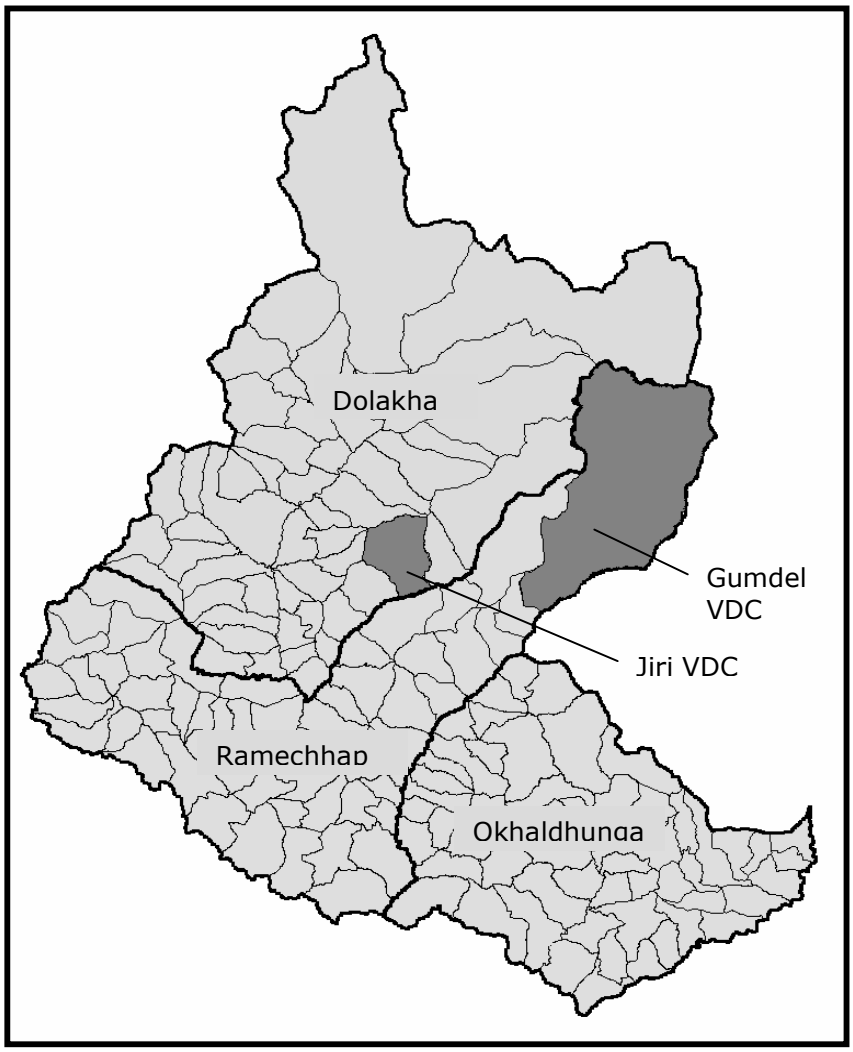

Figure 1.2: Detailed map of research districts. In focus (dark grey) Jiri and Gumdel VDCs

Below, in Sections 1.1 and 1.2 respectively, the problem statement and the research relevance are outlined. Section 1.3 outlines the theoretical framework, whereby Community Forestry in general, the concept of local livelihoods, and the influence Community Forestry has on local livelihoods are discussed. The research objectives and the research questions are stated in Sections 1.4 and 1.5 respectively.

1.1. Problem statement

Nepal has known a process of deforestation in the last decades (Pokharel, Stadtmuller and Pfund, 2005). Gumdel VDC does not form an exception. Local communities and development organizations working in the area are facing the problem of how to stop this deforestation process. The local community can be seen as the direct problem owner. They are the ones who directly suffer from this deforestation and who primarily have to deal with this problem. NSCFP, a Swiss agency that fights against deforestation thorough the implementation of Community Forestry, can be seen as the second, indirect problem owner. NSCFP has

incorporated this problem into their organization and is trying to solve it through the implementation of Community Forestry.

Community Forestry already exists in many areas of Nepal. As local conditions vary drastically, one faces the problem that there is no ONE blueprint for the implementation of Community Forestry. Nevertheless, lessons learned from the implementation of CF in one region can be used in other regions. Therefore, this research bases the provided recommendations for the implementation of CF in Gumdel VDC on lessons learned from the implementation of CF in Jiri VDC and on secondary data collected from reports, literature and the internet.

1.2. Relevance

This research is relevant in three different levels, namely: academic, social and individual. These are outlined below.

Academic relevance
This research contributes to academic debates on how to successfully implement Community Forestry in remote areas of Nepal. Furthermore, it plays a role in the ongoing debate whether Community Forestry contributes to both the conservation of natural resource and the improvement of local livelihoods. This debate is further detailed below, in Section 1.3.

Social relevance
With this research I aim to contribute to a proper and successful implementation process of Community Forestry in Gumdel VDC and to an amelioration of the local people there.

Individual relevance
This research is the final pièce de résistance of my MSc Management of Agro-Ecological Knowledge and Social Change, the thesis. This research is not only important for me to obtain my MSc degree, but also to gain research experience and to learn from my mistakes. With my background in Biology, this research closely embraces my filed of interest: social and developmental issues related to nature conservation and sustainable use of natural resources. As Nepal offered me a change to study this topic and as I am fascinated by the Hindu and Buddhist cultures and by alpine landscapes, Nepal was chosen as the final research area for this study.

1.3. Theoretical Framework

This Section discusses views on Community Forestry in general, the concept of local livelihoods, and the influence Community Forestry has on local livelihoods. To do so, this Section first gives a brief overview of the ever changing debate on forest conservation such as has been discussed within the academic world in the last decades. The ongoing discussion whether CF is the best way to protect biodiversity while at the same time improving local livelihoods is shortly addressed, and CF's main pros and cons are discussed. Second, this Section gives an overview of the concept of livelihoods. As Community Forestry also aims to improve local livelihoods, the Livelihoods Framework, as elaborated by DFID (1999), is described and discussed below. Third, this Section explains the influence of Community Forestry on local livelihoods in more detail.

Community Forestry

There are four forms of land tenure systems classified according to their access and extraction limitations: Open access, Communal property, Private property and State property systems. Open access tenure knows no exclusive rights, that is to say, there is no limitation to the access to and use of resources. Common property knows rules that limit the access to and use of resources to a determined group of people. Private property is a property held by one or a few natural or legal private persons, who have the right to determine resource extraction. State property refers to resource ownership by the State, whereby access and use are limited to a, by the state determined, group of people (FAO, 1997; Land Tenure Centre, 1998). Table 1.1 gives an overview of these systems and their limitations.

Table 1.1: Four different land tenure systems and their access and use limitations (adapted from Stevenson (1991))

	Tenure System			
	Open	**Communal**	**Private**	**State**
Access limitation	Open to anyone	Members only	One or more persons organized individually or as e.g. a corporation	Access limited by state decision and control
Extraction limitation	Extraction unlimited	Extraction limited by rules	Extraction limited by individual or corporation's decision	Extraction limited by state decision and control

Forests have often been under State property, that is to say, the state had the ownership over the forests and was responsible for its management and guardianship. In many cases, forests under State property were heavily restricted to many (if not all) users. Virtually all forest users suddenly turned to law breakers and were subject to penalties. These forests can, actually, be considered as private property, or 'Private Goods'. This 'top-down' approach, whereby the state has the right to establish rules and regulations which were imposed to the local community, was prevailing until the late 1960's, when a new paradigm of 'bottom-up' development emerged. This paradigm affirmed that a more participatory approach has better results on sustainable use of natural resources and on forest conservation. Sustainable use of forest resources was stimulated and forests under conservation were seen as 'Communal Goods', or better, as Common Pool Resources (CPR). In this view, access to resources is limited by specific rules and to members only. Both approaches continue to exist side by side until today, although more and more scientists and development workers are adhering to the second, 'bottom-up' approach (Hayes and Ostrom, 2005; Ostrom and Nagendra, 2006). Both Private Goods and Common Pool Resources are explained into more detail below.

Both CPR and Private Goods are highly subtractable, that is to say, one user's consumption of a resource subtracts the ability of others to consume the same resource – the fishes caught in the sea by one fishermen are not available anymore to other fisherman. The fishes in the sea mentioned the example above are highly subtractable, once they are caught, they are not available for others anymore. The difference between CPR and Private Good lies in excludability of users. Common Pool Resources are systems of goods in which it is difficult, but not impossible, to exclude some beneficiaries from obtaining benefits from its use – the fact that a fisherman is

fishing in the sea does not prevent another fisherman to fish in the same sea. The fishes in the sea are thus highly subtractable but not excludable and can therefore be considered Common Pool Resources. Fishes in a well protected private lake, on the other hand, are highly subtractable and highly excludable and can therefore be considered as Private Goods. Private or strictly protected forest areas (often held by the State) are highly subtractable and highly excludable and can therefore be seen as Private Goods. This is only possible if fencing and guarding are effective, something that, as is discussed below, appears to be very difficult.

There are more then 100.000 protected areas (or parks) around the world (Barber, Miller, and Boness, 2004, based on data of 2003). Many of them are legally well established, with demarcated boundaries but exist only on paper (Bruner, Gullison, Rice, and Da Fonseca, 2001; Ostrom and Nagendra, 2006). According to a survey conducted by IUCN – International Union for Conservation of Nature – in 1999, only 1% of the surveyed protected areas were not suffering from threat (T. Hayes and Ostrom, 2005). Protected areas suffer from degradation due to improper management capacities and means to enforce regulations. These protected areas are, in most cases, established by conservationists and government officers, who have the privilege to take decisions concerning, for example, its rules and regulations as well as its implementation strategies. Traditions, needs and rights of the local people are usually not taken into consideration during this decision making process (Hayes and Ostrom, 2005). Local communities suffered from displacement, dispossession of land or restriction of access to its resources with the implementation of protected areas (Sherbinin, 2008).

However, there are some academics who believe that strictly protected areas are the best and only way to conserve biodiversity (Oates, 1999; Terborgh and van Schaik, 1997; Terborgh, 1999). Their main argument is that large parks can host more stable populations and space-demanding predators and are better resistant to rapid and unpredicted changes, like global climate change. They furthermore believe that conservation linked to development does not protect biodiversity. Because of development many outsiders migrate to the borders of the biodiversity rich areas, local indigenous people move away from their traditional subsistence survival strategies and participate more in the global market, increasing the pressure on natural resource. Different suitable policy interventions and institute structures that protect forests and its resources have been discussed and put in practice in the last decades (cf. Bruner et al., 2001; Nagendra, Karmacharya, and Karna, 2005; Oates, 1999; Ostrom and Nagendra, 2006; Terborgh and van Schaik, 1997; Terborgh, 1999; Wilshusen, Brechin, Fortwangler, and West, 2005). Diverse questions have been put forward. Are strictly protected parks the best way to prevent deforestation or should some degree of harvesting by the local community be allowed? Should high fences be placed around parks and armed guards patrol it to prevent illegal harvesting or should the local community set the rules on forest resource use? Should forests be seen and treated as Private Goods or as Common Pool Resources? These and other similar questions have been addressed and discussed over the last decades.

The temptation to over-harvest natural resources is high. This is mainly the case when the rules that limit access to natural resources are not considered legitimate or are not known by the local community. If, in this case, fences and official guard patrol are not well established and legitimate, significant 'illegal' harvest will take place. Rather then the official designation of protection, it are the rules in use by the locals that influence forest protection. When users have a role in making and enforcing the rules, they are more likely to consider them to be legitimate. When users are engaged in the decisions regarding rules, they are more likely to follow the rules and to monitor others than when authorities simply impose

rules on them (Hayes and Ostrom, 2005; Hayes, 2006; Ostrom and Nagendra, 2006).

For decades many scientists have assumed that users of CPR were helplessly caught in the 'Tragedy of the Commons' (Hardin, 1968). The 'Tragedy of the Commons' states that multiple individuals acting independently in their own self-interest can ultimately destroy a shared resource even where it is clear that it is not in anyone's long-term interest for this to happen. Hardin's herdsmen are a good example to clarify this: in a pasture land that is open to all each herdsman seeks to maximize his gain. Adding one more animal to a herd would increase the herdsman's profit from the sale of (the products of) the additional animal. Adding one more animal would, on the other hand, create overgrazing. The effects of this overgrazing (such as soil erosion or water run off due to ground cover depletion) are, however, shared among all herdsmen, minimizing the effect to one herdsman only. The rational of the individual herdsman is thus to add another animal to his herd. And another, and another… If this conclusion is reached by every individual herdsman, there is a tragedy of the commons – no grass would be available to any animal. Put to use in the context of forestry, forest users are destined to continue over-harvesting unless external solutions for regulation (such as natural resource control by national governments or privatization) are imposed on them.

Many local institutional arrangements that individuals have today to prevent the 'tragedy of the commons' are recognized. Some of these institutions enhanced the capacity of individuals to use resources in a sustainable way over long periods of time. These institutions are therefore considered to be 'robust institutions' (Becker and Ostrom, 1995). Table 1.2 shows the common design principles (Ostrom, 1990) that institutions need in order to achieve 'robustness'. Although these principles were recognized in all the institutions studied by Ostrom, the way in which they are achieved varies from situation to situation. Institutions are robust if they are characterized by most of the principles listed in this table. Institutions that failed to sustain resources tend to be characterized by very few of these principles; those that are characterized by some, but not all, of the principles are fragile.

Although local communities have been forming robust institutions and managing forests for thousands of years, the idea of Community Forestry (CF) only gained ground in the 1970s. CF's aim is, first, to slow down the process of deforestation and increase greenery and biodiversity and, second, to improve local livelihoods. Community Forestry exists, in many cases, for more then ten years and has, to a certain extend, successfully addressed deforestation and livelihood issues (Bray et al., 2003; Karna, Gyawali, and Karmacharya, 2004; Nagendra et al., 2005; Ostrom and Nagendra, 2006; Ravindranath, Murali, and Sudha, 2006). This indicates a certain level of robustness. Community Forestry as robust institutions are further illustrated in Chapter 4, where Community Forestry in Jiri VDC is discussed. Local community involvement often enhances local social acceptance and therefore reduces conflict, supports traditional conservation practices, provides livelihood security and decreases monitoring and enforcement costs (Worah, 2002). The involvement of the local community is now often seen as essential for conservation and management of biodiversity.

Table 1.2: Design principles derived from studies of long-enduring institutions for governing sustainable resources (Becker and Ostrom, 1995).

1. *Clearly Defined Boundaries*
   The boundaries of the resource system (e.g. groundwater basin or forest) and the individuals or households with rights to harvest resource products are clearly defined.
2. *Proportional Equivalence Between Benefits and Costs*
   Rules specifying the amount of resource products that a user is allocated are related to local conditions and to rules requiring labour, materials, and/or money inputs.
3. *Collective-Choice Arrangements*
   Most individuals affected by harvesting and protection rules are included in the group who can modify these rules.
4. *Monitoring*
   Monitors, who actively audit physical conditions and user behaviour, are at least partially accountable to the users and/or are the users themselves.
5. *Graduated Sanctions*
   Users who violate rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from other users, from officials accountable to these users, or from both.
6. *Conflict resolution mechanisms*
   Users and their officials have rapid access to low-cost, local arenas to resolve conflict among users or between users and officials.
7. *Minimal recognition of Rights to Organize*
   The rights of users to devise their own institutions are not challenged by external governmental authorities, and users have long-term rights to the resource.

For resources that are parts of larger systems:

8. *Nested Enterprises*
   Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Pros and cons of Community Forestry

Community Forestry programs have achieved some positive outcomes worldwide since their start on the establishment of forestry plantations and management of native forests and on livelihoods of local communities (Harrison and Suh, 2004). Nevertheless, Community Forestry faces many problems and has also been criticized in the past decades. Some main arguments against this approach are outlined below.

- Community forestry has little direct relevance for biodiversity conservation. Alleviating poverty does not necessarily mean improvements in biodiversity conservation (Kramer, van Schaik, and Johnson, 1997; Terborgh, 1999).
- Community Forestry is very costly and gives no certainty of a return. Much of the money that is needed ends up in the international and in the developing country situated headquarters of the development-aid organizations. These often employ highly paid foreign community development specialists (Brandon, 1997; Oates, 1999). Both authors state that this is a waste of financial and human resources that would have been better utilized in 'direct' support for conservation and protected area management activities.
- Terborgh (1999) states that Community Forestry is not a sustainable solution for biodiversity conservation because it depends on a continuous financial support from outside and will therefore stop as soon as the money inflow is discontinued.
- Bringing development (intensification of land use, enhanced methods of animal husbandry, small-scale irrigation works, preliminary processing of products, etc) to a region will only increase population density, increasing the pressure on natural resources (Terborgh, 1999).
- There is misappropriation of power and authority. Benefits from Community Forestry are often in hands of a few members only, surely not in the hands of the most needed, the poor (Pokharel and Nurse, 2004).

- CF management is often protection oriented. Members therefore receive sub-optimal benefits from the forest. Forest management activities often concentrate on the extraction of dead, dying or decaying material only, resulting sub-optimal use of forest capacity. This implies that forests are not seen as renewable natural resources pool, that participation of local people is decreasing due of a lack of direct benefits and that nearby governmental forests are degrading as they serve as a resource pool to cover the gap between the resources needed and the resources extracted from Community Forestry (Acharya, 2002; Shrestha, 2000).

It is clear that many of these criticizers are pure conservationists, they fail to see that local resource user's rule-making and monitoring and enforcement activities are significantly and positively correlated with abundant vegetation density (Hayes and Ostrom, 2005). The capacities of local communities for nature conservation and resource management are overlooked. Local communities are interested in securing their future access to resources if they have the feeling that it is legitimate, that they are caring for something that belongs to them, that will give them positive response in the future. Alcorn (2005), for example, believes that Community Forestry can survive on its own when sustainable policy changes are made and when the implementation process is adapted to the local circumstances. This is only possible if adequate alternatives are offered and if the local community is involved in the implementation process. Without adequate livelihood support, people will continue to utilize the remaining forest resources at an unsustainable rate. Without direct benefits from forest areas, communities will not protect forests from clearing or illegal cutting. Without development of health services, sustainable agricultural systems, enterprise management skills, and faith in the security of their tenure and market access, they will not be able to sustainably use natural resources and to sustain themselves (Emtage, 2004). External support given to local communities does not necessarily involve additional funding. Other possibilities include continued community organizational, livelihood managerial, technical or entrepreneurial support.

Although there are some constrains in systematically measuring the success of Community Forestry due to a lack in conceptual consistency, agreed criteria, and scarcity of comparable data (Harrison and Suh, 2004; Poteete and Ostrom, 2004), CF has nevertheless achieved many positive outcomes. Since Community Forestry systems have been refined over time as experience is gained in program designs in local circumstances that vary drastically, positive outcomes differ from one place to another. In general terms, CF succeeded in establishing forestry plantations, in managing native forests and in targeting livelihoods and environmental objectives. However, 'the jury is still out' on whether CF has lived up to the optimistic expectations of its proponents. As we can see from above, strictly regulated protected areas are not the only way to ensure forest conservation. It is even suggested that legally established protected areas do not show better results regarding forest vegetation density protection when compared to forests governed by users who established and recognized forest rules themselves (Hayes and Ostrom, 2005; Hayes, 2006).

As one of the main aims of Community Forestry is to improve local livelihoods, the Livelihoods Framework, as elaborated by DFID (1999), is described and discussed below.

Livelihoods framework

Livelihoods can roughly be defined as the means individuals or groups of people have to make a living. Livelihoods is contextual, it varies within different circumstances and depend on the local conditions. The concept of "livelihoods" and "sustainable livelihoods" evolved in the last few decades. As mentioned by Carney (1998), Chambers and Conway (1980) state that livelihood comprises capabilities of the individual or group, assets (both related to material and social resources) and activities that this individual or group requires for a means of living.

A few years later, Ellis (2000) stated that livelihood comprises the assets (human, social, financial, natural and physical capital), the activities (such as income generating activities) and the access (the rules, social norms and relations that determine the different ability of people to own, control, claim, or make use of resources) individuals or groups of people have to the different capitals, opportunities and services. All these aspects together determine the livelihood of the individual or group.

The UK Department for International Development (DFID, 1999) developed a Sustainable Livelihood Framework as a tool for a better understanding of the means people have to make a living, i.e. their livelihoods (see Figure 1.3). This livelihood framework recognizes people, whether poor or not, as actors with assets and capabilities, who act in pursuit of their own livelihood goals. While this may seem obvious, in many cases the poor have been regarded as passive victims or recipients of government policies and external aid. In this framework livelihood comprises the vulnerability context of the community, their assets, structures and processes and livelihood strategies people have/undertake in order to achieve desired livelihood outcomes. A detailed description of each of these components is given below.

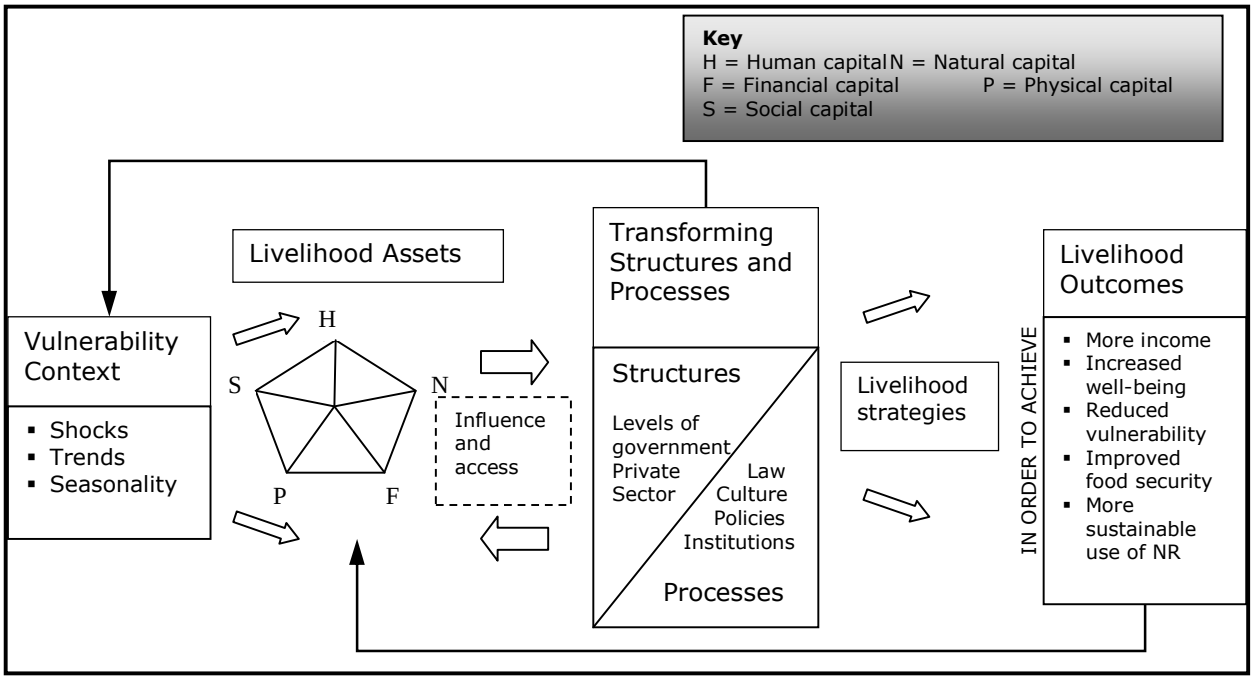

Figure 1.3: Sustainable Livelihoods Framework (DFID, 1999)

Vulnerability context
Vulnerability context is the external environment in which people exist and over which they have very little control. This external environment influences people's livelihoods through critical trends, shocks and seasonality.

Trends can be, for example, population trends (such as population growth or migration), technical trends (such as development and market availability of new machinery), resources trends, (inter) nationals political trends, etc. These trends are predictable to a certain extend. Shocks, on the other hand, are not predictable and can destroy assets directly through, for example, floods, civil conflict, earthquakes, etc. Also international shocks, such as on the stock market, can have an impact on the livelihoods at local level. Seasonality can be, for example, seasonal shifts in prices, employment opportunities, food availability due to climate seasonality, etc.

Assets
The livelihood framework posits that people need a certain range of strengths, such as assets or capital endowments, to achieve positive livelihood outcomes. These strengths, hereafter referred to as assets, can be divided in human, natural, financial, physical and social capitals. The different capitals are defined, in the context of CF in Nepal, as (Pokharel and Nurse, 2004; Ellis, 2000; DFID, 1999):

- **Natural capital:** Includes all the natural stocks from which resources flow and services are derived. Community forests that are handed over to the local communities and all its resources are a good example of this.
- **Financial capital:** Includes the financial resources people use, such as funds generated from the sale of forest products, savings in various form like jewellery or livestock, taxes and outside grants.
- **Physical capital:** Includes the basic infrastructure and producer goods needed to support livelihoods, such as village trails, means for transportation, bridges, community buildings, schools, temples, water supply, etc.
- **Human capital:** Includes, for example, knowledge and skills related to forest silviculture, community development, organisational management, leadership development, but also health status of individuals and the community, the ability to labour, etc.
- **Social capital:** Includes, for example, social cohesion, membership of (formalized) groups, relationships of trust, participation of minorities.

The pentagon in the framework represents the variation in people's access to assets. The centre point, where the lines meet, represent zero access to assets, while the outer perimeter represents maximum access to assets. Different shaped pentagons can be drawn for different communities of for different situations within one community or for one person. The shape of the pentagon also changes after external support or intervention (see Figure 1.4).

Transforming structures and processes
Structures and processes are the institutions, organizations, policies and legislations that shape livelihoods. Structures are the organizations (both private and public) that set and implement policy and legislation, deliver services, purchase or trade. Processes, on the other hand, determine how these structures operate and interact. Hence, they are the policies, legislations, cultures, power relations, etc that shape the rules of the game, i.e. the way in which structures are operationalised.

Both structures and processes operate at all levels and determine access to assets, to decision making bodies or to livelihood strategies. They determine the terms of exchange between different types of capital and the return (economic or not) to different types of livelihood strategies. They furthermore determine the feeling of inclusion and well-being of the individual or group.

Livelihood strategies
In the livelihood sustainability framework 'livelihood strategies' refer to the range and combination of activities and choices that people undertake/make in order to achieve their livelihood goals. An understanding of the reasons behind people's activities and choices is of crucial importance because it allows and stimulates self-determination and the flexibility to adapt over time. According to DFID it is access to different levels and combinations of assets that primarily determines people's choices of livelihood strategies. Structure and processes, on the other hand, can reinforce, direct or restrain these choices.

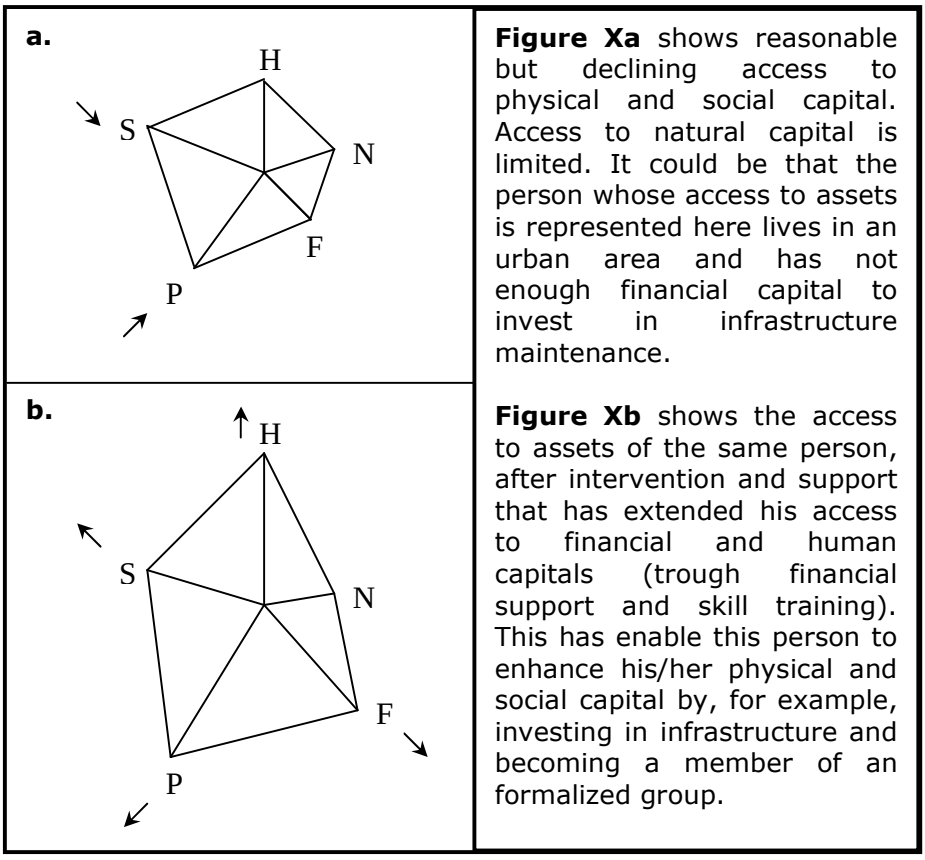

Figure Xa shows reasonable but declining access to physical and social capital. Access to natural capital is limited. It could be that the person whose access to assets is represented here lives in an urban area and has not enough financial capital to invest in infrastructure maintenance.

Figure Xb shows the access to assets of the same person, after intervention and support that has extended his access to financial and human capitals (trough financial support and skill training). This has enable this person to enhance his/her physical and social capital by, for example, investing in infrastructure and becoming a member of an formalized group.

Figure 1.4: Different shaped pentagons for livelihoods with changing access to assets (Source: DFID, 1999).

Livelihood outcomes
Livelihood outcomes are the achievements or outputs of the Livelihood Strategies. These outcomes can be related to, for example, more income generated from the undertaken activities; increased non-material goods that ensure well-being, such as self-esteem, sense of control and inclusion, etc.; reduced vulnerability against shocks, trends and seasonality (such as improved food security); or sustainable use of natural resources.

Note that these outcomes are not necessarily coherent. Different people might have different priorities for their desired livelihood outcomes. Outcomes may conflict: an increase in income might be generated through practices that detriment the available natural resources.

Relationships within the framework
All elements in the framework influence, in some way, the livelihood outcomes. There are, in addition, relationships between the other elements of the framework:

- Influence of Vulnerability Context on the other elements in the framework
    - Shocks, trends and Seasonality can influence the policies and legislation (Structure and Processes) at different levels, ranging from national to local, from private to public. One example is the formation of policies for birth control when there is a trend for population growth.
    - Shocks, Trends and Seasonality can both destroy (through e.g. storms, disease outbreak, etc) and create (through e.g. population growth, propitious economic trends, etc) assets.
- Influence of Assets on the other elements in the framework
    - Access to assets can influence people's choices and activities (Livelihood Strategies). Some activities may require particular skills (human capital), while financial capital and infrastructure (physical capital) are needed to start up a small business.
- Influence of Structures and Processes on the other elements in the framework
    - Transforming Structures and Processes has a direct influence on the Vulnerability Context. Processes (policies) that are established through structures affects trends both directly (e.g. fiscal policy / economic trends) or indirectly (e.g. health policy /population trends). These policies can also minimize the effects of shocks (e.g. policy on drought relieve and density of relieve providing agencies).
    - Structure and Processes can facilitate or restrict people's access and their ability to transform assets. Policies can create assets through, for example, the implementation of basic infrastructure such as roads, hospitals, etc (physical capital) or through institutions that reinforce social capital. Structures and Processes can restrict and determine access to assets through, e.g., ownership rights, regulations on common resources, etc. Institutions such as markets can transform one form of asset, such as financial capital in another form of asset, such as physical capital and vice-versa.
    - Structure and Processes can restrict peoples choices of Livelihood Strategies (e.g. through a rigid caste system) or affect the attractiveness of certain livelihood choices through their impacts on expected returns.
    - Structure and Processes influence Livelihood Outcomes through, for example, increasing the sense of well-being by extending social services and implementing pro-poor policies in areas where poor people live.

According to (Hebinck and Bourdillon, 2001) both Ellis and DFID approaches to livelihood are rather normative. Livelihood is, in these approaches, oriented towards the material / economic gain, as a policy framework. They resemble a top-down planning, in which experts can decide that a livelihood trajectory is better or superior than other trajectories. By doing so, they oversee the context of the individual, their social constructs and personal choices and value judgements.

The way we understand livelihoods depends on out contexts, that is to say, it depends on the history, on the political and economic relationships and on the physical and social environments. Livelihoods do not incorporate the commoditized world only, it also incorporates the non-material and cultural part of life. People's livelihoods operate not only between the boundaries of economic activities, but also

in social spaces with boundaries defined by social networks, relationships and identities. Hebinck and Bourdillon (2001) call, therefore, for the inclusion of 'life styles' in the concept of livelihoods. With life-styles the concept of livelihood is taken beyond the confines of economic activities only and incorporates issues such as value choices of the individual or community, status, sources of identity *vis-à-vis* other types of actors, and local forms of organization.

This research makes use of the DFID Sustainable Livelihoods Framework. This framework is complemented with the notion of *life-styles*, as suggested by Hebinck and Bourdillon's work. In this new context livelihoods are determined by the context in which people live, the assets they have access to, the institutions, organizations, policies and legislations that shape livelihoods, and peoples activities, choices and life-styles. In this report the term 'livelihood strategies' refers to activities, choices and life-styles. Figure 1.5 shows the adapted framework, in which the relationships within the framework are also shown.

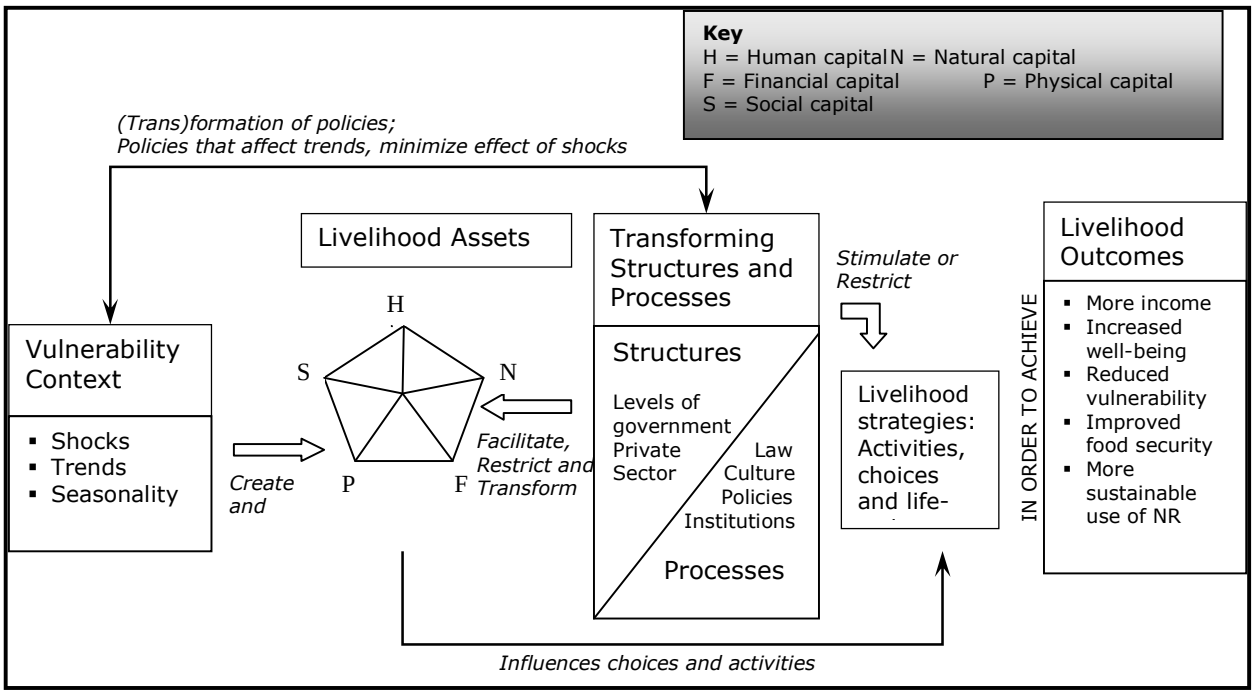

Figure 1.5: Livelihood Framework (adapted from DFID, 1999)

Community Forestry and Local Livelihoods

Local livelihoods depend on the context people live in; the assets they have access to; the transforming structures and processes that are operating in and influencing a specific area or group; and the local livelihood strategies, such as individual or group activities, choices and life-styles (DIFID 1999, see Figure 1.3 and 1.5). Improving local livelihoods is Community Forestry's second main aim. CF has therefore a direct influence on all aspects of local livelihoods. The influence CF has on local livelihoods varies from one place to another since it depends on, on the one hand, the context people live in, and on the other, the success of CF and way it is set up, that is to say,

what rules and regulations regarding e.g. forest resource use they have or how they invest their communal fund.

Community Forestry's main aim is to slow down the process of deforestation and to increase greenery and biodiversity. Once this is achieved, it is expected that members have an improved access to natural resources. This enhances their natural capital and therefore their livelihoods. As we can see in Chapter 4, although CF is quite successful to stop deforestation and to increase greenery and biodiversity, it does not necessarily mean that members have more access to natural resources. Nevertheless, CF influences local livelihoods in more ways than access to resources only. Due to the implementation of Community Forestry, livelihood's 'Structures and Processes' change. New institutions and networks may be set up, new rules and regulations may be determined, and these may affect the livelihoods of the local community. These new institutions and rules and regulations are not necessarily related to forest resources only but can also involve social and professional relationships or the use of communal funds. CF furthermore influences the livelihood strategies people undertake, that is to say, their activities, choices and life-styles. Those involved in CF are, for example, expected to regularly visit meetings and to work on silvicultural activities, influencing their daily activities. Community Forestry might furthermore change people's choices and life-styles by enhancing their conscious on sustainable use of natural resources or e.g. by stimulating the use of improved stoves to safe firewood.

As is clear from the above, the influence Community Forestry has on local livelihoods varies from one place to another. Chapter 4 gives an overview of the influence CF has on the local livelihood of Jiri VDC, a region in Nepal. Before doing so however the next Section provides an introduction to Community Forestry in Nepal.

As mentioned before, this research aims to provide recommendations for the implementation of CF in Gumdel VDC. To do so, this research focuses first on Jiri VDC, more precisely on Thulonagi CFUG, where CF exists for at least ten years. Changes in the quality and quantity of natural resources after the implementation of Community Forestry and the influence of CF on the local livelihoods are analyzed in this region. Based on this data, as well as on secondary data collected from reports, literature or the internet, recommendations for the implementation of Community Forestry in Gumdel VDC are given. This aim is reflected in the research objective and the research questions outlined below.

1.4. Research Objective

The objective of this research is:
To describe and analyse the effects of Community Forestry on the quality and quantity of natural resources and on the local livelihoods in a community forestry user group located in Jiri VDC, Nepal and – based on this analysis – to give recommendations for the implementation of Community Forestry in Gumdel VDC (a nearby but remote area).

1.5. Research Questions

To be able to fulfil the above mentioned objective, this research focuses first on a community forestry user group located in Jiri VDC, Thulonagi CFUG. I aim to extract the lessons from the implementation of Community Forestry in this area and use these to generate recommendations for the scheduled implementation of Community Forestry in Gumdel VDC. This leads to two research questions. The first research question refers to the implementation of CF in Jiri VDC, where Thulonagi CFUG has been established for at least ten years. The second research question directly refers to the generation of recommendations for the implementation of CF in Gumdel VDC. The research questions are:

1. *How has the implementation of Community Forestry in Thulonagi CFUG in Jiri VDC affected the quality and quantity of natural resources and the local livelihoods, and what are the lessons learned?*

2. *Taking into account the lessons learnt in Jiri VDC: how could Community Forestry be implemented in Gumdel VDC?*

In order to answer these questions I elaborated three specific sub-research questions. The first is related to the context of Nepal and gives a better insight into the Nepali Community Forestry. The second and third sub-questions (each in turn composed of a cluster of questions) have a direct bearing on, respectively, Thulonagi CFUG in Jiri VDC and on Gumdel VDC.

Sub-research question related to the context of Nepal:

1. What is the context of Community Forestry in Nepal, and how is it generally implemented?

Sub-research questions related to Thulonagi CFUG:

1. How was, 12 years ago, the quality and quantity of natural resources in Thulonagi CFUG?
2. How is, today, the quality and quantity of natural resources in Thulonagi CFUG?
3. Did a change in the quality and quantity of natural resources take place? If so, what is the influence of Community Forestry on this?
4. How did this change influence local livelihoods?
5. What other aspects of Community Forestry influenced local livelihoods, and in what way?
6. What practical lessons can one learn from Thulonagi CFUG about the relationship between CF and the quality and quantity of natural resources and between CF and local livelihoods?

Sub-research questions related to Gumdel VDC:

1. How did the quality and quantity of natural resources change over the last 12 years in Gumdel VDC?
2. How did this change influence local livelihoods?
3. How could Community Forestry be implemented in order for it to contribute positively to the deforestation problem and to the livelihoods of local people?

This introductory Chapter gave a short introduction on the deforestation problem in Nepal and on the concept of Community Forestry as a relatively new method to solve this problem. Furthermore, the problem statement, the research relevance and the theoretical framework were outlined. In the latter Community Forestry and Livelihoods were further described, as well as the influence of Community Forestry on local livelihoods. At last the research objective and the research questions were given. The next Chapter has a more practical input as it describes and discusses the methods used during this research. It describes and discusses, among others, the selection of a study site, of the units of analysis and of field assistants. Furthermore it describes and discusses the operationalisation process of the research questions, the data collection methods, the data analysis and the methodological constraints.

2. Methods

This Section of the report gives an overview of and discusses the diverse methods used during this research. The following topics are tackled: 1. Selection of study site, 2. Selection of CFUGs, 3. Units of analysis and selection of respondents, 4. Finding a field assistant / translator, 5. Operationalisation of main research concepts, 6. Data collection methods, 7. Modes of analysis, and 8. Methodological constraints.

2.1. Selection of study site

This research focused, as explained in the introduction, on two different study sites or areas: Jiri VDC, situated in the district of Dolakha, and Gumdel VDC, in the district of Ramechhap (see map in Figure 1.2). A more detailed description of Nepal, Jiri VDC and Gumdel VDC is given in Chapters 3, 4 and 5 respectively. The choice of a study site was carried out together with staff members of NSCFP. Since NSCFP is active in three districts in Nepal, namely Dolakha, Ramechhap and Okhaldhunga, it was clear that my research site would be in one of these districts. Because Okladunga is very inaccessible, and therefore expensive, it was left out of the possibilities.

The region of Jiri VDC, in Dolakha, is an accessible, relatively well developed area where Community Forestry (CF) has been implemented at least 10 years ago. The town of Jiri is situated at an altitude of 1700m, while the forest that belongs to Thulonagi CFUG is situated at an altitude varying between 2100 and 3500 meters. Jiri was, for those reasons, selected as the first study site. Jiri is, for many, the ideal research area: of easy access, with good facilities like hotels and restaurants and a relatively long history with Community Forestry. Many projects and research groups have been working in this region. Jiri is actually over-researched. Guest books show the many and frequent visits of universities or other individual researchers and research organizations. I noticed that some people are even tired of giving answers to again another questionnaire. During an interview someone even commented "*they always come here to take information and never do anything for us*". In a way she is right. I believe that because of this excess in researches in the area people were not always concentrated and interested in my questionnaire. I often got the feeling that people were rushing their answers to get rid of me as soon as possible. Their answers might therefore not be very detailed and honest.

Gumdel VDC, at the other hand, is a vast, remote and inaccessible area with an altitude variation between the 2000 and 3950 meters. Since a staff member of NSCFP, who originates form the area, was planning to go to Gumdel VDC for his own research, I could join him in his field trip and so conduct my interviews there. Gumdel was therefore chosen as a second study area. For a more detailed description of Jiri and Gumdel VDCs, look at Chapter 4 and 5 respectively.

2.2. Selection of CFUGs

The selection of the Community Forest User Groups (CFUGs) was done purposefully. There are some discrepancies between the area around Jiri VDC and Gumdel VDC. There are in and around Jiri VDC eight CFUGs formed. The situation is rather different in Gumdel VDC, where, at the moment of writing, two CFUGs have been

formed and had the forest handed over. This happened only a few months ago, more precisely in November 2007. One other CFUG will be handed over in the near future. Because of this discrepancy between Jiri VDC and Gumdel VDC and because of the un-alike research situation in both areas, slightly different selection methods were used. Both of them are described below.

Around Jiri VDC:
The selection of CFUGs was conducted together with local staff members of NSCFP and based the CFUG's location and Community Forestry's handing over date. At first four CFUGs were selected, one out of each VDC: Homdanda, Thulonagi, Hosinga and Baisakheswori. I realized that it was excessive, since I planned to do 15-20 interviews, what implied 4-5 interviews in each CFUG only. Two of these CFUGs were then selected, according to their location: Baisakheswori and Thulonagi CFUGs.

In Gumdel VDC:
The situation in Gumdel VDC was rather different. Gumdel VDC is geographically divided in 9 Wards, each of them predominantly populated by a specific caste. The NSCFP staff member whom I accompanied to Gumdel VDC needed to be, for his own research, every day in a different Ward. Because he was both working on his own research and acting as my translator, we could only do 2 interviews a day, every day in a different Ward. Furthermore, Community Forestry is still in its implementation stage and CFUGs are slowly starting to operate. As a result, the selection of units of analysis was not based on CFUGs, but on locality, 2 individuals from each Ward.

2.3. Units of analysis and selection of respondents

The individual is used as unit of analysis during this research. Since opinions and perceptions of individuals, even within one household, differ from one another, local perceptions on the environment could differ depending on, for example, age, gender, interest and use of certain natural resource, religion, (economic or social) role in family and household, economic status, level of education, etc. The individual was, therefore, considered the most suitable unit of analysis in this research.

For the selection of the units of analysis, i.e. respondents, I had a list of all the households at my disposal. Household was therefore used for the selection of the units of analysis. Below I explain the selection method more in detail. Once at the household an individual member was interviewed. Sometimes it happened that there was no one available in the selected household. The interview was then conducted with the neighbouring household. I furthermore tried to maintain an equal gender and a mixed age division among the respondents.

Around Jiri VDC:
For both CFUGs, Thulonagi and Baisakheswori, lists of all household members were available. I first classified all households according to caste and calculated the representation of each caste in the whole population. Considering that I would do twenty interviews around Jiri VDC, I selected twenty households proportionally to the representation of each caste using the simple random selection method.

I also tried to interview non-members of a CFUG. This turned out to be impossible because, according to different informants, every singe household of my study area is a member of a CFUG.

In Gumdel VDC:
As mentioned above Gumdel VDC is geographically divided in 9 Wards. Ward number 1 was left out from both mine and my colleague's researches because it is very inaccessible and because we had some time constrains. I, therefore, needed to select my sample according to the local situation: I could do 2 interviews in Wards number 2 to 9, in a total of 16.

With a list of all households in Gumdel VDC in my hands I first determined the representation (in percentage) of each caste. According to that I determined how many interviews I needed from each caste, proportional to their representation in the whole population. With the same list I determined which caste predominated in witch Ward. I decided to interview people from a specific caste in the Ward in which this caste prevailed. I numbered all the households from Gumdel from 1 to x and, using a table or random numbers, selected 2 households from a specific caste in each Ward.

As I was able to conduct only sixteen interviews in Gumdel VDC (instead of 20, what would have been ideal), I decided, after discussing it with a PhD student who is also connected NSCFP, to do sixteen interviews in Jiri as well. At that moment I had already conducted eleven interviews in Jiri VDC with household members of the Thulonagi CFUG, which means that I needed five others to complete the required sixteen interviews. During the very first random selection I had selected twenty households in total for Jiri VDC, sixteen households from Thulonagi CFUG and four from Baisakheswori CFUG. I decided to conduct the 5 remaining interviews with those households from Thulonagi CFUG and leave Baisakheswori CFUG out of the research.

2.4. Finding a field assistant / translator

Finding a field assistant was not easy. The Head and District offices of NSCFP tried to help me, but were not very successful. I worked, in total, with 3 different translators:

Kabita, a 22 years old young woman, was the first field assistant I worked with. She belongs to the higher castes and can therefore be classified in the BCN caste group. She originates from Dolakha, the same district where Jiri VDC is situated. She studied Forestry and worked for the District Forest Office (DFO), a government branch of the department of Forestry. She was, for those reasons, very capable in finding her way through the organisational structures of the CFUGs and the settlements. In spite of these qualities her English was, in my opinion, very poor. She was my assistant during my first field visit and at the moment I conducted my test interviews. Once back in Kathmandu I started searching for someone else.

Dhana, a 23 years young woman was my second field assistant. She belongs to one of the higher castes of Nepal and can therefore be classified in the BCN caste group. She lived in Kathmandu and spoke much better English. She does not have a background in forestry neither was she acquainted with the area of Jiri VDC. Nevertheless she managed very well to find her way there. It was a pleasure to work with her.

Dawa, a male colleague researcher from NSCFP with whom I went to Gumdel, also spoke good English, although his pronunciation was sometimes difficult to understand. He has a background on forestry and comes, originally, from a neighbouring area of Gumdel VDC. As he has a Buddhist background, he can be classified in the Ethnic caste group.

Although field assistants bring many conveniences such as translation, good company and fun, they can also have negative influence on a research. According to Liamputtong and Ezzy (1999) and quoted in Kapborg and Bertero (2002), the quality of the information obtained during an interview using a translator may be distorted if the interpreter is 1. not trained properly, 2. does not have a full understanding of the particular research project 3. or has biased ideas. As there are small differences in meaning between languages it can be complex to translate from one language to another. Some words cannot be translated from e.g. Nepali into English because of cultural differences or lack of equivalent words (Kapborg and Bertero, 2002).

I believe that the validity of my research suffered because of the use of translators. The interpreters I used where none trained in translating in a research project. Although I truly explained each of the field assistants what my research is about and what I want to achieve with it, I believe that some of them did not have a full understanding of my research and/or had some biased ideas. The data collected during my first field visits with Kabita were used to test my questionnaires and to further operationalise the research questions. As these questionnaires were cross-checked with staff members of NSCFP, Kabita's lack of fluent English did not directly affect my research.

Although Dhana was not trained as a translator, I believe that the fact that she did not have a background in forestry and was not known in the region of Jiri VDC turned out positive. Due to this inexperience she was open to explore new frontiers and to question issues that were not clear yet. I believe that Dawa had, in this respect, the largest influence on my research as he is very much involved in the implementation of Community Forestry himself and as he originates from the surroundings of Gumdel VDC. I believe that his presence and the fact that he was simultaneously doing his own research influenced the outcomes of my research. Dawa is known in the area as an employee from NSCFP who is trying to promote and implement Community Forestry. During our stay in Gumdel VDC he conducted various group discussions whereby these topics where discussed. Some individuals took part in both his group discussions as well as in my interviews. I got the feeling that these individuals (and a few others) were giving specific answers regarding CF simply because Dawa, the CF extensionist, was present. This issue affected the validity of questions directly related to Community Forestry, like 'why are you (going to become) a member of the CFUG?' or 'do you think CF is beneficial? Why?'. Even though I believe that other issues regarding, for example, people's livelihoods or their use of and/or access to resources, were not much influenced by the presence of a translator. This issues is further discussed below, in Section 1.8.

2.5. Operationalisation of the main research concepts

Below I delineate the operationalisation process of the concepts studied in this research. This study focuses on the implementation of Community Forestry and on the changes in quality and quantity of natural resources that occurred after its implementation. It also focuses on the impact of CF on local livelihoods. This Section, therefore, operationalises the concepts of 'natural resources' and 'livelihoods'.

Natural resources
Based on literature study, especially on the article of Pokharel and Suvedi (2007), on observations in the field and on conversations with staff members of NSCFP, a few natural resources were selected: fuel wood, water, fodder and *Lokta*, the latter being a cash crop of *Daphne spp.* used to make traditional Nepali paper.

My first test interviews consisted of questions associated with the natural resources mentioned above and on local livelihoods. After the first test interviews I realized that my interviews were too long. All the parties (including the respondent, my translator and myself) started to loose concentration and to get irritated after approximately one and a half hour. I subsequently understood that one and a half hour was the upper limit for the duration of an interview. Together with staff members of NSCFP we decided that *Lokta* would be the first resource to discard. This because only a selected amount of people are directly related to the collection and processing of *Lokta* and/or to the production and retail of its paper. Fodder was the second resource discarded from the interviews, because only the better well-off households can afford to have cattle and, therefore, use fodder. The very poor households which do not have cattle would consequently not have a clear idea about the changes in fodder quality and quantity over time. The questionnaire was then limited to questions associated with livelihood, fuel wood and water. Questions about fodder were kept aside in case the interviews turned out to be short enough or the results concerning one of the other resources irrelevant. Ultimately these questions were not used.

Livelihoods
A questionnaire for livelihoods was set up based on the definition of livelihoods as explained in the previous Chapter (see Figure 1.5). Local livelihoods depend on the context people live in; the assets they have access to; the transforming structures and processes that are operating in and influencing a specific area or group; and the local livelihood strategies, such as individual or group activities, choices and life-styles. As the context people live in and the existing and transforming structures and processes are relatively fixed, the questionnaire on livelihoods concentrated more on the assets people have access to and their livelihood strategies. Table 2.1 shows the different topics that were addressed during the interviews.

Table 2.1: Livelihood topics addressed during the interviews in this research

Assets	Natural Capital	natural resources, both private and common
	Financial Capital	household income, amount of livestock, amount of private land, communal funds and saving and credits groups
	Physical Capital	construction and housing
	Human Capital	education and training
	Social Capital	social cohesion and collective action, relationships of trust, participation of minorities, and equal access to resources
Livelihood Strategies		activities, choices and life-styles

2.6. Data collection methods

This research uses primary and secondary data from multiple sources. Different methods for data collection were used in this research, namely: reconnaissance, observation and semi-structured interviews.

Primary data collection

Reconnaissance and Observations
A reconnaissance study was conducted in order to get acquainted with the, for me, completely new settings of the field. To better understand the procedures, goals, objectives and working styles of NSCFP, I spent a few days in their main office in Kathmandu and other days in their district office in Charikot, Dolakha. To get familiar with the atmosphere and processes on the ground, the local working practices of NSCFP, the project and the people involved, the life-styles of the villagers, their culture and customs I conducted a few reconnaissance field trips to different villages in the district of Dolakha.

During this time I read many reports and documents of NSCFP and talked to different people. Together with staff-members of the District Office in Charikot I visited, among others, a meeting of the Harisiddi CFUG where a 3-year future plan was being discussed. This CFUG is situated at a two and a half hours drive from the city of Charikot. NSCFP staff-members were there to verify their self-monitoring capacities. The meeting took place on a grass field in the lower parts of the valley. The meeting started two hours later then planned and participants were arriving slowly. Specific participants were invited for this meeting, where attention was paid for the equal representation among the participants (regarding gender, caste, age). Although there were some tree-trunks for people to sit on most chose to sit on the grass instead. Once the meeting started there were 19 participants, of which 9 women. Men and women were sitting separately. The discussion was mainly concentrated on the male section of the group and among the CFUG committee members.

Another interesting field visit was to Sinpany CFUG, which is located very close to the city of Charikot. Members of the CFUG were ready to distribute the firewood collected in the forest and to make a fire-line to prevent forest fires. This was my first encounter with my first field assistant, Kabita. All field assistants that assisted my work in Nepal are discussed above, in Section 2.4. We were late for our appointment. Nevertheless, the whole group was waiting for us. They wanted to help me in al possible ways before starting their tasks. After a short question-and-answer session we all went into the forest, which was situated on a very steep and of difficult access slope. I understood that the forest was still very young due to a relatively recent land slide which devastated most of the forest. Piles of firewood, arranged nicely in rectangular parallelepipeds, were measured with a one meter long stick. These piles were distributed among households according to their size, which is determined according to the number of its members. A pile of 1x1x2 meters was designated to a woman who belonged to a household of 14 members. If no specific firewood saving mechanisms are used is this amount of firewood is enough to sustain her household during a little more then one month. In this CFUG the distribution of firewood from Community Forestry happens once a year. Households that need more firewood have to purchase it or collect it from private land. Poor households can purchase it from the Community Forestry with 50% discount. In this CFUG about 50 households collect firewood from Community Forestry. All other 39 households collect firewood from private land or have alternative ways to produce fire (such as gas or kerosene stoves). Since this CFUG is situated close to an urban centre access to gas and kerosene is easy.

Observations are critical to any research. That what people say they do or what they think they do is not always the same as what they in fact do (Bernard, 1995). I have also experienced this in the field. Households, for example, often declare themselves in a more disadvantaged position then they are in. This is valid for both the very rich as the very poor. The very rich might try to be modest about

their situation, while the very poor might think that I, a western researcher, am able to help them. One of the richest mans in the community, with golden rings on his fingers, a relative big house, TV dish antenna, various hectares of land, multiple houses in different regions and a fantastic toilet that complied to my standards, considers himself to belong to the middle class; while a very poor women who belongs to one of the lowest castes and shares a small house with her big family complains that she has to pick up water from the river everyday though she has water running from a tap a few meters from the house. Another interviewee, for example, was never giving a direct answer to any of the questions, but was constantly complaining about her situation: *"what is your level of education?" "Oh, I am so poor, I have no money…"*

Observations can either be obtrusive and reactive (whereby the people who are being observed know that they are being observed) or unobtrusive and non-reactive (whereby the people who are being observed do not know that they are being observed). It is very hard, considering ethical issues, to do observations in an unobtrusive and non-reactive way. The observations performed in this research were, therefore, at all times obtrusive and reactive. During this research were observations used to:

- Acquaint myself with the field
- Get a feeling of the country, the people, their way of living, their cultures, traditions and customs
- Better understand Community Forestry projects and how it is implemented, carried out and maintained
- Help me to concretize my research topic and operationalise my research questions
- Confirm the responses of interviewees to my questionnaire

Direct observations were carried out throughout the research and were always recorded in field notes. Direct observations were carried out in the form of general observations and spot sampling. General observations were used throughout the research to give me a better understanding of the local context, to help me to operationalise my research questions and to cross-check information gathered from the informants through interviews. Spot sampling was mainly used to understand the local setting and the natural resource used in practice.

I did not have the opportunity to conduct actual participatory observations. Practical and financial constrains limited my mobility in the field. Examples are the time translators had available to work with me or the financial means I had to pay their daily salary. Doing and elaborating a case study was therefore not possible. By missing out the opportunity to embed myself in the life of the local countryside I believe some information could have been overlooked, affecting the validity of the research. Case studies would have been interesting to further illustrate some of the results found during this research. They would furthermore have given more detailed information and a better understanding of specific issues such as the household participation in Community Forestry matters or actual access to resources.

Interviews

Interviewing is a way to make people talk about what they know. There are four types of interviews, as described in (Southwold, 2002) and cited in Bernard (1988): informal, unstructured, semi-structured and structured.

This research used informal and semi-structured interviews. Informal interviews are characterized by the fact that the informant does not know he/she is being interviewed. It consists of casual conversations that are not controlled by the researcher. He/she might, however, guide the conversation to specific topics that

interest him/her. The findings of the informal interviews conducted during this research were written in field notes, along with the observations made. Informal interviews were mainly used in the first, explorative stage of the research. During this period I tried to better understand the life-styles of the villagers, their practices and culture. Using informal interviews I got a better insight into their livelihoods, into which natural resources they use and how.

Semi-structured interviews are characterized by the fact that the informant knows he/she is being interviewed. Furthermore, an interviewing guide was used wherein a list of questions and topics that the researcher wants to tackle is written. Semi-structured interviews were used at a second stage of this research, after the research questions were operationalised. A questionnaire was set up and used as a basis for the interview. Since Community Forestry was implemented in Jiri at least 10 years ago and only very recently in Gumdel, a slightly different questionnaire was used in both the areas. Often were other topics and questions, different from those mentioned in the questionnaires, tackled. Those were brought up either by the informant him/herself or by me, according to which topic I wanted more in depth information about. A total of 32 semi-structured interviews were conducted in both the Jiri and Gumdel areas. All interviews were recorded using a digital voice recorder and notes were written in the interview guide, in front of the informant.

During this research I learned that preparing a good and exhaustive interview is quite difficult. During the first stage of my research I often discussed and tested my questionnaire. Nevertheless, while conducting the actual interviews, I often came across important issues that were left out of the questionnaire or questions included in the questionnaire that were not relevant or wrongly formulated. Where applicable these issues where included into the following interviews or respectively excluded or reformulated. As a consequence, not all households were exposed to exactly the same questions, an issue that threatens the reliability of the research. Having said this, I believe that most issues were covered by the majority, if not all, households and that the overall analysis of the local circumstances is inclusive.

Secondary data collection

Secondary data is data that originates from existing records created for other purposes then this particular research (secondary sources), such as data from reports, membership lists, libraries, etc. During this research secondary data was collected from various sources: NSCFP Head Office and District Office, both in Dolakha and Ramechhap, District Forest Offices, electronic journals, books from libraries or other private sources, the internet, student reports, etc.

2.7. Modes of Analysis

Data analysis is a very sensitive and important part of the research. It is, in fact, the process of transforming the collected data. The final goal of analyzing data is to highlight useful information, suggest conclusions, and to support decision making. The analysis of this research mainly aims to give ideas, suggestions and recommendations for the implementation of Community Forestry in Gumdel VDC.

To analyze the data from my research I first identified the topics that were interesting and relevant to be examined. These topics included, for example, 'access to firewood', 'aspects of human capital' or 'transformed daily activity due to CF'. After identifying the relevant topics, I started to code the interviews. To do so I prepared a code-sheet, that is to say, I wrote the different topics and the variables

within each topic on a blank questionnaire, taking into account every relevant question. Keeping these topics and variables in mind I started to code each of the conducted questionnaires. By doing so I was able to get a broader overview of the local circumstances and to provide somewhat quantitative data, such as the percentage of households which have access to resources from communal forests. By systematically analyzing the collected data and by carefully reading and analyzing trustworthy literature I was able to provide recommendations that can be used during the implementation of CF in Gumdel VDC.

I furthermore used the data collected through observations and secondary sources to strengthen or to contradict the results found during the analysis of the interviews. Secondary data was furthermore used to illustrate and to give an overview of the context of Community Forestry in Nepal and to place this research in a broader perspective.

2.8. Methodological constraints

Some constraints were identified during the reflection on the methods used in this research. Although some of them have already been mentioned above, this Section puts them all together and tries to analyze its consequences. They are categorized as follows: use of translator; data collection; selection of respondents; respondent's responses; and questionnaires.

Use of translator
The quality of the information obtained during interviews using an interpreter might be affected because of a lack in fluency in the language to which it is translated or because of small differences in meaning between languages. Using a translator furthermore affects the results of a research if the interpreter is not trained properly; does not have a full understanding of the particular research project; or has biased ideas. As previously explained, I believe that using a translator has a negative impact on the validity of the data collected during this research. This is mainly valid for Gumdel VDC, where Dawa acted as my translator. As Dawa is very much involved in the implementation of Community Forestry himself, respondents might have felt intimidated when questioned, for example, on their opinion about Community Forestry. I believe that this issue mainly affected answers which were directly related to Community Forestry. Dawa furthermore originates from the surroundings of Gumdel VDC. Because of that, cultural embedded issues might not have clearly been put forward to me as they are self-evident for Dawa.

Data Collection
Triangulation of methods is very important in a research to check the achieved results. This research largely used two different methods, interviews and observations. Participatory observations and a case study would have been an ideal complementation to the results found. Unfortunately I did not have the opportunity to conduct actual participatory observations due to practical and financial constrains that limited my mobility in the field. By missing out the opportunity to embed myself in the life of the local countryside some information might have been overlooked, affecting the validity of the research.

Selection of respondents
This research used caste as a criterion for selecting the units of analysis. The idea behind this choice was, first, that it was practical – I had access to a list of all

households and their caste – and second, that it would give an overview of the differences among the caste groups regarding their access to natural resources and their livelihoods. As outlined in Chapter 4, in the case of Thulonagi CFUG, the majority of the interviewed households did not have access to resources because the forest was too far. Is it because most households live far away from the forest forests or is it a coincidence that the selected respondents all lived far away from the communal forest? As the selection of respondents was done randomly, one would expect the sample to be representative to the whole population. Nevertheless, I believe that 'caste' might not have been the best criterion for the selection of respondents. 'Access to resources' would have been a better criterion since those living close to the forest would have been included as well, eventually resulting in different outcomes. To further analyse Thulonagi CFUG member's access to resources form communal forests, research with a larger number of respondents, including those living close the forest, is needed.

Respondent's responses
Respondents were not always enthusiast about participating in the research and answering the questionnaire. Many of them complained about a lack of time and clearly showed that they wanted to finish the interview as soon as possible by giving only 'yes' or 'no' answers, affecting the reliability of the research. This was mainly the case in Jiri VDC. The fact that Jiri has been over-researched plays a role in this as some people were tired of giving answers to again another researcher. One interviewee was even joking and laughing at every single question I asked. For example, once I asked what their income was she said '([*laugh, laugh] write anything you like, I don't care'.* Since she was not taking the interview seriously, it could be that her answers are not consistent with the truth. The other interviewees were not interested in the interview and/or constantly being disturbed by family members who were coming and going all the time. It was in both cases clear that they wanted to finish the interview as soon as possible. They were often complaining that the interview was taking too long and only answering 'yes' or 'no', even to open questions where a little more explanation was required. I believe this is a problem many researchers face, mainly when there is a short time-frame wherein the research has to be conducted.

Questionnaire
Preparing a good and exhaustive questionnaire is quite difficult. Not all addressed topics proved to be relevant neither were all relevant topics addressed. As questions were, whenever applicable, added or removed from the questionnaire, not all households were exposed to exactly the same questions, threatening the reliability of the research. However, I believe that most issues were covered by the majority, if not all, households and that the overall analysis of the local circumstances is inclusive.

Although this research has some limitations, interesting results were found. These are outlined in the following three Chapters: 3. Community Forestry in Nepal, 4. The Case of Jiri VDC and 5. Shaping CF in Gumdel VDC. The next Chapter, Community Forestry in Nepal, gives a short introduction to Nepal and an overview of CF and the institutions involved.

3. Community Forestry in Nepal

In the previous Chapter the methodologies used were outlined and discussed. This Chapter focuses, as can be deducted from the title, on Community Forestry in Nepal. The first Section gives a short introduction to Nepali history and caste system. The second Section outlines Nepali Community Forestry, its implementation process and its main challenges and achievements. Finally, the third Section outlines the involvement of NSCFP and the problems it faced to continue to provide support during the conflict years.

3.1. Nepali history and caste system

Nepal knows a long and troubled history. Centuries of political unrest ranged between rivalries among the medieval kingdoms, the formation of a dynasty and various attempts for democracy. Public unrest grew in the 1990's after yet another attempt to democracy. Guided by the ideology of Maoism which emphasizes revolution through an armed struggle, a radical faction of the Communist Party of Nepal began to prepare the ground for the people's war in 1996, which ultimately led to the Nepalese Civil War. After 1996 the country moved towards an escalating conflict in which about 13,000 people have lost their lives, 100 to 150 thousand people were internally displaced and the country's economic and social development activities were disturbed, mainly in rural areas. Intense fighting and civil unrest continued well into 2005. Underlying causal factors of the conflict include: widespread socio-economic inequality, the failure of political leaders and governments to demonstrate and practice good governance, the failure of parliamentary democracy to adequately respond to and address the needs of the large number of people living in absolute poverty and the exclusion of a range of caste and ethnic groups from government and various aspects of civil society.

At the end of 2006 Nepal's government and Maoist rebels signed a peace agreement that ended nearly 11 years of conflict. A seven-party coalition resumed control of the government and stripped the king of most of his powers. In December 2007, seven parties, including the former Maoist rebels and the ruling party, agreed to abolish monarchy and declare Nepal a Federal Republic. On April 10, 2008, during the fieldwork period of this research, elections were held under supervision of the UN. The Maoists secured a simple majority. Ram Baran Yadav, from the Nepali Congress party, became the first president and Pushpa Kamal Dahal, popularly known as Prachanda, of the Communist Party of Nepal (Maoist) became the first Prime Minister of the Federal Democratic Republic of Nepal. The long lasting armed conflict had its impact on development work in general and on Community Forestry in special. More about the impact of the armed conflict on Community Forestry and particularly on NSCFP is discussed in the next Section.

Nepali society is divided in many social groups, the castes. The Nepali caste system, similar to the Indian, is a complex system of social stratification and social restrictions in which classes are defined according to profession and maintained by hundreds of years of in-caste marriages. Due to its complexity, this research uses a more general classification of castes, which is also used by the Nepal Swiss Community Forestry Project (NSCFP). In this classification castes are categorized in three major groups: BCN, Ethnics and *Dalits*. The 'BCN' caste-group includes the Brahmin, Chhetri and Newari. These castes are among the highest and most

privileged ones. The first two (Brahmin and Chhetri) are Hindus, while the Newari, the indigenous people of the Kathmandu valley, are both Hindu and/or Buddhist. The *'Dalits'* group includes the lowest rank in the caste system, known as 'the untouchables'. *Dalits* are predominantly Hindu. Although untouchability has been abolished in 1963, it is still practiced. Those who belong to the lower castes tend to be and remain poor because of a lack of access to opportunities. The 'Ethnics' caste-group includes the castes in the middle level, mostly descendants of migrants from Tibet and therefore predominantly Buddhist. As is further detailed below, NSCFP is actively trying to improve the livelihoods of the most disadvantaged households.

3.2. Community Forestry in Nepal

There are different reasons for forest degradation in Nepal. The process of deforestation goes back to the late 18th century, during the dynasty of Prithvi N. Shah, when land use depended on paying taxes to the empire of half of the land's production and up to 75 days of compulsory unpaid labour per household in the lowlands of Nepal. The tax could be avoided either by converting forest to farm-land, which would give a three-year tax holiday, by executing an assignment for the bureaucracy or state, or by carrying out services to the king. Each family was, furthermore, expected to supply the monarchy with a fixed quantity of firewood, iron, charcoal or other materials (Metz, 1991; O'Connor and College, 1996). These taxes were used to sustain the army and for private consumption of the king's family and his subordinates. The three-year holiday and the initial fertility of newly opened land stimulated many farmers to transform forest areas into agricultural land. The implementation of potatoes and maize furthermore facilitated productive farming on steep slopes. Misuse of labour, lack of investment in agricultural development, waste of extracted surplus on military expenditure and luxury consumption impoverished middle-income and poor peasants and prevented Nepal's economic development (Shrestha, 1990).

Although local populations have, independently of government activity, steadily been planting trees in private and non-private land for the last 60 years (D. A. Gilmour, 1988), forestry resources declined in the past due to lack of appropriate policy on sustainable use, conservation and development of these resources. Forestry policy was shaped by political and economic motives rather than ecological considerations (Chaudhary, 2000). In the 20th century taxes were reduced to a nominal cash payment due to population growth and shortage of new land. Nevertheless, policy continued to influence the use of forest resources. In 1957 forests were nationalized under the Private Forest Nationalization Act, which focused on national control over forests through strengthening laws and expansion of forest bureaucracy. Virtually all forest users suddenly turned to law breakers and were subject to penalties. This change in policy had the opposite effect due to widespread corruption and the lack of reward for government workers. It is generally believed that heavy deforestation occurred in the period after the nationalization act. It is estimated that Nepal lost about 9% of its forest cover between 1964 and 1985 (Pokharel, Stadtmuller, and Pfund, 2005).

Deforestation rates were, until the beginning of the 1980's, significantly larger in the lowland parts of Nepal, the Terai and the Siwalik region, than in the mid-hill and high-mountain regions. With the opening of Nepal to the outside world in 1951, development aid-organizations started malaria prevention programs in the lowland regions, facilitation migration and permanent settlement to these forested areas. Furthermore, migration from India into the Terai was common. This increase in

population density increased the pressure on natural resources and caused forest degradation (D. Gilmour and Fisher, 1991; Metz, 1991). Since only a small percentage of Nepal's population has access to the road system, commercial logging is virtually nonexistent in upland Nepal, although it is common in the Terai. Here, mainly in the 1990's, much timber was being smuggled into India. Although road access is limited, trade has long provided 'inaccessible' farmers with necessities that were not available locally and generated income for traders. Influence of state policies, as shown above, also reached the more remote areas, influencing village life in many aspects.

The many failures to stop deforestation gave rise to the idea of Community Forestry, which was legitimized in 1978, when legislation enabled the Department of Forests (DoF) to legally hand over national forest land to local communities (Karki, Karki, and Karki, 1994). It was only with the Forest Act of 1993 that full authority for management of resources was conceded to the forest users. According to several authors (Acharya, 2002; Pokharel and Larsen, 2007) community forest handover process knows four stages: investigation, negotiation, implementation and review. The first stage starts with the identification of all users of a specific forest area. Patches of land that are traditionally used by the 'forest users' are allocated to forest-user-households that are willing to manage the forest as a group to get legal authority to use and manage it in a sustainable way (Paudel et al., 2005; Pokharel and Nurse, 2004; Pokharel and Carter, 2007). This group is then organized in the form of a Community Forestry User Group (CFUG). In the first stage a forest inventory is conducted and a forest management plan based on people's needs for forest resources and sustainable harvest formulated. This management plan must include necessary forest management activities and benefit distribution procedures. There are a few criteria for the handover of national forest to a particular CFUG, namely: accessibility; traditional use rights; willingness to manage forest as CF; and capacity of users to manage forest size.

During the second stage, negotiation, an executive committee is set up through elections. Meetings are held in each hamlet during which users select their representatives in the CFUG committee, including women, *dalit* (lower castes) and poor. However, in practice lobbying is facilitated in favour of selecting the poor, marginalized and *dalit* so as to enhance the access of those categories in formal decision-making forum. Once the community is organized as a CFUG the third stage starts, that is to say, the implementation of Community Forestry. After the formation of a CFUG, DFO issues a certificate of recognition to the user group. Through a series of meetings, interactions, workshops and discussions users and use-rights are identified, a constitution which describes conditions for collective action and an Operational Plan (OP) is formulated in which rules and conditions on how the forest should be managed are stated. Only after the approval of the constitution and the formulation of the OP the forest is handed over. Reviews during which CFUG practices and forest conditions are evaluated (the fifth and last phase) and the OP reviewed take place every five years. Until today new CFUGs are being formed throughout the whole country (see Figure 3.1). About 1.4 million rural families are involved in Community Forestry and manage about 1.6 million ha of forest (Veer, 2004, quoted in Harrison and Suh (2004).These figures are even higher today.

While the ownership of the forest remains with the government, a CFUG is the highest authority in all decision making processes. They have full power, authority and responsibility to protect, manage and utilize natural resources in the areas designated to them. CFUGs are expected to make a constitution and a forest management plan (the Operational Plan) based on their own needs and on the particular forest conditions (Adhikari, Williams, and Lovett, 2007; Chaudhary, 2000). During this process user rights are recognized, rules determined and decisions

regarding forest management (on forest protection, harvesting, distribution of benefits) taken. Only after the formation of the constitution, the OP and the establishment of a CFUG committee, the forest is formally handed over to the CFUG. Revision of the OP is undertaken every five years.

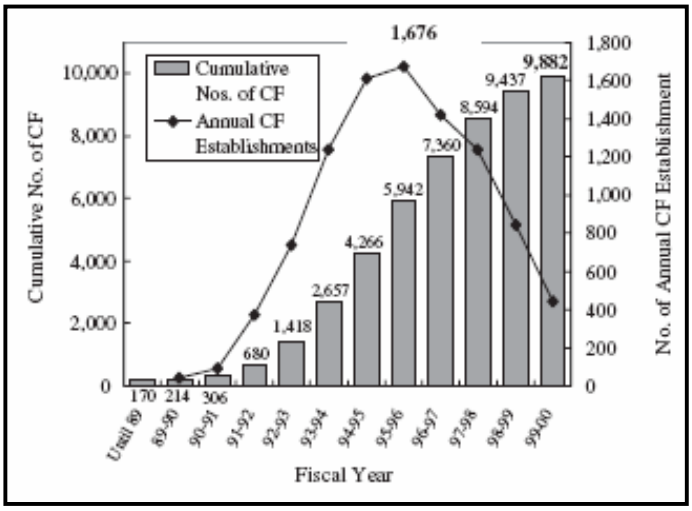

Figure 3.1: Community forestry establishments since 1988 (Paudel et al., 2005)

According to several authors (cf. Acharya, 2002; Dev, Yadav, Springate-Baginski, and Soussan, 2003; Kanel, 2006; Karna et al., 2004; Pokharel and Niraula, 2004; Pokharel, Paudel, Branney, Khatri, and Nurse, 2006) Community Forestry in Nepal has achieved many positive outcomes, which can, in general terms, be seen as improvements in forest condition, better participation and income generation for rural development and institutional building at grass root level. Community Forestry in Nepal has furthermore improved the general characteristics of the forest such as coverage area, regeneration capacity, quantity and diversity of species; it has established traditional rights to the local communities regarding use of forest resources; it enhanced local level capacity building through stimulation of democratic processes and self-governance; it encouraged participation of minorities such as women, poor and *dalit*; it stimulated establishments of national and local CFUG networks such as FECOFUN[1]; and it supported livelihood improvements mainly of the poor through direct financial support and through the creation of sustainable income generating activities. Nevertheless many of these authors acknowledge that several challenges and issues remain. These challenges include assessing the contribution of the program, emphasis on income generation activities, pro-poor orientation, focus on forest management for demanded products, involvement of local government, and good governance including transparency and inclusion.

3.3. NSCFP in Nepal

SDC, Swiss Agency for Development and Cooperation, is Switzerland's international cooperation agency of the Federal Department of Foreign Affairs. SDC is responsible

[1] FECOFUN – Federation of Community Forestry Users, Nepal – is the largest and strongest networks of forest user groups, dedicated to promoting and protecting users' rights and connecting users from all parts of the country in order to strengthen the role of users in the policy making process.

for the overall coordination of development activities and has project in various parts of the world among which Nepal. SDC's project concerned with forestry is the Nepal Swiss Community Forestry Project (NSCFP) that has been operating in Nepal since 1990. Prior to this period, other SDC forestry programs were operating in the area, such as the Integrated Hill Development Project. NSCFP has been supporting and strengthening the Community Forestry Program of the Government of Nepal (GoN) since 1990. It has been supporting the formation of institutionally, economically and ecologically sustainable grassroots organizations and the livelihoods improvement of disadvantaged groups through Community Forestry. In 2000 Intercooperation, a Swiss based non-profit organization, took over the management and implementation of the project, which is now active in three districts of Nepal: Dolakha, Ramechhap and Okhaldhunga. Until July 2007, 35% of the total forest area of the three districts was handed over to local communities (NSCFP, 2007a). This is about 57% of the potential CF forest area (see Figure 3.2). Since the project implementation in 1990, 886 CFUGs were established in the three districts, of which about 113.770 households are members (83% of the total amount of households).

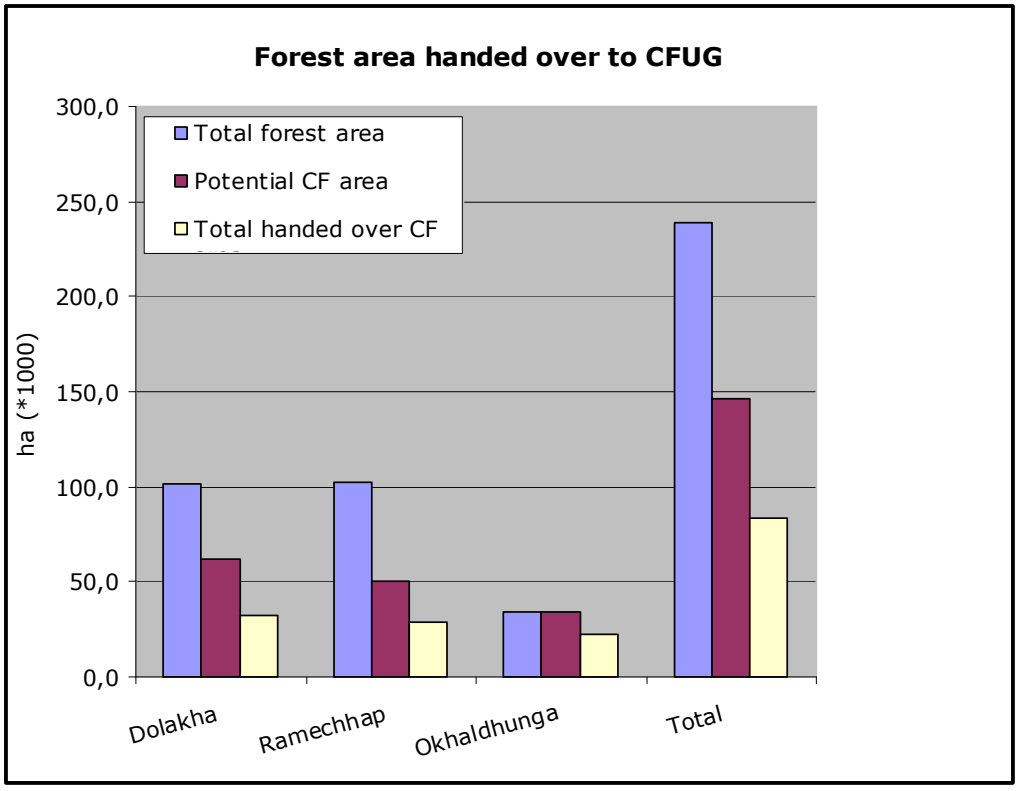

Figure 3.2: Total forest area, potential CF forest area and forest area handed over to local communities in the districts of Dolakha, Ramechhap and Okhaldhunga until July 2007.

A multi-partnership approach is one of NSCFP's main principles. The program has been working in close collaboration and coordination with many partner organizations such as the District Forest Offices (DFOs); local non-governmental organizational (NGOs); community based organizations (CBOs); local bodies (LBOs) such as the District and Village Development Committees (DDCs and VDCs); the Federation of Community Forestry Users Nepal (FECOFUN) and other agencies and

professional organizations. DFOs work at district level under the Department of Forests (DoF) and are responsible to hand over national forest to CFUGs and to provide them with necessary services for a better management of their forests. Several local NGOs, CBOs and LBOs are responsible to strengthen the CF program by promoting Community Forestry and by providing additional local support to CFUGs through micro-projects, such as the revision of Operational Plans (OP), agroforestry related trainings, institutional strengthening activities or CF awareness workshops.

After its implementation in 1990, NSCFP has known six phases (NSCFP, 2006; NSCFP, 2007a). Figure 3.1 shows the progress of the different phases, that is to say, the amount of CFUGs that were formed until the end of the fifth phase. The third and forth phases were heavily affected by the internal conflict. As the fifth phase (2004-2008) of the project was designed against a background of continuous conflict, it had a significant shift in focus. The project's main focus was to address those issues that were considered to be the cause of the conflict: exclusion, gender discrimination, inequality and poverty. It focused on social equality and benefit sharing for disadvantaged groups and on commercialization of forest and forest products for economic benefit. The problems NSCFP faced during this long lasting conflict and the way in which it managed to continue providing support to CFUGs are discussed below. The sixth and last phase of the project has been implemented in July 2008, a few months prior to the moment of writing. This phase aims to support NSCFPs partner organizations in such a way that sustainability of the CFUGs is ensured. The service providing agencies are expected to gradually take over the role of NSCFP so that it can withdraw support completely in 2011.

Table 3.1: Number of CFUGs formed until the end of phase V (July 2008)

Phase	Number of CFUGs
End of Phase I – June 1991	0
End of Phase II – June 1996	250
End of Phase III – June 2000	579
End of Phase IV – July 2004	812
End of Phase V - July 2008	919

NSCFP directly suffered from the internal conflict during the third and fourth phases of the project. Moreover, the fifth phase (2004-2008) also felt the treats of the conflict. The districts of Dolakha, Ramechhap, and Okhaldhunga suffered medium to high effect from the conflict when compared to other districts in Nepal. Not only were many people killed in these areas, human abduction and destruction of property and infrastructure were also common during the conflict. NSCFP, as many other international development agencies and programs were situated in a conflicting position with, on one side, the Maoists and, on the other side, the government security forces. Curiously, NSCFP experienced both negative and positive effects from the conflict. Table 3.2 outlines the direct and indirect effects of the conflict on NSCFP, both of the Maoists as of the government security forces. The few, but positive effects are also outlined in Table 3.2.

Table 3.2: Direct and indirect effects of the conflict on NSCFP, both of the Maoists as of the government security forces (NSCFP, 2007b)

General effects of the armed conflict

- Increasing fear of violence, crossfire and personal threats and intimidation (from both the Maoists and government security forces) caused local people to maintain a low profile and give priority to their own safety rather than be involved with development programmes such as NSCFP
- Democracy and the functioning of democratically elected institutions at various levels were suppressed and the normal democratic processes (e.g. local government elections) were unable to take place
- Limitations were imposed on assemblies and meetings where a number of people were gathered together as these were regarded suspiciously by both parties in the conflict
- Constraints imposed on access to forest products and utilisation of some community forests by CFUG members due to the establishment of military camps inside such areas (by both parties in the conflict) and in some cases clearance of forest for security reasons
- Destruction of infrastructure including direct attacks on DFO offices and destruction of records

Effects of the Maoists

- Outsiders were increasingly viewed with suspicion by local people, since engagement with such people led to their being suspected by Maoists as being spies. This made it difficult to continue to communicate and build rapport with local people
- Movement of project staff and NGO partners in rural areas became constrained due to personal security and extortion threats by Maoists
- Movement of government staff in all areas became severely constrained due to personal security threats by Maoists thus reducing their effectiveness and reach as partners in development
- Local political leaders were forced by Maoists to remain passive or leave their home localities thus reducing opportunities for local political participation in governance
- SDC supported projects were (as were all international development agencies and programmes) under pressure from Maoists to comply with their regulations in areas under their control
- Maoists actively interfered with local organisations such as CFUGs trying to impose controls and their own agendas over them (e.g. CFUGs being forced to change their committees or their names). This also included forced donations and taxes and controls imposed on forest products in addition to those already charged by the government and the requirement for CFUGs to seek additional approvals from the Maoists for their plans and activities

Effects of the government security forces

- Military actions were prioritised over civil initiatives for negotiation and dialogue for peaceful resolution of the conflict
- Movement of project staff and NGO partners in rural areas became constrained due to requirements and demands of the security forces including limitations on access to some areas
- Political parties were constrained at all levels thus minimising their scope for promoting a development agenda
- Press freedom was constrained, thus critical perspectives on democratic debates were suppressed
- SDC were (as were all international development agencies) under pressure from government to refrain from engaging in any democracy discourse
- Project staff, partners and project approaches (e.g. pro-poor emphasis) were viewed with suspicion by security forces including inspections of offices by military personnel
- Harassment of villagers by military whilst travelling to attend project training/meetings became common

Positive effects

- Increased transparency and reduced misuse of CFUG funds
- Improved attitudes towards disadvantaged groups in terms of the need to involve them more closely in decision-making processes (participation of such people in CFUG leadership positions has increased)
- Recognition of the need to channel benefits from community forestry to the most disadvantaged groups through pro-active decision-making by CFUGs

As a response to the conflict NSCFP adopted a Conflict Sensitive Program Management (CSPM). CSPM was designed to integrate and anchor conflict perspectives in the program management cycle. Different strategies were adopted, among which: implement conflict sensitization exercises and develop a common understanding of "should do" and "should not do" norms and guidelines amongst project staff and partners; internalize the "do no harm" approach; and adopt a flexible approach to planning and implementation. These and other strategies turned out to be positive and to permit some, although limited, support to the local CFUGs. NSCFP was able to, despite the conflict, continue to operate and achieve impacts – possibly at a greater level than might have been anticipated given the circumstances. Due to the conflict NSCFP is now more closely aligned towards addressing the critical factors that led to the crisis, which are also reflected in the design and implementation of the current phase (VI). Due to the conflict CFUGs effectively became a social movement with much wider implications for societal level change than simply management and conservation of forests. During the conflict CFUGs became vehicles for promoting local democracy, community based peace building, inclusion of pro-poor development interventions and for good natural resources governance, achievements that are reflected until today (NSCFP, 2007b; Pokharel, Ojha, and Poudel, 2005).

After the peace agreement was signed between the alliance of 7 political parties and the Maoist party in November 2006, the belief was reinforced that the 11 years of conflict had definitely come to an end and that, although there were still many hurdles to be taken, people could rebuild their nation and look forward to a brighter future. The tension in the districts quickly diminished and project staff, service providers and DFO staff could travel and work again in almost all corners of the districts. NSCFP used the emerging development space to accelerate activities in the remote places where work had been minimal during the conflict years. Direct livelihood support to poorest families through CFUGs continued. It is now however embedded in a wider development mode with the aim to achieve sustainable improvement for the involved families based upon a fundamental change in the group's conceptual thinking and their operations. Nevertheless, caution was taken while writing the new Yearly Plan of Operations. Some degree of flexibility to react to changes in the situation of the country, either positive or negative, has been incorporated.

This Chapter gave an overview of Community Forestry in Nepal. The case of the Nepal Swiss Community Forestry Project (NSCFP) was highlighted and its main achievements and challenges outlined. The next Chapter goes more in depth into CF in Nepal, more precisely for the case of Jiri VDC.

4. The Case of Jiri VDC

The previous Chapter gave an overview of Community Forestry in Nepal, its implementation process, its organizational structure, main achievements and challenges until now, as well as, the role of NSCFP in implementing CF. This Chapter focuses on one of NSCFP's CF projects in Jiri VDC. It gives an overview of the different aspects of Community Forestry in Jiri, more exactly in the Thulonagi CFUG. It starts with an overview of CF in Jiri, its implementation process and general characteristics. Changes in quality and quantity of natural resources after the implementation of Community Forestry in Thulonagi CFUG are put forward through landscape images and results from the field. Furthermore, a short discussion on the direct and indirect benefits CF had on the livelihoods of the local community is given. The aim of this Chapter is to extract practical lessons that one can learn from Thulonagi CFUG about the relationship between CF and the quality and quantity of natural resources and between CF and local livelihoods. These lessons taken on board in Chapter 5, where recommendations for the implementation of CF in Gumdel VDC are given.

4.1. Jiri VDC

Jiri is a Village Development Committee (VDC) situated in the Dolakha district in eastern Nepal, at 190Km from Kathmandu. Jiri is mainly inhabited by the Jirel, the indigenous population of the Jiri valley, which belong, according to the categorization in this paper, to the Ethnic group of castes. Other Ethnic groups living in Jiri are: Sherpas, Sunwars, Surels, Tamangs and Hindu caste populations, predominantly Chhetris and Bhramans (Subedi et al., 2000). The main village in Jiri VDC is Jiri, also known as Jiri Bazaar due to its dynamic commercial life (see Figure 4.1). Jiri is said to have been established in 1938 by the Swiss, and its name is to be originated from the city of 'Zurich'. Jiri is also known as 'the Nepali little Switzerland', due to its similar landscapes, climate and due to the various Swiss projects and investments in the area, like road construction, the establishment of a secondary technical school or a cheese factory.

Jiri Bazaar is situated at 1900 meters altitude. Its temperatures are mild, ranging between 13 and 27^{o}C in summer and between -5 and 17^{o}C in winter. Snowfall is rare at Jiri Bazaar but frequent at higher parts of the surrounding hills. Jiri has one of the national highest rainfall rates. Heavy rains and storms are common mainly during the pre-monsoon and monsoon seasons. Jiri Bazaar is the eastern-most terminus of the (paved) highway coming form Kathmandu and consists of many houses, hotels and shops which are settled along this road. At the end of this highway there is a bus park, a place where all busses and vans coming from Kathmandu stay overnight and prepare themselves for the return travel on the next day. There are about 3-4 daily busses or micro-busses coming from Kathmandu to Jiri and vice-versa. Busses coming from Kathmandu take about 6-8 hours due to the narrow winding roads and checkpoints along the way, the latter are set up by the army and are intended to register all the tourists which pass through this area. A few busses continue from Jiri over the now dirt road towards Sivalaya, which is situated at a 2 hours driving or 3 hours hiking distance. More east from here passengers are left to their own feet.

It is still to be seen that Jiri is situated in the ancient Kathmandu-Solukhumbu trade-route. Jiri Bazaar is lively during daytime. Many people walk up and down the main road, busses and trucks come and go from time to time, shopkeepers are sitting outside their shops and chatting with their neighbours, women are bathing their children or washing their clothes outside their house and kids are play around. There are various small tea-houses (in Nepal often called 'hotels') where a small snack and/or a *dal bhaat* (typical Nepali food, rice and lentils soup) can be eaten.

Figure 4.1: The dynamic life of Jiri Bazaar 1. Jiri Bazaar and its surroundings viewed form the highway Kathmandu-Jiri (Source: www.jiri-dolakha.com). 2. Truck loading his cargo. 3. Jiri Bazaar viewed form the main road. 4. A tailor at work. 5. Women washing clothes and bathing their children (all other picture by P.Sequeira).

My translator Dhana and I used to stay the Jirel Gabila Hotel, a place owned and run by a very friendly Jirel family. Staying in Jiri was a pleasure. People were always very

friendly. After spending more time over there people started to recognize us. They would come to make a small chat and to offer their help where needed. Not many western tourists were there. Tourism has once been a good source of income mainly for those living in Jiri Bazaar. Since practically no busses go further east, Jiri was (and is) the starting point for those who like to hike to the Everest region. The famous 16 days hike to the Everest Base Camp, passing through Lukla, starts here. The flow of tourists reduced drastically during the Maoist conflict, when Nepal knew a negative travelling advice. The tourist flow is slowly increasing since the end of the conflict, in 2001. However, only 5% of those who attempt the hike to the Everest Base Camp today start from Jiri. Due to the expansion of the flight connection between Kathmandu and Lukla do the remaining 95% of the tourists take the one an a half hour flight from Kathmandu, saving eight days of trekking.

The remnants of these busy touristy days are to be seen in the many hotels, guesthouses or 'resorts' along the main road of Jiri Bazaar. Most of these accommodations are family run, poorly maintained and have dark rooms and hard beds, but are still open to receive visitors. Food is often prepared on demand. Western meals, such as spaghetti, pizza or porridge can be obtained in the bigger hotels, where menu prices are very high when compared to other (non-touristy) villages. Since tourism is a nice extra source of income for the hotel owners tourists are very desirable. Once a tourist steps out of the bus, the tumult starts: different hotel owners simultaneously try to convince the tourist to stay in their hotel, pulling of the tourist's clothes and or belongings is not uncommon. Tourism however is not a good source of income anymore for those living in and around Jiri Bazaar. They now depend most on commercialized goods and waged labour as sources of income, such as construction work, teaching in the primary or secondary schools, working in the governmental forestry sector (for example as a forest ranger), working as a salesman or collecting NTFPs such as *Lokta* for the Everest Gateway Herbs Pvt. Ltd. which prepares traditional Nepali paper.

All interviewed households own a piece of land where they can grow their own food. This has been made possible through a Land Reform, which started with the implementation of the Lands Act, in 1964, and continued with its amendments that followed over the years. The 1964's Lands Act established ceilings on the amount of land an individual can have and redistributed any land above this fixed ceilings. It protected tenant rights by registering them on the land owner's deed, fixing rent prices on the agricultural land and eliminating the high interest rates on rural loans. This law has been amended six times. The most important amendments were the 4th and 5th, which came into power respectively in 1997 and 2001. The 4th amendment apportioned 50% of the land cultivated by a tenant up till now to the tenant himself. The 5th amendment reduced the ceilings on private land from 18.6ha to 7.45ha in the Terai region, from 3.1ha to 1.52ha in the Kathmandu valley and from 4.9 to 3.81 in the rest of Nepal (ICARRD, 2006; Pandey, 1993). Next to this land reform a resettlement program was established whereby landless households were provided with patches of productive land.

Some business, although small, is done with the crops and goods produced locally, but the vast majority of the commercialized products are brought from Kathmandu. Jiri Bazaar has many shops along the main road where various products such as fruits, vegetables, textiles, clothes, some trekking equipments, office articles, electronic materials, plastic and metal containers, etcetera are sold. There is even a small bakery that sells the one type of bread they produce to the local tea-houses and shops.

The scenery looks completely different outside Jiri Bazaar, where households are spread throughout the steep hills of Jiri Valley, separated by home gardens and various sized patches of land covered with trees (see Figure 4.2). Jiri VDC has about

1450 households and 4830 hectares of land (an average 3.3ha of land per household). The size of a household varies between one and 16 members, with an average of 6.5 members. These households live scattered in hamlets, or *gaauns,* within 9 Wards, some hamlets more isolated then others. These households are not only engaged in subsistent agricultural practices, but also in seasonal or non-seasonal waged labour. Seventy-five percent of the interviewed households are engaged in some form of waged labour and depend on the income earned from this. Tourism has not been mentioned as a direct or indirect source of income by any of the interviewed households. Remittances sent home by family members working abroad is a great source of income for many Nepalese. Estimated is that legal and illegal remittances account for 13 and 25% of the country's GPD respectively (Seddon, Adhikari, and Gurung, 2002). Although national figures show the significant role of remittance in Nepali economy, only three of the sixteen interviewed households said to have remittances sent home by family members living abroad. Local business initiatives such as a pig reproducing enterprise that sells small pigs to different farmers, or the Everest Gateway Herbs Pvt. Ltd., a enterprise that collects the necessary raw materials and produces traditional Nepali paper which is sold in Kathmandu or abroad, also provide income to those households involved. The Everest Gateway Herbs Pvt. Ltd. enterprise is further illustrated later in this Chapter.

Figure 4.2: Life outside Jiri Bazaar. 1. A couple ploughing their ground using bulls (Picture by S.Groenendijk). 2. A hard-working old lady resting in her field (Picture by S.Groenendijk). 3. A carpet being made out of corn-husks (Picture by P.Sequeira). 4. View over Jiri Valley, home gardens and pieces of forest (Picture by P.Sequeira).

4.2. Community Forestry in Jiri VDC

Jiri VDC knows eight Community Forestry User Groups (CFUGs), of which the first was implemented in 1996 and the last in 2004. Table 4.1 shows the different CFUGs in Jiri, its formation dates, forest area under CF and the amount of household members divided by caste. Thulonagi CFUG was chosen as the study site for this research (see Chapter 2 for more details on the methodology and study site selection). Temperate semi-deciduous broadleaves and coniferous forests cover Thulonagi CFUG from lowland to upland, varying from 2100 to 3500 meters in altitude. Thulonagi has 251 households and a population of 1265 inhabitants.

Table 4.1: The different CFUGs in Jiri VDC, its formation dates, forest area under CF and amount household members divided by caste.

CFUG	Formation date	CF Area (ha)	Nr of households			
			BCN	Ethnic	*Dalit*	Total
Devithan Kimane	August 1996	45.6	20	119	1	140
Thulonagi	July 1997	239.5	44	186	21	251
Kaliobhir	March 2000	545.3	12	208	8	228
Jirishwori Mahadev	April 2002	108.3	45	153	4	213
Chayandanda	April 2002	5.2	0	35	0	35
Chhaharadevi	July 2003	100.3	12	157	0	169
Kangyse Setep	August 2003	180.3	55	168	12	236
Hanumenteshwor	July 2004	252.2	94	186	2	182
Total		**1476.7**	**282**	**1212**	**48**	**1454**

The main objectives of Thulonagi CFUG are to manage the forest which has been accredited to them, utilize its resources to fulfil the needs for forest products by the members and to improve the livelihood conditions of its members. A committee consisting of 13 members is elected and assigned the task to make these objectives possible. Each of these members has a different function. They are entitled President or Chairperson, Vice-President, Secretary, Joint Secretary, Treasurer and Members. It is the obligation of the CFUG committee to represent and fulfil interests of all its members. Members of the committee are both male and female and of different castes. The committee consists of eight female and five male members, three of them belong to the *Dalit* castes, two to BCN and eight to the Ethnic castes. The committee is responsible for planning and coordination of the maintenance of the forest, monitoring the obedience of its rules and imposing penalties in case rules are not respected. Each Community Forestry User Group (CFUG) has the right to, within a certain framework, establish its own rules and regulations for the use of natural resources, including those for firewood collection. The committee is furthermore responsible for the administration and proper and fair investment of the communal fund, for strengthening associations and interest groups, for targeting poverty and improving livelihoods, for ensuring income improvements of its members, mainly of its disadvantaged population, for the promotion of small enterprise development and others. During the Annual General Assembly the committee gives accountability on the spending of the funds and presents an annual report and plan for the next year. The Assembly approves the audit, the report and the plan. In case the Assembly is

not agreeing with the performance of a committee or certain members of it, they can vote for replacement.

The Everest Gateway Herbs Pvt. Ltd. is a good example of a project whereby Thulonagi CFUG is involved. The project aims for proper fund investment and for income improvements of (poor) CFUG members. The Everest Gateway Herbs Pvt. Ltd. is a pro-poor enterprise set up with the aim to improve the living conditions of the poor members of Thulonagi (and other) CFUG(s). The Everest Gateway Herbs Pvt. Ltd. was established in 2004 with the involvement of the community and of private partnerships. Three different parties are shareholders in this enterprise: CFUGs, Identified Poor (IP) households and local and national entrepreneurs. The total share capital of the Everest Gateway Herbs Pvt. Ltd. is of NRs. 1.580.000 (about €15.800). Seven CFUGs participated in this project and have, all together, a share of 20%. NSCFP supported 126 IP households that belong to these seven CFUGs to buy shares in the enterprise. These 126 IP households have a total share of 32%. Furthermore, ninety-four local and two national entrepreneurs also have shares in the enterprise, 20% each. NSCFP not only supported the IP households financially, but is also supported the formation of this enterprise by identifying poor households; forming a network of CFUGs; bringing in the private sector; giving technical and entrepreneurial training to participating individuals and developing a registration and management system. Members of each of these shareholders (the individual CFUGs, the IP households and both entrepreneurs) are represented in the board of this enterprise (Pokharel et al., 2006).

Identified Poor households were recognized during the well-being ranking conducted in different CFUGs. A number of indicators were set up by the CFUG itself to assist the ranking. In Thulonagi CFUG this ranking is based on the educational levels, economic and health status and on the amount of land owned by its members. The categorization was intended to identify IP households only; there are no other categories such as 'middle' or 'high class' households. There are 24 IP households in Thulonagi, of which 6 are female and 18 male headed households. The caste division among these IP households is: one BCN (2.3% of all BCN households); 17 Ethnic (9.1% of all Ethnic households) and 6 *Dalits* (29% of all *Dalit* households). All 126 IP households from the seven CFUGs involved in the Everest Gateway Herbs Pvt. Ltd. have a total share of NRs. 504.000 (about €5.040) and benefit from this enterprise in three ways: from dividend as a shareholder and as a member of the CFUG, and from employment for the collection and processing of *Lokta* (*Daphne bholua* and *Daphne papyracea*), and *Argeli* (*Edgworthia gardneri*).

Thulonagi CFUG has succeeded, with the help of NSCFP, to involve IP households into entrepreneurial activities. However, no profit had been achieved yet until 2006 (Pokharel et al., 2006). Therefore, IP households do not yet profit from dividends as a shareholder or as a member of the CFUG, but enjoy income from their employment during the collection and processing of the above mentioned natural resources. Some more years are needed before real profit and a good analysis of the implementation process and its benefits for the poor can be analyzed. Entrepreneurial activities are, furthermore, not the one and only solution for poverty resolution. Entrepreneurs who depend on natural resources have to deal with seasonality (due to availability of natural resources) and therefore with inconstant sources of income. Livelihood planning should be tackled in a way that households learn to deal with these inconstant sources of income and to plan their expenditures. NSCFP offers trainings and workshops that tackle these issues, like trainings on organizational management or on poverty alleviation. Handicrafts or livestock can be seen as alternatives sources of income during off-seasons. Thulonagi CFUG supports the IP households by encouraging and coaching, among others, their (goat, pig or potato) farming activities; by providing them with forest product such as timber and

firewood free of cost, by giving their children a form of scholarship; by providing them with school uniforms and/or by supporting those older then 80 years financially. Besides forest management Thulonagi CFUG is also working on other enterprise development coaching, institutional development, and on shared contribution on behalf of identified poor users.

Today, eleven years after its formation, 35% of the population of Thulonagi CFUG participate actively in CF matters, such as meetings or workshops and they are involved in current issues. According to a committee member the reason for this relative small participation is a lack of awareness about the importance of forest conservation and the feeling of ownership over the forest and its resources. Active participation in meetings is sometimes misunderstood. People don't give their opinions during meetings because they believe they should only speak out in benefit of themselves and not in benefit of the whole community. A interviewee said, when questioned if he gives his opinion during meetings, for example: "*I do not speak out because I have my house already and do not need more wood for construction (11HHt60)*", and yet another: "*I never speak out my opinion because I am afraid of what people would think if I ask for another loan (16HHT100)*". Topics that concern the whole community are left in hands of those who are more involved in CF: the committee members and a few other active members.

Community Forestry in Jiri had some positive effects. As mentioned in the Self Monitoring report filled in by Thulonagi CFUG (Thulonagi CFUG, 2007), it reduced the occurrence of land slides and increased the number and species diversity of plants and wildlife. Improvements in the general greenery of the forest are moreover seen in changes in the landscape images, as shown in Figure 4.3a and 4.3b. This improvement, however, is not necessarily reflected by the CFUG's members. The next Section discusses in more detail the changes CF brought to the quality and quantity of natural resources from a local perspective. CF in Thulonagi CFUG is furthermore trying to enhance the livelihoods of 'Identified Poor households' by involving them in enterprise development and by creating job opportunities. This is not the only impact CF has on local livelihoods. Other aspects of livelihoods influenced by CF are also discussed below.

CF in Nepal (and explicitly also Thulonagi CFUG) can be seen as a robust, long-enduring institution (cf. Becker and Ostrom, 1995). CF in Thulonagi, as in many other regions in Nepal, fulfils many of the design principles outlined in the first Chapter. They furthermore exist for more then 10 years and survived the long lasting Maoist conflict, during which they undertook various responsibilities which are reflected until today. These responsibilities include promoting local democracy, community based peace building and the inclusion of pro-poor development interventions, as well as good natural resources governance, physical infrastructure maintenance or help for the poorest households.

4.3. Changes in quality and quantity of Natural Resources in Thulonagi CFUG

NSCFP, Nepal Swiss Community Forestry Project, possesses a landscape image archive of the areas where it works in, among which Jiri. This photo archive illustrate landscape changes over the last decades. Figure 4.3a and 4.3b show images that display landscape changes from areas around Jiri Bazaar over the last 35-40 years. Unfortunately there are no images taken after 1994.

Figure 4.3a: Landscape images from areas around Jiri Bazaar. Images are vertically arranged in time, dates refer to the moment the specific picture is taken (Pictures by F. Berger).

Figure 4.3b: Landscape images from areas around Jiri Bazaar. Images are vertically arranged in time, dates refer to the moment the specific picture is taken (Pictures by F. Berger). Note the reduced amount of and recovery from landslides over the years.

In these pictures it can be seen that the amount of greenery has improved over the years. Criticizers state that the increase in greenery seen on the images in Figure 4.3a and 4.3b is related to seasonality, that is to say, to temperature and rainfall and not directly to Community Forestry. Landscape images are not the ideal tool to measure change in greenery in a specific area whereas satellite images appeared to be functional to discover interesting environmental and forest-cover transformations over time (Ostrom and Nagendra, 2006; Schweik, Nagendra, and Sinha, 2003).

Further research is needed to confirm that the amount of greenery improved. NSCFP is planning to make use of a remote sensing specialist to analyze this change.

Until the contrary is proven, this research assumes that the amount of greenery in and around Jiri increased. Whether this increase in greenery also increased the access people have to natural resources is questionable. This research therefore analyzes, from a local perspective, the changes in quality and quantity of two natural resources over time, namely firewood and water. This analysis is conducted in order to verify the suggested improve in greenery from the landscape images. This Section gives an overview of the main changes that occurred in the quality and quantity of these natural resources after the implementation of Community Forestry, from the perspective of the local community. First I start with an overview of the different aspects of firewood collection and of its use. Then I give an indication of the changes in the quality and quantity of firewood. The same is done for water.

Firewood

Firewood is used on a daily basis by most, if not all, households in the inlands of Nepal. It is mainly used for cooking and heating, the latter essentially in the winter months. Firewood is, in both the Hindu as well as in the Buddhist cultures, also used for the cremation of the deceased. Since this use of firewood is sporadic, it is not incorporated into this research. Those who live close to urban centres have more and easier access to other forms of fuel such as gas or kerosene. Those who live far away from these centres or who do not have the means to buy these alternative forms of fuel or the necessary equipment for its use (such as stoves, cookers), depend heavily on firewood. All the interviewed households, ranging from the most poor to the very rich, from those living in an village centre to those living in remote areas, used firewood on a daily basis. Only one interviewee used also, next to firewood, kerosene as a source of fire for cooking.

In most CFUGs firewood is collected by a certain group of members once a year, during the winter months. The collected firewood is then stacked on the forest ground in the form of rectangular parallelepipeds called *tchota*. These piles are measured (in m^3) and acknowledged to specific households, according to its size. The more members a household has, the more firewood it gets from Community Forestry. Firewood distribution is free for all members of the CFUG. If a household needs more firewood than that what is acknowledged to it she can buy it from the Community Forestry User Group. Once the firewood piles are acknowledged, members of the granted household spread all the wood over the forest floor to dry. After a few weeks, when the wood has become lighter since most of its water has evaporated, the firewood is carried home by the household members using a *bari*[2] (see Figure 4.4). About 10.000 *baris* of firewood are extracted from Thulonagi CFUG each year.

[2] A *bari* is large basket made out of bamboo often used to carry firewood, fodder and other products from one place to the other. It is often carried with a strip of bamboo or cloth around the forehead (see Figure 4.4). A *bari* of firewood weighs on average around 50-60Kg but varies from species to species.

Figure 4.4: Women carrying firewood in a *bari* (Picture by Santosh)

Interestingly, there is a large gap between the availability and the actual harvest of forest resources. Based on self monitoring data of 767 CFUGs in Dolakha, Ramechhap and Okhaldhunga conducted in March-April 2008, NSCFP concluded that the amount of resources actually extracted is much lower than the amount of resources that could be extracted from the communal forest. Furthermore, the amount of resources that could be extracted from communal forest does not fulfil the demand for resources (see Figure 4.5). Although the demand from the users is likely to be overestimated (users might be citing amounts that are based on wishful thinking rather than on realistic needs), reality is that there is a gap between demand and supply (NSCFP, 2004). Both DFO (District Forest Office) and CFUG have the tendency to remain very conservative in permitting harvest and in implementing harvesting plans. This is overcome by using resources from private land, government land and other CFUGs, on account of overlapping membership. The disadvantaged households, with usually very limited landholding are most affected as they have inadequate possibilities to fulfil their demand of firewood and fodder in particular. In general, disadvantaged households have fewer demands for timber as they lack the funds for house construction or maintenance. Even if timber is supplied free of charge they still lack the additional resources (stones, sand, cement, labour).

In Thulonagi CFUG firewood collection is restricted to the collection of dead, dying and decaying trees. Green wood produced from the silvicultural operations such as thinning, slinging, pruning, bush cutting, climber cutting, etcetera, can also be collected and used as firewood. These silvicultural operations are conducted on demand of the CFUG committee as forest management practices, to encourage, for example, regeneration rates and/or growth of the understorey (Thulonagi CFUG, 1996). Firewood collection is restricted to the period between the months of Kartik and Baisakh from the Bikram Sambat Calendar, the official lunar calendar used in

Nepal. These months correspond to the winter and spring seasons and to the period between half of October and half of April in our Gregorian calendar.

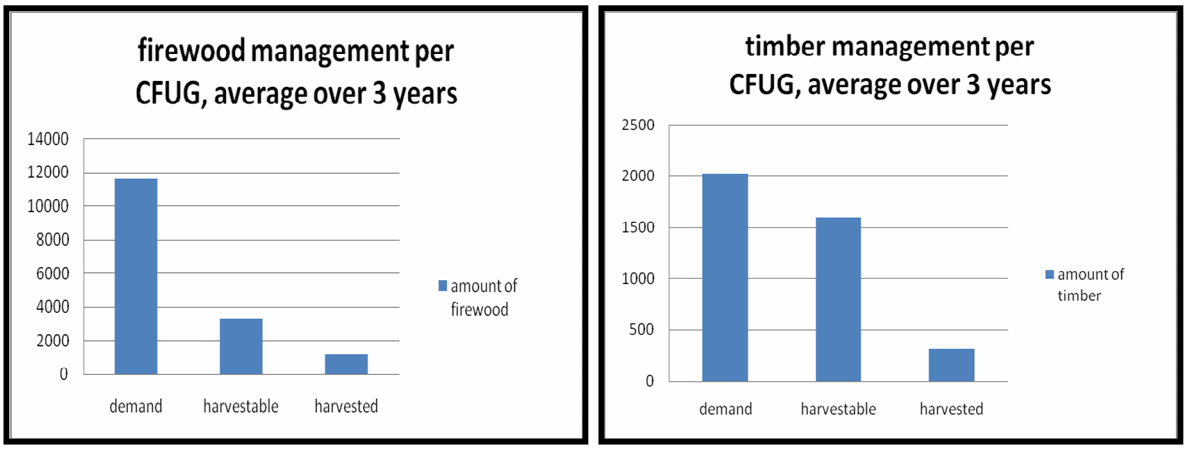

Figure 4.5: chart of demand, supply and possible supply from NSCFP (Source: NSCFP, 2004)

In Thulonagi CFUG, many households do not use more firewood in the winter months, although these months are very cold. Thirty-seven and a half percent of the interviewed households use an equal amount of firewood the whole year around. They survive the winter simply by dressing up warmly. The same percentage of households uses more firewood during the winter months to fight the low temperatures. Although it sounds illogic at first, 25% of the interviewed households use more firewood during the summer months. This is the season during which lots of work has to be done on the field. It is also the season during which heavy monsoon rains fall from the sky. People, mainly those who own large pieces of land and who employ others to work on their fields, need more firewood to be able to cook and to dry their clothes and that of their employees. There is also another reason for a more extensive use of firewood in the summer: in the winter people are able to collect and use small, dry branches of wood instead of pieces of trunk. During the summer these branches are too wet and can therefore not be used as fuel.

During the past 12 years there is no clear overall change in amount of firewood used by the individual households. Five out of the sixteen interviewed households (31%) had an increase or decrease in the amount of firewood needed due to consecutively an increase or decrease in amount of household members. Four out of the sixteen interviewed households (25%) have been using the same amount of firewood in the past 12 years. There is no evident reason for this. In all these four households the number of household members increased during this period due marriage and/or birth. Moreover, neither of these households uses firewood saving mechanisms. The former therefore implies that the amount of firewood needed by these households should have increased. There are two explanations for this inconsistency: household division is not as it looks at first sight and/or interviewees where not giving me the correct answers. The first is explained below, while the latter is already discussed in Chapter 2.

Nepal knows an inter-caste arranged marriage system whereby parents choose a partner from the same caste for their sons or daughters. Normally it is the daughter who moves away from her parental house to live together with her husband and her in-laws. Most of the sons therefore continue living with their parents and bring their newly acquired wife home, increasing the number of

household members. The son and his new family usually live in the same house as his parents but, in some cases, have a separate section of the house, including an own kitchen. In this case there is an increase in household members, but not necessarily in the amount of firewood needed by the parents. One would think that the amount of firewood needed by the parents would reduce, since the son and his new family are cooking separately. This particular circumstance is not analyzed during this research. It is therefore not clear whether the answers given on the amount of firewood used relate to the whole household or to one section (or family) of it only.

Thirty-one percent of the interviewed households use less firewood today as they are using firewood saving mechanisms such as improved stoves or by using firewood economically. People have become more conscious about the use of firewood and are trying their best not to use it excessively. Two interviewees mentioned that they, in the past, used to keep the fire on the whole day. Today they turn off the fire once the cooking is done. The remaining wood is used again for the next fire. Also small branches which are left over from the fodder eaten by their animals are used as a fuel to make fire. In that way firewood is used economically.

Improved stoves are not yet fully used. Thirty-seven percent of the interviewed households have a firewood saving mechanism at home. This mechanism knows various forms, such as fans or improved stoves. Not all households are satisfied with their efficiency. One of the systems is a kind of fan that blows air into the fire with the purpose of making it hotter. This fan is electricity driven and therefore not very useful. All households connected to the national electricity grid know at least eight hours of load-shedding a day, which often coincide with the afternoon/evening hours, the moment people cook their food. This fan system furthermore calls for very small pieces of wood, something not all households are willing and/or able to cut. Another form of a firewood saving mechanism is the improved stove. There are different types of stoves. Some households built an improved stove themselves, while others buy it on the market. Although it needs less firewood for cooking it is not ideal: not much heat is released to warm up the room; it also requires small pieces of wood; it produces a lot of smoke and it makes pots and pans very black and difficult to clean. Improved stoves are furthermore quite expensive. Firewood saving mechanisms need to be improved. They should be more accessible and of easier use. That is to say, they should not depend on electricity, be taken in large pieces of wood, be affordable and not produce a lot of smoke. There is also a need for a better promotion of the benefits of improved stoves among the households. Ninety percent of the households who do not have any firewood saving mechanism would be interested to have one but are not able to afford it.

Interestingly, most households collect their firewood from private land or national forest and not from the forest that belongs to their CFUG. Seventy percent of the interviewed households do not have access to firewood from Community Forestry, simply because the forest it too far. Those who have access to the communal forest resources are those who still have the time and the physical strength to walk a whole day to collect these forest resources. Most people collect firewood from either their private land, private land from family members or friends and/or from the national forest.

Nepal knows hundreds of tree species, of which many are used as firewood. The most common tree species growing in Thulonagi forest are *Kholme* (*Symplocos pyrifolia*), *Gurans* (*Rhododendron arboretum*) and *Thingre Salla* (*Abies spectabilis*). Different three species have different burning characteristics. Some of these species provide ideal burning wood: a long lasting hot fire with little smoke production. One of the best species for the production of firewood, according to 40% of those who mentioned a certain ranking among the best species for firewood, is *Gurans*

(*Rhododendron arboretum*), followed by *Kashro* (*Quercus semicarpifolia*), which received 20% of the votes. According to 60% of those who gave a ranking for the worst firewood species *Salla* (*Pinus wallichiana*) is the worst, while it is said to produce a lot of ashes. *Kashro (Quercus semicarpifolia)* is also a very important fodder species. Its evergreen foliage is an excellent fodder source for cattle. *Kashro* has much been used for firewood. Today, because of the scarce availability of this species and because of its importance as a fodder species, *Kashro* is not being used for firewood that much. The most commonly used firewood species today are *Gurans* and *Salla.*

From the above it is clear that the majority of the interviewed households do not have access to firewood from the Community Forest. This shows that Community Forestry did not have a positive effect on local livelihoods regarding the access people have to natural resources as they still rely on their former firewood sources such as private land and/or national forest. Community Forestry, however, improved local consciousness about forest conservation and economic use of natural resources through the involvement of the local community into fighting against deforestation. Through the feeling of ownership over the forest and frequent discussions on this topic, awareness on the sustainable use of natural resources has been grown among the local population. Thirty-one percent of the interviewed households are consciously using less firewood today when compared to 12 years ago, either because they are using it economically or because they use firewood saving mechanisms. Although these rates are still low, Community Forestry has initiated a process of change.

Water

All inhabitants of Thulonagi CFUG have good access to quality water. Most of the water originates from water tanks that have been built in the upper parts of the hills, within the forest. Fresh spring water is collected in these tanks and transported through tubes to the populated lower parts of the valley. All households have a water tap in or close to their house. Fifty-six percent of the interviewed households have a private water tap, that is to say, that they are the only household using that one particular tap. The remaining 44% of the households share their water tap with other households.

Most water supply has been provided by the government and exists for over 25 years. The government financed the building of theses water tanks, the pipe systems and water taps in strategic places spread throughout the village. Villagers who wanted to have water closer to their house could build another pipe system originating from this central tap towards their house. Those who had no access to these taps collected water from a *khua,* a traditional water well. Today all interviewed households have access to tap water.

The quality of water springs is directly related to forest quality. As mentioned in (Pearce, 2001), forest loss involves, among others, loss in water quality. In Jiri there was no change in the quality of the water in the past twelve years. Seasonal changes in water quality occur. Mainly in the monsoons season, when rainfall is intense, water quality is inferior. In this season water becomes muddier and chances of diarrhoeal infections increase. The quantity of water is not a problem. Water is running constantly from most of the water taps I have seen in and around the village. A household uses, on average, about 2 to 5 *gagris*[3] of water a day for

[3] A *gagri* is a copper water jug of varying sizes. The most common *gagri* contains about 10-15L of water.

cooking and drinking. For many households the tap is the place to wash the dishes, to do the laundry and to take a 'shower'. The exact amount of water used by one household is therefore not clear.

Water quantities can, from time to time, become a problem, mainly in the dry season when no much water is available at the springs. Whenever a water tap dries out people recur to the traditional water wells or to small water streams. There is no real water shortage in and around Thulonagi CFUG, however leakages and other maintenance problems are frequent. Since the water tank and pipe systems are quite old are leakage problems quite frequent, mainly in the rainy season. The CFUG committee is responsible for the monitoring of maintenance practices of water tanks and pipes. Whenever these practices are necessary, financing comes from the communal funds while households are expected to deliver labour. In this way, Community Forestry enhances people's access to physical capital, improving their livelihoods. Households who have a private tap are responsible for the financing and repairing the leakages. A proper all-around maintenance check up would be ideal to prevent frequent leakages. This would also prevent recurrent diarrhoea outbreaks during the summer months, when water quality drops due to bacterial contamination.

4.4. CF and local livelihoods

As we have seen in the former Section of this Chapter, landscape images suggest that there was an increase in landscape greenery in and around Jiri after the implementation of Community Forestry. Although it is not yet confirmed that this increase in greenery is indeed relevant, we can deduce that CF has reached its first main aim: slow down the process of deforestation and increase greenery and biodiversity. From the above it is also clear that the access people have to firewood did not improve after the implementation of Community Forestry. The majority of interviewed households continue not to have access to firewood simply because the forest is too far. This is not only true for firewood, but also for other forest resources such as timber, fodder, medicinal plants or other NTFPs. Here we can argue that CF did not achieve its second main aim: to improve local livelihoods. This argument is not resolute though. Local livelihoods depend on various other aspects then access to natural resources only. This Section discusses the impact of CF on the different aspects of livelihoods.

Local livelihoods depend on the context people live in; the assets they have access to; the transforming structures and processes that are operating in and influencing a specific area or group; and the local livelihood strategies, such as individual or group activities, choices and life-styles (see Figure 1.3 and 1.5). The context people live in, that is to say, the local context of Nepal is outlined in Chapter 3 while a more detailed description of the local context of Jiri VDC is outlined in this Chapter. The transforming structures and processes that are operating in and influencing Jiri VCD are locally specific and therefore outlined, as far as possible, in this Chapter. The next Section concentrates on the different assets people have access to and on the local livelihood strategies.

Assets

There are five different assets that play a role in local livelihoods. These assets can be divided in natural, financial, physical, human and social capitals and are further defined in Chapter 1. Each of these capitals embraced various topics. Human capital, for example, embraces knowledge and skills, health status of individuals and the community, the ability to labour, etcetera. Since not all topics are influenced by CF, only those which are relevant are discussed in this Section. Topics that are addressed are: natural resources, both private and common (Natural Capital), household income, amount of livestock, amount of private land, communal funds and saving and credits groups (Financial Capital), construction and housing (Physical Capital), education and training (Human Capital); social cohesion and collective action, relationships of trust, participation of minorities, and equal access to resources (Social Capital). First an impression of the status of the different topics within each capital is given. Second the influence of Community Forestry on this topic is addressed.

Please note that the division of topics among the different assets not always clearly defined is. Water, for example, can be seen as a natural capital, while the tank where it is collected and the pipe in which it is transported can be seen as physical capitals. A single asset can, moreover, generate multiple benefits. Livestock, for example, may generate social capital for its owners (prestige and connectedness to the community) while at the same time being a physical capital (think of animal traction) and being in itself, natural capital. The amount of private land can be seen as a natural capital as well as a financial capital if owners are able to use the land to produce cash crops or as a warrant for loans.

The division of the different topics among capitals is done according to the local situation. Since, for example, private land is mainly used for subsistence agriculture and not directly for cash crop production or as a warrant for loans, it is seen as a natural capital. Livestock or livestock products, on the other hand, are regularly commercialized and therefore seen as a financial capital. This distinction is never clearly demarcated and should therefore not be seen in too narrow a perspective.

Natural Capital

Natural Capital comprises, among others, the natural resources people have access to from both private and common resources.

All the interviewed households own a piece of private land, which ranges between 2 and 180 *ropanis* or 0.1 and 9.1 hectares (ha), with an average 136 *ropani* (6.9 ha). More the half of them (56%) use their land for agricultural purposes only and do not have land covered with trees. Figure 4.6 shows the division of households that own land for agricultural purposes only; households that have some trees growing on the edge of their land; and households that own substantial piece of forested land.

Most of the agricultural practices are for subsistence. Only 25% of the interviewed households regularly sell the crops they produce as a source of income. To be able to do so, some take a loan from a saving and credits group. Saving and credit groups are further detailed in the Section financial capital. All other households use the crops they produce for survival, among which 25% sometimes do sell the crops they produce whenever cash is needed to buy clothes, rice, oil, etc.

As shown above, only 30% of the interviewed households have access to natural resources from Community Forestry. The remaining 70% manage to fulfil their resource needs from private land and/or national forest. Sixty-two percent of the interviewed households collect firewood from private land, either from their own land or from land of family and/or friends. For 60% of these households is this

firewood enough for their daily use. The remaining 40% also rely on other sources of firewood, such as national forest or community forest. The amount of trees growing on people's private land is variable. It ranges between 4-5 *ropanis* (0.2-0.25 ha) forest land to a few trees growing at the edge of their agricultural field. As shown in figure 4.6, 37% percent of the interviewed households have a substantial piece of land covered with trees which ranges between 1 and 6 *ropanis* (0.05 – 0.3ha). Those who completely rely on firewood from private land are not necessarily those who own a substantial piece of forest. Some households rely on firewood of private land of friends and/or family. Households consisting of a few members, can collect enough firewood for their daily use from the trees growing on the edge of their agricultural field, whereas other households who own large pieces of land covered with trees depend on other sources of firewood because their private land is, for example, situated in an area of difficult access.

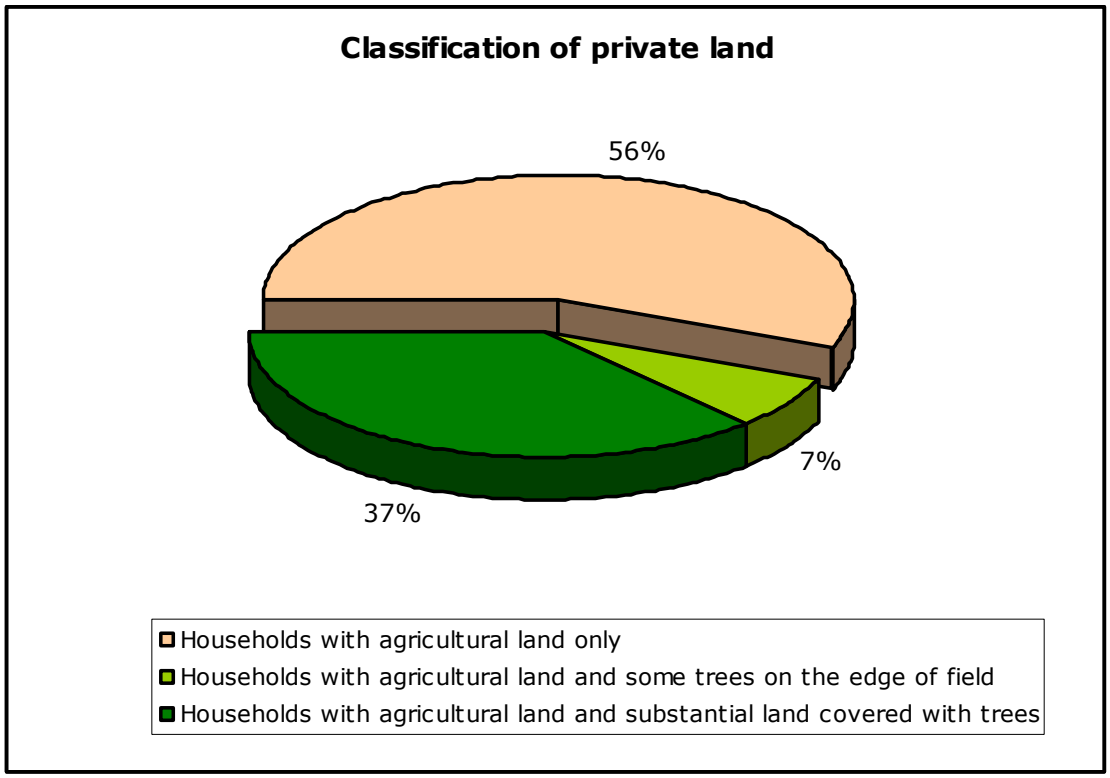

Figure 4.6: Classification of all households in: households that own agricultural land only; households that have some trees growing on the edge of their land; and households that own substantial piece of forested land.

Private land is thus an important source of natural resources. As shown above, the majority (62%) of the interviewed people rely on private land for firewood collection. From this, 60% rely on firewood from private land only. People who do not have much private land covered with trees are in a disadvantaged position. That is for those members of Thulonagi CFUG even worse, as they have difficult access to communal resources. The poor are again those who are in a more disadvantaged position since they do not have much private land. For an equal and fair division of resources the amount of forest land owned by a member of the CFUG should be

taken into account when determining the access he/she has to resources from the Community Forest[4].

Financial Capital

Financial Capital comprises, among others, household income, amount of livestock, amount of private land, saving and credits groups and communal fund. The amount of private land owned by Thulonagi CFUG members has been discussed in the previous Section.

As mentioned before, seventy-five percent of the interviewed households are engaged in some form of waged labour and depend on the income earned from this. A construction or agricultural worker earns about NRs50 (€0.50) a day. One of the interviewed households earns NRs50 a day during 2-3 months a year. That is the time that he/she is able to work on the agricultural fields of other land owners. This household consists of one person only. Together with the food that he/she produces on her own land, he/she is able to sustain his/her life the whole year around. Yet another household that earns the same is not capable to sustain its household which consists of 5 members.

A shopkeeper, a teacher or a governmental officer earn between NRs3000 and 8000 (€30-80) a month. All households earning NRs4.000 (€40) or more a month were able to sustain their lives. Five households (31%) considered themselves poor. One of them is certainly an Identified Poor household. Each of them earning less then NRs3.000 a month and depending on remittances or loans for their survival. Remittances vary drastically between NRs1.000 and 10.000 (€10-100) a month, depending on the amount of money the particular family member has to spare.

All interviewed households own livestock. Interestingly, chicken and pigs are not seen as livestock by the Nepalese. Therefore, no account of these animals has been taken during the interviews. The most common livestock are: goats, buffalos, oxes and cows. Cows, buffalos and goats are kept for milk production, while the latest two are also kept for meat production. Goats are sometime offered during religious rituals and the ox is used to plough the soil during soil preparation. The amount of livestock owned is not directly related to the well-being status of a household. Some poor households, for example, have a few cows and depend on their milk production, while other, better well-off households do not have any livestock because they own a shop and have no time to take care of it or the need for its benefits. Livestock is therefore not a good indicator for well-being.

Saving and credits groups were set up in the last few years as a part of the fight against poverty in the rural areas in Nepal. The implementation of these groups is often combined with different kind of training and education programs. Members of a saving and credit groups have to put a certain amount of money into the group fund every month. Once in a while they are able to withdraw a larger sum, which is often used to, for example, buy potatoes for planting; invest in goat or pig reproduction, construct or reform houses, etcetera. The interest rates are relatively low when compared to private money lenders or the government. There is, of course, no 100% recuperation - not all loans are paid back. From those interviewed households who took a loan from a saving and credit group, 40% have paid it back or expect to be able to pay it back completely within the next six months. The remaining 60% did not pay back anything yet, but many of them are still within the time range to do so.

[4] As an example, the social security wage in The Netherlands also works like that: as long as you have enough money in your savings account, the government will not provide you with income from social security, even if you do not have income from the labour market.

The benefits of these saving and credit groups have been mixed. All interviewed household that took a loan form a saving and credit groups were satisfied with it. Those who are able to pay back the loans are very satisfied with the benefits of the saving and credit groups. They invested the money in a small business, such as reproducing piglets or planting and selling potatoes. The remaining interviewees took loans to rebuild their house or to pay back loans that they had with family members. Those are still in debt with the saving and credit groups and do not have the possibility to pay back the loans within a short period of time. These saving and credit groups play an important role in many household livelihoods, mainly of the poor (Dev et al., 2003). Some projects seem to show positive results for thousands of poor Nepalese people. Others, however, have been closed down due to poor results in terms of better living conditions or ability of repayment (CARE International, unknown). Topics such as fluctuating income patterns, expenditure management, small-enterprise development or proper cash investment, should be addressed through, for example, workshops or trainings, so that members of a saving and credit group learn to use the loans in a proper way, are able to make profit, and repay the loans.

Each Community Forestry User Group (CFUG) administers a communal fund. This fund is expanded through the income generated from CFUG investments such as the shares Thulonagi possesses in the Everest Gateway Herbs Pvt. Ltd. The fund is further enhanced through the interest from loan investments, the sale of forest resources such as timber or firewood which is sold to outsiders or to households who need more timber/firewood then what is allocated to them. Thirty-one percent of the income generated in the last fiscal year (April 2005-March 2006) came from the sale of timber, while 5% came from the sale of firewood.

The communal fund is meant for works that are in benefit of the CFUG members, such as building bridges, improving quality of drinking water, constructing and maintaining roads and trails or guaranteeing access to electricity. The communal fund can therefore be seen as a way to achieve physical capital. This is however not the only expenditure of the communal fund. The communal fund is also used for other expenses such as the purchase of stationary materials for the Committee office, for the acquisition of forestry equipments, for the costs of trainings and of the lunches offered during these trainings, for providing loans to users to purchase construction materials, etcetera. It is furthermore used to support the more disadvantaged households, such as the Identified Poor households. CFUG does that by, for example, offering scholarship and or school uniforms to their children or by offering specific trainings on poverty alleviation, enterprise development or income management. Community Forestry therefore directly and indirectly enhances the financial capital of her members. The first is obtained by supporting members financially (e.g. scholarships), while the second is achieved through the provision of trainings or through investing in works that are of communal interest.

Saving and credits groups are, until now, mainly established independently from Community Forestry User Groups (CFUGs). CFUGs committee members are still hesitant about micro-credits as they are unsure how to administer it, they do not trust their members to repay the loans and they see these micro-credits as a direct competition for their own money lending services (Dev, 2003).

Physical Capital

Physical capital comprises, among others, construction and housing.

As mentioned before, works that benefit the whole community, such as building bridges, improving quality of drinking water, constructing and maintaining roads and trails or guaranteeing access to electricity are financed from the communal fund. In other words, Thulonagi CFUG invests in the physical capital of the

local community. Besides these works, Thulonagi CFUG also provides timber from the forest. This timber has to be collected from dead, dying or decaying trees. If those are not available, top dying, diseased or over matured trees can also be used. Timber is used for the construction of houses, schools or shops (Figure 4.7 shows a few pictures from construction work in progress). Timber from the Thulonagi forest is sold to its users at a rate of NRs10 (€0.10) per cft. Outsiders can purchase timber from Thulonagi forest at a rate of NRs40 (€0.40) per cft. The income generated from the sale of timber is put into the communal fund. From April 2006 to March 2007 (last fiscal year before the publication of the last Self Monitoring Book), 1580 cu.ft. of timber was extracted from Thulonagi Community Forest. This is about 30% of the annual amount that can be extracted, data based on an inventory (Thulonagi, 2007). It is not clear how much from this timber is sold to its members or to outsiders. Households who suffered damage on their house due to natural disasters such as earthquakes or landslides receive 100cft of timber free of cost. Timber needed for the construction of school buildings in Ward 8 and 9 of Jiri VDC will be provided for free as per rate of the school users.

Human Capital

Human capital comprises, among others, skills acquired through education and training.

Fifty percent of the interviewed people never enjoyed any formal education. A few of these mentioned that they are able to recognize the letters but that they have difficulties to read. The Nepali educational system knows ten years of primary and secondary education (grades one to ten), which typically begins at the age of 6 years and lasts until the age of 16. At the end of grade 10 School Leaving Certificate (SLC) examinations are held nationally. After SLC pupils can join the higher secondary levels of grade 11 and 12. The level of education of the other interviewees varies between first and 12^{th} grade. Only two interviewees were able to pass the SLC examinations. One of them finished the 12^{th} grade.

Male educational levels are in general higher then of females. From those who enjoyed formal education, 63% are male. This corresponds to the national figures, where literacy levels are respectively 62.7% and 34.9% for the male and female population above the age of 15 who can read and write (CIA - The World Fact Book, 2008, based on data from 2001). School life expectancy is 10 years for the male and of 8 years for the female population (CIA - The World Fact Book, 2008, based on data from 2003).

Educational levels of the second generation, that is to say, of the children of the interviewed people is considerably higher then that of their parents. This is both valid for boys as well as for girls. The children from those interviewees who never enjoyed formal education are frequenting school. Many of them have reached the secondary educational levels, that is to say, the 8^{th} class or higher. One interviewee, who himself never got any education, never sent his children to school when they had the right age for that. He needed them to work in the agricultural fields. All others interviewees sent their children to school. One of the interviewees, an uneducated lady, even sent her son to a boarding school, which are generally of a better quality then public schools, but more expensive.

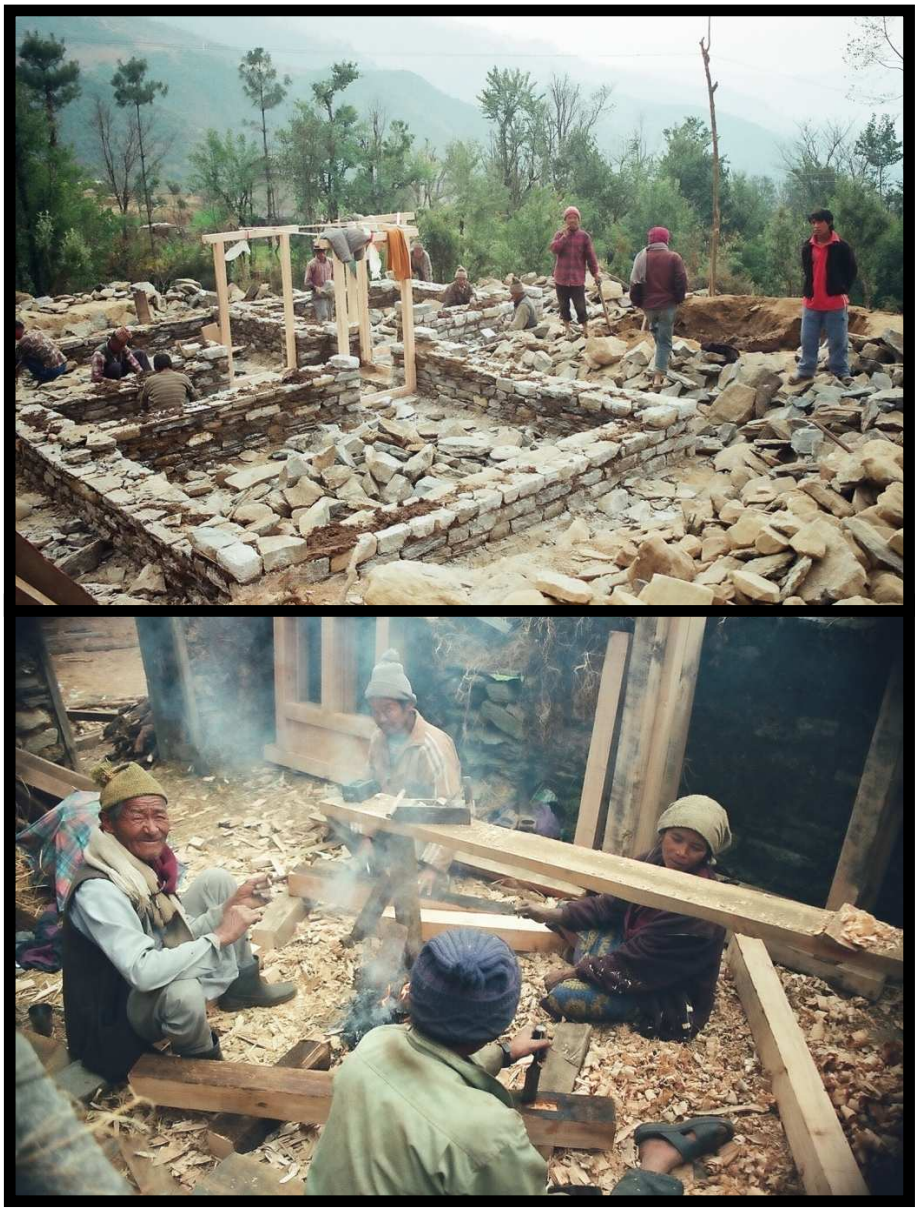

Figure 4.7: Construction work in progress around Jiri Bazaar (Upper picture by P.Sequeira, bottom picture by S. Groenendijk)

Social Capital

Social Capital comprises, among others, social cohesion and collective action, participation of minorities, relationships of trust and equal access to resources. Each of these topics are explained and related to CF below.

Social Cohesion and Collective Action

Social cohesion is the process of developing a community of shared values, shared challenges and equal opportunities. It is based on a sense of trust, hope and reciprocity so that people can work together (collective action) as opposed to social divisions normally associated with gaps between the rich and poor or between castes. It is, in other words, the bonds or "glue" that brings people together in

society, particularly in the context of cultural diversity. Collective action is the pursuit of a goal or set of goals by more than one person. If all members of a group have the same values, challenges or interests (and thus social cohesion), they are more eager to work together and to achieve their common goals. Community Forestry is an example of a form of organization that stimulates both social cohesion as well as collective action. CF facilitated and structuralized the process of group formation, of rising and sharing a common interest and of collective action. This is also the case in Jiri.

All inhabitants of Jiri are members of at least one CFUG. The reasons given by the interviewees to become a member were: influence of neighbours, friends and family who are also (becoming) a member; protection against deforestation; and more and easier access to firewood and timber. More and easier access to forest resources was, in the time CF was being implemented, assured to those who wanted to become a member. As shown in the previous Section, this appeared not to be the case for most of Thulonagi's members. Most of the interviewed households did therefore not become a member with the idea of social cohesion or collective action. Active participation in Community Forestry matters is concentrated on 35% of the members only. The majority of the Thulonagi's members is not directly involved in CF and participates only passively in its process. All households visit the general assembly meetings, or *amsabha,* which are held at least 2 times a year and last the whole day, from 10am to 16pm. One representative of each household is expected to be present during the a*msabha* meetings, which are held by the CFUG committee members in order to inform all members about new developments in CF, such as new rules and regulations, forest status, availability of natural resources, etcetera. The household member who visits the general assembly meetings is supposed to transpose the information gathered to his/her family members. This is not always the case. Some of the interviewed people, all of which women, assumed not to know anything about Community Forestry and where clearly unable to give answers related to CF. There are different reasons for a household to participate in the general assembly meetings. The two most common reasons were: because they are invited or to obtain news regarding the group funds, available resources and/or new rules and regulations regarding the forest (each of these reasons was mentioned by 43% of the interviewees that visit *amsabha* meetings). One interviewee even commented that he goes to the meetings because fines are given for those households who are not present. This has not been confirmed by other interviewees, neither by the Community Forestry committee members.

During *amsabha* meetings the discussion is concentrated in the male section. Most of the participants, mainly the female, do not speak out their opinion. From the interviewed people who participate in the *amsabha* meetings, only three dare to give their opinion during the meeting, two of which are former members of the CFUG committee. Others do not have the courage to speak during the meeting, afraid that others will not listen or of what they would think. This is further illustrated below. Those who actively participate in the Community Forestry matters are those who belong (or belonged) to the CFUG committee. The Thulonagi CFUG committee knows today gender and caste equity. From its 13 members are 7 female and 6 male, two from the lowest castes, the *Dalits*, 9 from the middle castes, the Ethnics and 2 from the highest castes, the BCN. However, achieving gender and equity goals is far more complex than simply giving disadvantaged people a place on committees and in assemblies. Many of the current project activities of NSCFP are oriented towards the empowerment of the marginalized socially, economically and politically.

From the above it is clear that social cohesion and collective action through Community Forestry did not reach the whole population of Thulonagi CFUG. Although all its inhabitants are members of a CFUG, most people do not participate directly

and minorities are still excluded from CF issues, either because their inclusion is not stimulated, either because they do not dare to actively participate.

Participation of Minorities
Although NSCFP is recently putting effort in the participation of minorities, there is still a long way to go. Most CFUG committees already enjoy gender equality and proportional representation of caste among its members, but there is still clear discrimination based on caste. Gender issues are also reflected at household level, where women often say that they do not know much about CF and that their husband is the one involved in it. One of the interviewees even refused to be interviewed, she was convinced she did not know anything about CF and we were practically forced to interview her husband instead. I can imagine that the women would have reacted differently if her husband was not around. She would have had to courage to undertake the interview and to speak up her mind about what she does know. This confirms the disadvantaged position many women still have inside their households.

The Everest Gateway Herbs Pvt. Ltd. is a good example of a project where minorities, in this case the poor, participated. Although the poor are not yet profiting as shareholders, they enjoy seasonal wages from the collection and processing of natural resources, in this case *lokta*.

Relationships of Trust
Community Forestry is characterized by the involvement of a multiplicity of actors, both within and outside the community. Trust is therefore essential. Not only trust in the organization that implements CF, but also mutual trust among all members. In this research trust is reflected as the courage people have to give their opinion during CFUG meetings, the fact they think others listen to what they have to say and the fact that they discuss forest matters outside meeting times.

During general assembly meetings very few CFUG members have the courage to give their opinion. As mentioned above, only three of the interviewed people give their opinion during meetings. They believe others will not listen to what they have to say because they or that what they have to say are not important enough. On the other hand committee members, who lead the meeting do not stimulate participants to speak. The discussions during these meetings are between a few only. This can be illustrated by two examples from different interviewees: "*I never give my opinion during meetings because there is no time. Others are always talking and discussing, leaving no time for me to speak*" and "*I don't know how to speak out during meetings… therefore I never give my opinion".* Both examples show that people do not have the courage to give their opinion during meetings. In the first example the woman complains about a lack of time. I believe that time is a relative concept – if she really wants to say something, time will be made free for her. This situation is slowly changing though. Minorities (mainly women) received training to increase their self-confidence, while other members are learning to show respect and to listen to what everyone has to say. All participants contribute when voting is needed. *Amsabha* meetings are, furthermore, visited by many individuals. The last general assembly meeting held by Thulonagi CFUG was visited by 192 household representatives. In such a situation it is practically impossible that all participants give their opinion. This role division is not uncommon during meetings with many participants. Some people will always be more assertive then others and have the lead over the conversation flow. Those who are not so assertive have great difficulties to express themselves in front of the public.

Those who now have the courage to give their opinions are those who enjoy a certain position within the community, such as former committee members, governmental forest officers, people with high socio-economic status, such as well educated, high caste and well-off people. One of the interviewee commented: *"I do sometimes speak out my opinion during meetings. Not everyone listens to what I have to say, but some do. I think they mainly listen because I am a forester"*. In this case, those who listen to what he has to say have trust in this particular person since he is supposed to be knowledgeable and he enjoys a certain position. A few people (31% of the interviewees) discuss forest matters outside the CFUG meetings. If they do so, it mostly happens just before or after the meeting. Those who discuss forest matters outside meeting times are, again, those who are strongly involved with CF or who have a certain status.

Equal Access to Resources
The distribution of resources from Community Forests, such as timber, firewood, and fodder, is based on the household needs. Family size is an important criterion that determines the amount of resources allocated to a specific household. Although CF resources are fairly distributed at the Thulonagi CFUG, most people do not benefit from these resources because the forest is too far away - they have no access to it. Those who have better economic conditions have more access to forest resources since they can hire someone to collect their resources and/or since they often possess a piece of land where trees for fire wood / timber are standing. Those who have trees standing on their private land or who live close to a piece of natural forest are able to collect their wood from there, while others can get firewood from friends and family members who have larger pieces of land covered with trees. This situation did not change in the last 12 years. Only one interviewee said that he is profiting from the trees that he planted on his land about 10-15 years ago.

Livelihood strategies

Livelihood strategies comprise, as explained in the Theoretical Framework in Chapter 1, activities, choices and life-styles. Livelihood strategies are difficult to measure. Although they are very personal and vary from one person to the other, Community Forestry can still influence them. CF influences people's activities, choices and life-styles in different ways. Below I give a few examples.

Through the implementation of rules, regulations and penalties people have started to change their behaviour toward resource extraction and use. This behaviour was not only influenced through the implementation of rules, regulations and penalties, but also through the involvement of the local community on forest affairs. CF has influenced the consciousness of the local community on forest conservation and on the sustainable use of natural resources. As shown before, 31% of the interviewed people are choosing for economic use of firewood and/or the use of firewood saving mechanisms, even if that implies that they have less heating in the winter months. Their life-styles regarding living conditions and the use of natural resources have therefore changed.

Through the implementation of CF people are participating more in communal affairs, such as meetings, structured forest management practices or day-to-day activities. CF therefore partially influenced and changed the activities of most, if not all CFUG members. CF completely changed the daily activities of some of its members. This is mainly valid for those who are now engaged in practices supported by CF, such as the 'Identified Poor households' who are now working on the collection and processing of *lokta,* in the Everest Gateway Herbs Pvt. Ltd.

The next Section summarizes Thulonagi CFUG's main achievements and challenges related to Community Forestry. It furthermore extracts and outlines the lessons that can be taken on board during the implementation of CF in Gumdel VDC.

4.5. Conclusion

Community Forestry has had different impacts on local livelihoods in Thulonagi CFUG. Although the minority of its members have access to forest resources from CF, the number and species diversity of plants and wildlife enhanced and the occurrence of land slides decreased. CF also had other positive impacts. Local consciousness on sustainable and economic resource use increased. Although disadvantaged households and minorities are not always fully involved in CFUG matters, serious attempts to include them have been undertaken. Thulonagi CFUG is, for example, trying to enhance the livelihoods of 'Identified Poor households' by involving them in enterprise development and by giving them job opportunities. Other aspects of livelihoods are also influenced by Community Forestry. Thulonagi CFUG owns a communal fund from which it can provide a few loans (financial capital), invest in physical infrastructure such as road construction and maintenance (physical capital), provide training and give subsidies for education of its members (human capital). Thulonagi CFUG furthermore enhances social cohesion, collective action and relationships of trust (social capital), although among a few members only. Moreover, Thulonagi CFUG can be seen as a robust, long-enduring institution as it fulfils many of the design principles elaborated by Becker and Ostrom (1995) and outlined in Table 1.2. This is furthermore enforced by the fact that Thulonagi CFUG exists for more then 10 years and that it survived the long lasting Maoist conflict, during which they undertook various responsibilities which are reflected until today.

Community Forestry, however, still has many challenges to overcome, such as: achieving maximum profit from the communal forests, that is to say, reaching the harvestable rates for resource extraction; improve access and better distribution of resources; stimulate effective and not wasteful use of natural resources through, for example, firewood saving mechanisms; stimulate income generating activities such as small enterprise development and business initiation through, for example, provision of loans and training on financial management to members; stimulate full participation of all its members in CF matters (specially of minorities); and reduce caste discrimination and enhance social acceptance.

Both the achievements and challenges of Thulonagi CFUG should be taken into account while shaping Community Forestry in Gumdel VDC. Lessons learned from Thulonagi CFUG that can be taken on board during the implementation of Community Forestry in Gumdel VDC are:

- Equal access to natural resources to all members is not self-evident. Although resources are fairly divided among CFUG member according to household size, many members do not have access to resources from communal forests simply because the forest is too far. A proper selection of forests that are going to be handed over and of its users can solve this problem.
- Consciousness on the importance of resource conservation enhances the economic use of firewood and of firewood saving mechanisms.
- Provision of micro-credits has positive influence on CFUG member's financial capital on the condition that these credits are invested and managed properly.

These micro-credits can be provided by savings and credit groups or by the CFUG itself.
- Investments from CFUG in infrastructure enhance its member's physical capital.
- Investments from CFUG in education and training not only enhance its member's human capital but also positively influence their financial capital, as members become more skilled and are able to adopt different income generating activities.

Other lessons that can be taken on board during the implementation of CF in Gumdel VDC that are not directly extracted from the Community Forestry efforts in Thulonagi CFUG, but that are extracted from secondary data include:
- A lack of conceptual consistency, agreed criteria and scarcity of comparable data makes it more difficult to measure and compare the successes of CF (Harrison and Suh, 2004; Poteete and Ostrom, 2004).
- Overprotection of forests leads to sub-optimal use of resources. Forest management activities concentrated on the extraction of dead, dying or decaying material only result in sub-optimal use of forest capacity (Acharya, 2002; Shrestha, 2000).
- Users are more likely to follow rules and to monitor others when they are genuinely involved in decisions regarding these rules (Ostrom and Nagendra, 2006).
- Including minorities in decision making processes avoids conflict, and enhances social capital and institutional robustness (Ostrom and Nagendra, 2006; NSCFP, 2007b).
- Institutions are more robust and therefore sustainable if: there is equal and fair distribution of benefits from Community Forestry; monitors are accountable to the CFUG users; users who violate the rules receive graduated sanctions; and if there is an accessible arena to resolve conflicts (Becker and Ostrom, 1995).

The above lessons are used during the formulation of recommendations for the implementation of CF in Gumdel VDC. These recommendations are outlined in next Chapter, Shaping CF in Gumdel VDC. However, the next Chapter starts with an introduction into Gumdel VDC, an overview of the quality and quantity of natural resources and the livelihoods of the local community.

5. Shaping CF in Gumdel VDC

The previous Chapter focused on CF in Nepal, more precisely in Thulonagi CFUG. Its different aspects, implementation process and general characteristics were outlined, as well as the changes in quality and quantity of natural resources and the effects of CF on local livelihoods. This Chapter gives an overview of Gumdel VDC, including the changes in quality and quantity of natural resources and an overview of the local livelihoods. Fulfilling the aim of this research, the last Section gives recommendations for the implementation of Community Forestry in Gumdel VDC, based on lessons learned in Jiri at the Thulonagi CFUG and on secondary data collected from reports, literature or the internet.

5.1. Gumdel VDC

Gumdel is the most northern Village Development Committee of the District of Ramechhap, in Eastern Nepal (see Figure 1.2). It is considered a remote area due to its distance to the nearest accessible road. Gumdel is situated at a two days hike from the end of the nearest accessible road, which is either in Jiri or, if possible, in Sivalaya. Many Nepalese, however, are able to cover this distance in half of the time mentioned above. Gumdel is, as all other VDCs in Nepal, geographically divided into nine Wards. These Wards are situated in the southern half of the VDC and have an altitude variation between 2000 and 3950m. There are no permanent human settlements in the northern half of the VDC as altitudes rise quickly. Gumdel's highest point is Mount Numbur, at 6956m. Since there is a high altitude variation, climate varies considerably between cold temperate and alpine. There are about 570 households living in Gumdel, about one third of the population of Jiri VDC. Since Gumdel VDC is about six times as big as Jiri VDC, its demographic density is very low. The majority of Gumdel inhabitants are Sherpas, an ethnic group that belongs to the Ethnic group of castes. The number and percentage of households in each caste group (BCN, Ethnic and *Dalit*) are shown in Table 5.1, divided by Ward number.

Table 5.1: Number of households in each Ward in Gumdel VDC, divided by caste.

Ward number	Caste			Total
	BCN	Ethnic	*Dalit*	
1	4	42	0	46
2	5	102	4	111
3	1	73	0	74
4	28	32	27	87
5	41	5	3	49
6	9	24	6	39
7	40	7	0	47
8	69	3	2	74
9	31	10	2	43
Total	**228**	**298**	**44**	**570**
% of total	**40%**	**52%**	**8%**	

Each Ward has a small Ward-centre, that is to say, a patch of land where a few households are agglomerated. Gumdel's Ward-centres are not as livelily as in Jiri Bazaar since little commercial activity takes place. The most livelily Ward-centre is of Ward number three, where a primary school and a small tea-house/canteen are built. Children from the surrounding Wards have to walk up to 2 hours, often over very narrow and steep paths, to reach the school. The tea-house sells industrialized crackers and cookies and serves small home-made snacks such as soup, noodles or curries as well as whole meals such as *dal bhaat* (typical Nepali food, rice and lentils soup). The tea-house also functions as a 'hotel', whenever there are guests and as a social meeting place where all (male) teachers come together after school time to drink locally produced wine or Chinese whiskey.

Away from these Ward-centres households are scattered along the edges of the valley. The landscape is a mixture between scattered households, home gardens and various sized patches of forest (see Figure 5.1). These forests often have one dominant species. Different forest types can be recognized ranging from lower to higher altitudes (Lama, 2006), such as, respectively: *Kashro* forests (*Quercus semicarpifolia*); *Gurans* forests (*Rhododendron arboretum*); *Thingure Salla* forests (*Abies spectabilis*); *Dhupi* forests (*Juniperus indica*); and *Chimal* and *Sunpati* forests (*Rhododendron spp. a*nd *R. anthopogon)*. Typically, Ethnic households – who traditionally originate from Tibet - live in the higher parts of the valley, on top of the hills, while BCN and *Dalit* households – who traditionally originate from India - live in the lower areas along the river. Ethnic households are primarily engaged in livestock farming. A common livestock is *Chauri*, a crossing between the Yak and a local hill cow which is suitable for nomadic farming in relative lower altitudes when compared to Yak farming. *Chauris* are kept for milk (and subsequently cheese and butter) production and are a relatively good source of income. BCN and *Dalit* households are primarily engaged in farming activities. Labour activities such as construction work or portering are not uncommon. Since Gumdel is situated north from the Jiri-Everest track, there is no tourism in the area. Due to its remoteness, little trade is done with other neighbouring areas or with the capital, Kathmandu. Some trade, although little, is done around livestock products (milk, cheese, butter), handicrafts and NTFPs (Lama, 2007). Gumdel's inhabitants have, when compared to Jiri, little cash income, although remittances are for many an important source of revenue. Subsistence agriculture is therefore an important food source. Maize, wheat, finger millet and potato are cultivated in the lower belt of high altitude pastoral system (2600 -3000 m) whereas wheat and barley are major crops in the upper belt (3000 -3800 m) (Pradhan, *et al.*, unknown). Due to the harsh climate conditions annual food deficit is severe at high altitude regions. A substantial part of the population therefore depends on the products of nomadic animal husbandry.

Gumdel produces it own electricity using small hydropower stations. These stations produce enough electricity to provide some households with power during a few hours a day. Households have access to electricity between sunset and bed-time (around 10/11pm) and between the start of the day (around 5/6am) and sunrise. Households can order electricity if they need it at other moments of the day. These small hydropower stations produce irregular electricity with less then 10 megawatts, enough for households to light up some bulbs, play a little radio or for me to charge my laptop. There is no fixed-line phone service in Gumdel and mobile phone coverage is minimal. Messages can be transferred through a radio which is located at the hotel/canteen in Ward number 3, from where it is verbally delivered to the recipient.

Figure 5.1: Gumdel VDC. 1. Two Hindu interviewees. 2. Couple ploughing their land with the help of an ox. 3. Walking towards Gumdel VDC. Note the scattered households and the forests in the higher parts of the hill. 4. The school at the Ward-centre of Ward nr.3 in Gumdel VDC at the end of the day. 5. Landscape along the path in Gumdel VDC. Note the forest and the empty terraces on the steep hills. 6. Typical landscape in Gumdel VDC. Note the multi-storey house, the wheat plantation on the foreground and the gathering of people due to election campaigns (all pictures by S.Groenendijk).

During our stay in Gumdel we slept a few nights at the hotel/canteen mentioned above and at different households, acquaintances of Dawa (my translator and colleague researcher from NSCFP). Most Nepalese houses are two-floored, the outside walls built out of stone and cow dunk and the inner walls and floor of wood.

The lower storey is often meant for livestock keeping, while the upper storey is the family's living space. The upper storey often consists of a kitchen and one or two bedrooms. Wooden benches covered with a thin carpet serve as beds. As guest we were often offered one of the rooms for ourselves, a luxury that not all households could offer. Customs and traditions vary from one ethnic group to another. At a Sherpa family the kitchen is the family gathering place. While the female family members light the cooking fire and prepared dinner, men sit on benches around the fire (see Figure 5.2). Specific positions around the fire are reserved for specific family members. The place closest to the fire is offered to the oldest man of the family (either the father or grand-father). Female family members are expected to sit on the floor while visitors join the men on the benches but are not supposed to sit close to the fire. Once men and visitors have eaten enough, female family members start their dinner. Settings are slightly different with a Hindu family, where members usually do not gather around the fire during dinner preparation. Family members are only gathered once the food is already prepared. Soon after dinner women disappear to do the dishes while man engage in other activities such as chatting with visitors.

Due to its remoteness Community Forestry in Gumdel VDC is still in its implementation process. Three different patches of forest and its users have already been recognized. Two of these patches of forest have recently been handed over to the community, whereby the CFUGs of 'Kang Chhorten' and 'Borjung' have been formed. Soon the third patch of forest will be handed over whereby 'Serding Borjung' CFUG will be formed. Since Community Forestry has only recently been introduced in Gumdel, I cannot speak of changes in the quality and quantity of natural resources after the implementation of CF. Even though, the next Section gives an overview of the changes in the quality and quantity of natural resources from a local perspective over the last 12 years, the same time scale used for Thulonagi CFUG. After that I give an overview of local livelihoods, people's assets and livelihood strategies, and I give an overview of some issues learned from CF in Jiri VDC and how this can be used in Gumdel.

5.2. Changes in quality and quantity of Natural Resources in Gumdel VDC

This Section gives an overview of the main changes that occurred in the quality and quantity of a two natural resources, respectively firewood and water, in the last twelve years in Gumdel VDC, from a local perspective. Whenever possible a comparison is made with Thulonagi CFUG in Jiri VDC.

Firewood

In Gumdel VDC firewood is practically the only available source of fuel for cooking and heating. Where there is shortage of fuel wood, inhabitants use leaf litters, such as dried leaves, twigs or corn sticks. Although not encountered during this research, there are a few households which also use biogas (Lama, 2006). The main firewood species used in the higher parts of the valley are *Gurans* (*Rhododendron arboretum*) *Thingure Salla* (*Abies spectabilis*) and to a lesser extend *Kashro* (*Quercus semicarpifolia*). At the bottom of the hills, along the riversides, people mainly use *Utis* (*Alnus nepalensis*). Overall, *Kashro* (*Quercus semicarpifolia*) is considered the best firewood species available. Equivalent to Jiri, *Kashro* is nowadays not being used

for firewood as often because of the scarce availability of this species and because of its importance as fodder source. On average 42Kg of firewood are used by each household per day. This corresponds to a little less then one *bari.*

Figure 5.2: 1. Sherpa household whereby female family members prepare food while sitting on the floor and male household members sit on the bench close to the fire. 2. Hindu household whereby women prepare food in the 'kitchen' and men occupy themselves with other things - in this case chatting with visitors (both pictures by S.Groenendijk).

Curiously, the majority of the households (81%) in Gumdel VDC noticed a change in the quantity and/or in the quality of the available firewood species over the past 12 years. In general terms they argued that, twelve years ago, there was more firewood available; there were bigger/thicker trees growing in the forest; there were more forests close to the settlements; and there was more *Kashro* available. Gumdel distinguishes itself in this regard from Jiri VDC and Thulonagi CFUG, whose inhabitants did not notice a change in the quality and/or quantity of firewood over the last twelve years as vividly as in Gumdel. The change in forest availability over the last 12 years is thus larger in Gumdel than in Jiri VDC. Deforestation in Gumdel is apparently a more recent process. Although no information is found on the first human settlements in both areas, it can be assumed that Jiri, due to its milder climatic conditions, its proximity to the capital and its position within the ancient trade-route Kathmandu-Solukhumbu, has an older settlement history and a larger population density when compared to Gumdel. Considering Jiri's earlier human settlement and its larger population density, together with the recurring inappropriate national forest policies (see Chapter 3), it can be assumed that forests in Jiri suffered from deforestation on an earlier stage when compared to Gumdel. The process of deforestation is thus relatively older in Jiri than in Gumdel. This thought is supported by the landscape images shown in Figure 4.3a and 4.3b, where it is clearly visible that the process of deforestation in Jiri goes back to the 1970's, that is to say, more then 30 years ago. As deforestation in Jiri VDC happened before the time-period this study (the last 12 years), inhabitants of Thulonagi CFUG did not notice a change in the quality and/or quantity of firewood over the last twelve years as vividly as the inhabitants of Gumdel did.

Although most inhabitants of Gumdel noticed a significant change in the quantity and/or quality of the available firewood species over the past 12 years, the amount of firewood used by an individual household did not fundamentally change over the past 12 years. Four out of the sixteen interviewees (25%) mentioned that they are using less firewood today as compared to 12 years ago because of a decrease in the availability of firewood. While 56% of the interviewed households experienced an increase or decrease in the amount of firewood used due to a corresponding increase or decrease in amount of household members, 18% did not experience any change in the amount of firewood used over the last twelve years. Although only one interviewee possessed a firewood saving mechanism (a fan system that blows air into the fire and makes it therefore hotter), the vast majority of the other interviewees (86%) where planning to purchase an improved stove in the near future. About 20% furthermore commented that they started to use firewood economically by using small branches and leaf litter and by not leaving the fire on the whole day. Consciousness about the importance of sustainable use of natural resources is rising.

As in Thulonagi CFUG, it is not self-evident that all households use more firewood in the winter months to fight the cold. In Gumdel VDC 30% of the interviewed households use more firewood in the winter months to fight the cold, while 38% of the households need more firewood in the summer months, during the monsoons. All other households need equal amounts of firewood whole year around. Firewood can be purchased at a rate of about Nr 70 per *bari* (≈ € 0.70 per 50Kg), which is remarkable since there is little cash money circulating in Gumdel. Only a few of the interviewed households (12%) purchase firewood from private landowners. Again 12% collect firewood from private landowners but, instead of purchasing it, they compensate by working on their fields from time to time. Sixty-two percent of the interviewed households own a piece of private land which is covered with threes. Curiously, none of them collects firewood solely from their own private land. National forests are the main source of firewood collection for most interviewed households as

75% of them collect firewood either exclusively or partially from national forests. This indicates the good accessibility of forest resources. One would think that, once these national forests are transformed to communal forests, households will not have as much difficulty to access forest resources as they do in Thulonagi CFUG, where only 30% of the interviewed households have access to communal forests and private land is the main source of firewood. However, 77% of the interviewed households in Gumdel VDC believe that CF will not affect their access to firewood because the corresponding communal forest is too far. Only one interviewee believes that CF will positively affect his access to firewood, while the remaining 15% have no opinion or do not know.

This brings up various questions: how are the identifications of forest users and of national forests that are going to be handed over to the community carried out? Are they done properly? What are the criteria for the selection of 'traditional users' and of 'potential communal forests'? If members do not have the means to reach the communal forests simply because it is too far, why are explicitly those forests handed over to them? Alas, not all answers to these questions have been found. The selection of traditional users is not always done carefully. Traditional users of a specific piece of forest are selected by the users themselves (Chapagain, Kanel, and Regmi, 1999). Households that do not visit this specific piece of forest regularly but do, for example, visit it only once in a year are also considered 'traditional users'. In theory this selection process should be long and involved, but in practice it is often truncated and less than thorough (Pokharel, 1997; Springate-Baginski, Soussan, Dev, Yadav, and Kiff, 2001; Thoms, 2004).

Water

All inhabitants of Gumdel VDC have good access to quality water. Most water supply infrastructures have been provided by the government and exist for 8-15 years. As in Jiri, the government financed the building of water tanks, pipe systems and water taps in strategic places spread throughout the settlements. Villagers who wanted to have water closer to their house could build another pipe system originating from this central tap towards their house. All interviewed households have, nowadays, a water tap in or close to their house. Those who formerly did not have a water tap close to their house used to collect water from traditional water wells (*khuas*) or small water streams. Today, sixty-two percent of the interviewed households have a private water tap, that is to say, a tap that is used by their household only. The remaining 38% of the households share their water tap with other households.

On average, a household in Gumdel uses 65L of water a day, which includes human consumption, cooking and livestock feeding. This does not include dish washing nor doing the laundry or showering, activities that often take place at the water tap itself. Many of the water taps have water running constantly. The actual amount of water being exhausted is therefore many times higher. Most households are satisfied with the quality of the water provided through the tap. Two households, however, complained about mud and frogspawn in their water as their water originates from a swamp. Moreover, eighteen percent of the interviewed households complained about recent and frequent leakages in the water pipe system, which caused dust and mud to penetrate into the water.

5.3. Local livelihoods

Local livelihoods depend on the context people live in; the assets they have access to; the transforming structures and processes that are operating in and influencing a specific area or group; and the local livelihood strategies, such as individual or group activities, choices and life-styles (DIFID, 1999, see Figure 1.3 and 1.5). The context people live in, that is to say, the local context of Nepal is outlined in Chapter 3, while a more detailed description of the local context of Gumdel VDC is outlined in this Chapter. The transforming structures and processes that are operating in and influencing Gumdel VCD are locally specific and therefore outlined, as far as possible, in this Chapter. The next Section concentrates on the different assets people have access to. This Section discusses the topics that are relevant for Gumdel VDC only. Since Community Forestry is still in its implementation process, not all topics discussed for Thulonagi CFUG are relevant here, neither can the effects of CF on local livelihoods be outlined. Therefore this Section gives an assessment of the present situation.

Assets

There are five different assets that play a role in local livelihoods. These assets can be divided in natural, financial, physical, human and social capitals and are further defined in Chapter 1, in the Theoretical Framework. Each capital embraces various topics. Topics that are addressed are: natural resources, both private and common (Natural Capital), household income, amount of livestock and amount of private land (Financial Capital), construction and housing (Physical Capital), education and training (Human Capital); social cohesion and collective action, relationships of trust, participation of minorities, and equal access to resources (Social Capital). Please note that, also here, the division of topics among the different assets is not always clearly defined. This division depends on the local situation. This distinction is never clearly demarcated and should therefore not be seen in too narrow a perspective.

Natural Capital
Natural Capital comprises, among others, the natural resources people have access to from both private and common resources. All the interviewed households own a piece of private land, which ranges between 2 and 40 *ropanis* (0.1 and 2 ha), with an average of 19.5 *ropanis* (≈ 1 ha). This land is primarily used for agricultural purposes. Nevertheless, only 19% of the interviewed households now and then sell part of the crops they produce, varying between 30-60Kg a year. Sixty-tree percent of the interviewed households own a piece of land which is covered with trees, either by a few trees on the edge of their field or by substantial pieces of forest. Figure 5.3 shows the division of households that own land for agricultural purposes only; households that have some trees growing on the edge of their land; and households that own substantial piece of forested land.

Natural resources in Gumdel VDC are collected from both private land and national forests. As mentioned before, 75% percent of the interviewed households collect firewood either exclusively or partially from national forests. National forests are the main source of firewood, unlike Jiri, where 62% of the interviewed households rely on private land for firewood collection.

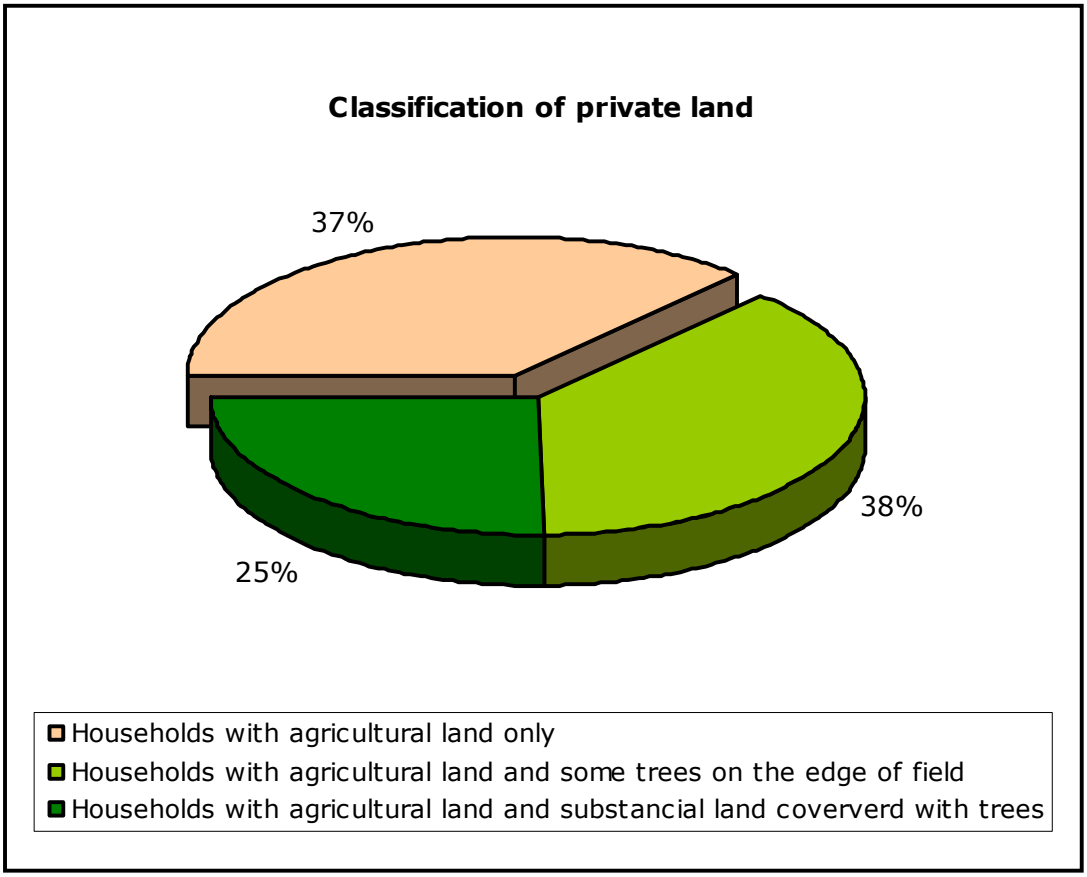

Figure 5.3: Classification of all households in: households that own agricultural land only; households that have some trees growing on the edge of their land; and households that own substantial piece of forested land.

Financial Capital

Financial Capital comprises, among others, household income, amount of livestock and amount of private land. Unlike Jiri, there are no saving and credits groups in Gumdel VDC neither is there a communal fund. The latter will be set up in the near future through Community Forestry. This Section discusses household income and amount of livestock only, as the amount of private land has been discussed in the previous Section.

Often, when questioned about income, interviewees speak about months of food security and not directly about cash income. All households are engaged in subsistence agriculture as their main daily activity. About 31% of the interviewed households have no, or barely any, regular cash income. They depend on the crop production of their agricultural fields, loans and on erratic jobs such as construction work. Another 31% of the interviewed households have somewhat regular cash income from livestock. The profit generated from livestock varies between NRs 3000 to 60000 (€ 30-600) a year. Nineteen percent of the interviewed households furthermore earn some cash trough waged labour such as construction work and labour on agricultural fields. The income generated here varies between 10 and 15 thousand Nepalese rupees (€100-150) a year. The remaining three interviewees receive income from small household level enterprises: a rice beating mill, a canteen

and a hotel. The income generated from these enterprises varies drastically. All the profit generated through the rice beating mill is used to pay back the loan which was taken to construct it. The above mentioned hotel is used by porters but visited only sporadically. The profit generated through this hotel is about NRs 3-4000 (€30-40) a year, far less then the canteen, whose owners earn around NRs 10000 (€100) a year. All households depend on the crop production on their own agricultural fields.

Households which do not have the possibility and the capacity to produce enough food for the whole year have difficulties to sustain their lives. Many households commented that they use food economically, that is to say, that they eat very little and/or only one meal a day. As mentioned in (Pradhan et al., unknown), is food deficit a major problem in the high altitude areas of Nepal, also in Gumdel. As shown in Figure 5.4, only 13% of the interviewed households are able to produce enough food to secure their lives year-around. All other households are either able to sustain their lives from livestock keeping or income from small enterprises, or are not able to sustain their lives from own income and depend on loans and/or remittances. Not surprisingly, 44% of all interviewed households considered themselves to be poor. The majority (71%) of those who consider themselves as poor, however, own a substantial piece of agricultural land (>13 *ropanis*, or 0.67ha), and have access to forest resources from own land. Even though, neither of them is capable to produce enough food crops to sustain their lives the whole year around. Amount of agricultural land is therefore not directly correlated to food security and neither a good indicator of wealth.

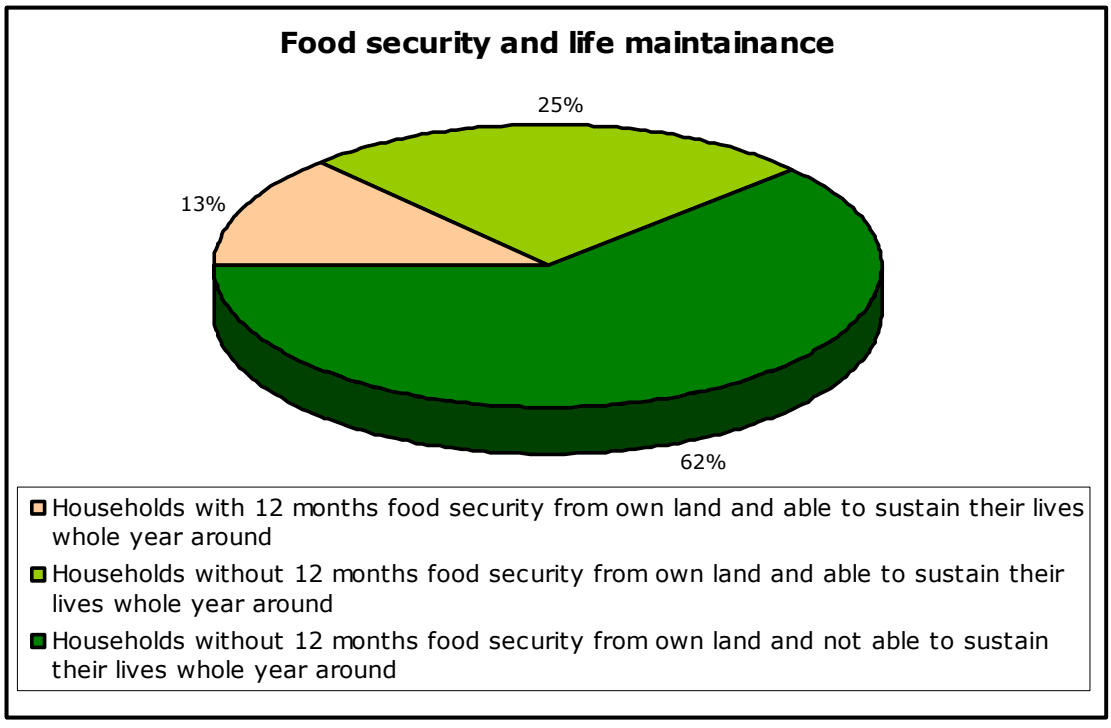

Figure 5.4: Classification of all households on their ability to sustain their lives whole year around.

All interviewed households own livestock. The most common livestock are: goats, buffalos, ox and cows. *Chauris* were kept by one interviewed household only, who had a herd of 18 *Chauris*, even though, as mentioned in Lama (2006), *Chauri* herds are common in the high altitude areas of Ramechhap District, namely in Gumdel,

Bamti-Bhandar and Chuchure VDCs. *Chauris* are mostly kept in large herds, while oxes, cows, goats are mainly kept in small numbers. There is no considerable variation in the amount of livestock owned by Gumdel's households. On average, the interviewed households own 2.9 cows, 1.8 goats, 1.2 buffalos and 0.2 oxes. As cows and goats are primarily kept for milk production, it is clear that milk production is the main value of livestock.

Physical Capital
Physical capital comprises, among others, construction and housing. Unlike in Jiri, where the CFUG is responsible for building and maintaining various physical capitals such as road construction, electricity, provision of timber for house construction or improve drinking water quality, individual households in Gumdel VDC are responsible for their own physical capitals. For example, those households that share one water tap are responsible for its maintenance; households from a certain hamlet are responsible for the preservation of the path that leads towards them; or households that tap electricity from a specific hydropower station are responsible for its good-working. Once Community Forestry is set up these tasks will, partially or entirely, be taken over by the CFUG.

Human Capital
Human capital comprises, among others, skills acquired through education and training. About 30% of the interviewed households participated in a training or workshop, such as poverty-alleviation meetings or skill trainings like veterinary or bookkeeping. Those who followed skill trainings were satisfied with its results, while those that followed the poverty-alleviation meetings did not feel its effects yet. In Gumdel VDC, 75% of the interviewed households never enjoyed any formal education. The remaining 25%, all of which are males, had on average 6 years of education. Like in Jiri, educational levels of the second generation, that is to say, of the children of the interviewed people, are considerably higher then those of their parents. The children from those interviewees who never enjoyed formal education are frequenting school. Many of them have reached the secondary educational levels, that is to say, the 8^{th} class or higher. This is both valid for boys as well as for girls. Pupils normally start frequenting school at a later stage then what is recommended. Children that frequent a particular grade are therefore largely older then the average age group at national level. One reason for this that some pupils have to walk up to two hours up and down narrow and steep paths before they reach the school. Parents often consider their children between 5 and 8 years old too young to undertake this journey. They therefore wait until their children are a little older before sending them to school. Furthermore failing examinations and repeating a class is not uncommon.

Social Capital
Social Capital comprises, among others, social cohesion and collective action, participation of minorities, relationships of trust, and equal access to resources. As Community Forestry is still in its implementation process, knowledge on existing social structures is needed to be able to determine the status of social capital in Gumdel VDC. As little research has been conducted in the area, not much is published about existing forms of social capital. Social capital's topics, as far as they are known and applicable for Gumdel VCD, are outlined below.

Social Cohesion and Collective Action
As explained in the previous Chapter, social cohesion is the process of developing a community of shared values, shared challenges and equal opportunities based on trust, hope and reciprocity so that people can work together (collective action), away from social divisions associated with rich and poor or castes. Community Forestry is an example of a form of organization that stimulates both social cohesion as well as collective action. As CF in Gumdel VDC is still in its implementation process, there is up to now no social cohesion or collective action through Community Forestry. There are, however, other forms of social cohesion and collective action present in Gumdel VDC. As mentioned before, people are collectively responsible for the maintenance of water pipes, paths or electricity grids. The Poverty Alleviation Fund (PAF), mother-groups and the Crystal Youth Club are furthermore examples of more formal social cohesion institutions. PAF is an institution that aims to develop and implement programs that address the issues of the poor and disadvantaged levels of society. They aim to set up a community organization and to bring the poor and disadvantaged households together, so that they are encouraged to take initiatives that will improve their livelihood conditions. PAF has set up about 13 community organizations in Gumdel VDC (PAF, 2007). Mother-groups are mainly concerned with social activities but occasionally take responsibility on, for example, infrastructure maintenance. The Crystal Youth Club is a national NGO that motivates young students and others to preserve cultural values, nature conservation and development work at local level (Crystal Youth Club, 2008). This NGO has members living, among others, in Gumdel VDC.

Participation of Minorities
As mentioned in Chapter 3, one of the positive outcomes of the armed conflict in Nepal is the improved attitudes towards disadvantaged groups in terms of the need to involve them more closely in decision-making processes and to channel benefits to them. During and after the conflict awareness grew on the importance to include poor and disadvantaged households in decision making processes and to positively discriminate them. Inhabitants of whole of Nepal, including Gumdel VDC, started to accept and stimulate pro-poor programs such as the above mentioned Poverty Alleviation Fund. With the introduction of Community Forestry new chances to structuralize participation of the poor and disadvantaged households and to improve their livelihoods will rise.

Relationships of Trust
For any organization working at community level that is characterized by the involvement of a multiplicity of actors, trust is essential. Not only trust in the implementing organization, but also mutual trust among all participants. Although no direct data is available on this issue, I believe that certain levels of trust are present in and around the organizations that operate in Gumdel VDC. With the introduction of Community Forestry new relationships of trust are formed, whereby the committee is, based on trust, elected as the representatives of the community's interests.

Equal Access to Resources
In Gumdel VDC the distribution of forest resource is not structuralized in practice. In other words, rules and regulation regarding forest resource harvest implemented by the government exist, however, empowerment and guarding of these rules and regulations is lacking. Household members do, therefore have 'free' access to resources from national forests and no legitimate distinction between household size or socio-economic position is made about their access to resources. With the

introduction of Community Forestry access to resources is structured and rules and regulations regarding forest resource extraction are set up with the participation of the whole community. Equal and fair access to resources for all members and levels of society is essential in this decision making process.

5.4. Conclusion: Shaping Community Forestry in Gumdel VDC

Although there are constrains in systematically measuring the success of Community Forestry due to a lack in conceptual consistency, agreed criteria, and scarcity of comparable data, CF has achieved some positive outcomes (cf. Acharya, 2002; Dev, Yadav, Springate-Baginski, and Soussan, 2003; Kanel, 2006; Karna et al., 2004; Pokharel and Niraula, 2004; Pokharel, Paudel, Branney, Khatri, and Nurse, 2006). In the case of Nepal CF generally improved the forest condition (such as coverage area, regeneration capacity, quantity and diversity of species), participation and income generation of rural households and institutional building at grass root level. As local circumstances vary drastically, positive outcomes differ from one place to another. In the case of Thulonagi CFUG in Jiri VDC, as mentioned in their self-monitoring report, Community Forestry increased the number and species diversity of plants and wildlife, and reduced the occurrence of land slides. Community Forestry furthermore increased local consciousness on sustainable and economic use of natural resources; it undertook serious efforts to include disadvantaged households and minorities in decision making processes and to actively involve them in income generating activities; it invested in physical infrastructure from its communal fund; it provided trainings and gave educational subsidies to members; and it enhanced, to a certain extend, social cohesion, collective action and relationships of trust.

Even so, many challenges remain. These challenges are not only to be overcome by the specific project but can, moreover, serve as learning blocks for future projects. Lessons learned in one CFUG can be kept in mind and used in other CF projects. The constrains of CF in general and in the cases of Nepal and more specifically of Thulonagi CFUG that ought to be kept in mind are:

- Benefits from CF are often in hands of the elite.
- Forest resources are sub-optimally used as CF are protected oriented.
- The majority of its members have no access to natural resources from communal forests.
- Participation of members, especially of minorities, in general CF matters such as in decision making processes is minute.
- Stimulation of sustainable and economic use of resource is unsatisfactory.
- Socio-economic discrimination is high.
- Stimulation of income generating activities is low.

Keeping these challenges in mind, this Section discusses a few topics and gives recommendations for the implementation of CF in Gumdel VDC. These recommendations are divided in recommendations for Community Forestry in general and recommendations for the different assets that belong to the livelihood framework, specifically, natural, financial, physical, human and social capitals. Please note that the borders between the above mentioned categories are not clearly demarcated. Therefore, this division should not be seen in too narrow a perspective. Moreover, local conditions in Gumdel VDC substantially differ from those in Jiri VDC with respect to, for example, remoteness, social diversity, altitude, etc. Local conditions in Gumdel are, as far as possible, taken into account in the

recommendations below. However, it is important to remember that there is no one blue-print for the implementation of CF as local conditions vary drastically between and within countries.

Community Forestry in General

1. As there is a lack of conceptual consistency, agreed criteria and scarcity of comparable data to measure the successes of CF. The CFUG should keep regular and professional record of forest statuses and livelihood conditions of members to evaluate successes and failures of CF and to be able to learn from it. Organizations involved in CF, both at international, national and local levels should furthermore establish common criteria to measure successes of CF and subsequently compare data from different regions and countries. By comparing each others data and by learning from each others achievements, challenges and mistakes, organization involved in CF can improve the implementation of their projects.

2. As we have seen in the case of Thulonagi CFUG, the majority of its members do not have access to resources such as firewood from communal forests simply because the forest is too far. The same is valid for Gumdel VDC, where 77% of the interviewed households believe that CF will not affect their access to resources because the CF forests are too far. They depend on resources from, among others, forests on private land and forests that belong to the government. During the implementation process of CF, the implementing institution – in this case NSCFP and her partner organizations – should pay attention to a proper selection of users that are allocated to communally manage a specific piece of forest. During the selection of users, one should not only take the 'traditional users' of a certain piece of forest into account, but also its 'actual users'. Although it is not clear which criteria potential CF forests have to fulfil, forests that are in fact being used by a certain group of people should be handed over to them.

Natural Capital

1. In many cases forests are sub-optimally used. It is essential to stop the process of deforestation and to increase greenery and biodiversity to preserve the forests under communal management. To guarantee maximum profit for the local community it is important that, under these conditions, resources are used most efficiently. CFUGs should, with the help of professionals, research and establish the amount of resources that can be extracted from the forest without overexploiting it. Rules regarding the maximum resource exploitation and its fair distribution should be set up with the participation of all users. CFUGs should not over-protect but consciously-protect the forest, avoiding sub-optimal use of natural resources and guaranteeing forest conservation. Establishing rules and regulations that are locally specific and that take resource availability, fair distribution and communal agreement into account are furthermore one of the design-principles for robust institutions as elaborated by Ostrom (1990).

2. Firewood saving mechanisms are not yet fully used. In Thulonagi CFUG only 37% of the interviewed households use firewood saving mechanisms. The CFUG should stimulate the use of firewood saving mechanisms by enhancing consciousness on the importance of saving firewood and by making them

more economically accessible (through e.g. subsidies). External organization like NSCFP could contribute by providing financial support to households who want to purchase such a mechanism. Many users of these firewood saving mechanisms are however not satisfied with it as they do not release a lot of heat; require very small pieces of firewood; produce a lot of smoke; or make pots and pans very black. Although it is important to stimulate economic use of firewood through firewood saving mechanisms, its practicality should be kept in mind. Households will not use such a mechanism if it has many negative side-effects. New firewood saving mechanisms with as little side-effects as possible should be designed. Alternative forms to heat up a house in the winter months, such as biomass briquettes, should be considered, as well as isolation possibilities of one or a few compartments of the house.

Financial Capital

1. To increase the financial capital of Gumdel's CFUG members, market possibilities should be analyzed and income generating activities stimulated. Due to Gumdel's remoteness, feasible solutions should be found. Gumdel has, for example, potential to develop tourism as it is situated relatively close to the classical Jiri-Everest trek. Gumdel would be the ideal destination for those tourists who would like to, besides experiencing great natural beauty, get away from the crowded beaten treks and to familiarize themselves with the local culture and the life of Nepalese countryside. Gumdel's inhabitants could, furthermore, produce handicrafts from e.g. bamboo or *Lokta* (*Daphne bholua* and *Daphne papyracea*). These products should not be too big or heavy due to transportation problems. They could be sold to larger markets such as Jiri Bazaar, Kathmandu or even abroad. If producers manage to manufacture their products according to specific standards, a label such as Fair-Trade could be acknowledged to them, consequently opening up international markets. Locally, Gumdel's inhabitants could start a small-scale market where surpluses of household products are sold and/or exchanged. Households that have a surplus on, for example, milk or potatoes could sell or exchange it for other products, enhancing local circulation of money and goods.

2. One way to stimulate income generating activities is through the provision of micro-credits. These micro-credits are being provided in, for example, Thulonagi CFUG through saving and credits groups. A micro-credit can be used as a start-fund to initiate small-scale enterprises such as *Chauri*-herd keeping, potatoes production or goats breeding. In places where there are no saving and credits groups (like in Gumdel VDC), Community Forestry User Groups could take over this role. CFUGs have the potential to implement saving and credit schemes from their communal fund into their policy and, by doing so, contribute to poverty alleviation. CFUG committee members are the ones who manage the communal fund and would therefore be the ones responsible for the management of the saving and credit schemes. To do so they should receive training on the administration and coordination of credit and saving schemes, while its members should receive training in, for example, fluctuating income patterns and proper cash investment, small-enterprise development, and expenditure and livelihoods management. In that way users will be able to administer the loans in a proper way and make profit out of it, increasing the repay rates.

3. As mentioned in (Pradhan, *et al.*, unkonwn), food deficit is a major problem in the high altitude areas of Nepal, such as Gumdel. The reasons why some households are and others are not able to produce enough food to feed their household the whole year around could be various. It is essential that this issue is analyzed in detail and that possible reasons are investigated. Political and economic aspects of the problem should not be overlooked. Solutions should be brought forward according to the findings of this first assessment.

Physical Capital

1. As is the case in several CFUGs, the committee is responsible for the construction and maintenance of much of the community's infrastructure, i.e. their physical capital. As Gumdel VDC is situated in a high altitude area, these infrastructures should be winter-resistant. The CFUG should be responsible for, for example, road and bridge construction, water tank maintenance, electricity provision or school building. Proper maintenance of, for example, water tanks and pipes could prevent damage due to frost and prevent recurrent diarrhoea outbreaks during the summer months, when water quality drops due to bacterial contamination.

Human Capital

1. To increase CFUG member's financial capital and to stimulate income generating activities it is essential to enhance their human capital. In other words, CFUG members should be able to follow various forms of trainings. These trainings can be offered by the CFUG or by external organizations which work together with the CFUG. These trainings should be directly related to field skills like agricultural or animal husbandry training, and to administrative skills, like adult literacy, enterprise management, book keeping, etc. Furthermore, Gumdel's CFUGs should continuously invest in children's education. Local inhabitants should be trained as teachers so that no personnel from other regions of Nepal need to be hired. To reduce the poverty gap scholarships should be given to children from disadvantaged households.

Social Capital

1. As users are more likely to follow rules that affect their use and to monitor others when they are genuinely involved in decisions regarding these rules (Ostrom and Nagendra, 2006). It is of extreme importance that all users, including poor and disadvantaged households, are involved in the decision making process. This enhances the 'robustness' of a CFUG, as involvement of those who are affected by the rules into the decision making process of these rules is one of the design-principles for robust institutions as elaborated by Ostrom (1990). To guarantee genuine participation of all members of a CFUG in the decision making process and to stimulate fair handling of CFUG matters, fair elections of representatives as well as equal representation of gender and caste in CF committee are essential. This is however, not enough. Gender and caste discrimination in general should be discouraged, active participation of minorities in CFUG matters and respect towards their needs and opinions stimulated. Increased participation of minorities and respect towards their needs and opinions can be achieved by, for example, establishing small-scale meetings with specific target groups. To make sure that all voices are heard and that all wishes are taken into account, small-scale meetings with specific target groups (such as 'the *Dalits',* 'the herders',

'the mothers' or 'the most isolated households') should be hold whereby participants are able to discuss about specific topics that concern all participants and where they are able (and asked) to express their wishes and give their opinion. An elected representative of this group should then bring the groups common wishes and opinions forward during general assembly meetings. In this way people feel more comfortable to express their opinions and needs and these common interests of the target groups are recognized and brought up during general meetings. Offering specific target groups a platform for debate only is not enough. Users (mainly minorities) should, however, be thought and stimulated to openly and fearlessly express their wishes and opinions to the whole group. In addition, social acceptation and respect among all other members should be stimulated, whereby wishes, opinions and problems of all members are respected and taken seriously.

2. It should be avoided that the benefits from CF end up in hands of a few. Policy objectives should be redefined from basic needs to poverty alleviation. Mechanisms that benefit the poor and disadvantaged groups and that give them access in decision making processes should be provided by the CFUG and its supporting organizations. The awareness among all members about the importance of a pro-poor approach should furthermore be stimulated. Positive discrimination of poor household members is needed in the fight for extreme poverty alleviation. The first step is to identify the poor and most needed households. Criteria that determine poverty lines should be set up by the CFUG so that these households can be identified. Once the identification is accomplished, the CFUG should offer special programs to these households, such as stimulation of different income generating activities (enterprise development, opening of market possibilities, production of handicrafts, etc) and trainings on livelihood management, fluctuating income patterns, proper cash investment, expenditure management, or small-enterprise development.

3. Fair distribution of natural resources from communal forests is essential. Distribution of natural resources from CF is based on household size, that is to say, on amount of household members. This is not always fair as some members have large pieces of private land covered with forests and can completely rely on this for their resource needs. Resource distribution from communal forests should not only depend on household size but also take into account the amount of private land covered with forest that a specific household owns.

At least two of the design-principles for robust institutions as elaborated by Ostrom (1990) are included in the implementation of Community Forestry in Gumdel VDC if above recommendations are taken into account. These are:

- Rules and regulations are locally specific and take resource availability, fair distribution and communal agreement into account.
- Those who are affected by the rules are included in the decision making process of these rules.

Other two design-principles are in general already applicable to Community Forestry in Nepal. These are:

- All forest areas that are going to be handed over are established according to user rights and are clearly demarcated. Forest that are going to be handed over are selected according to their potential to be managed under Community Forestry. Border are clearly demarked and agreed upon by all its

future members. User selection is based on their right as traditional use of that piece of forest. As outlined before, this is not necessarily the best way to select users. Not only 'traditional users' but also 'actual users' should be included in the selection.
- National rules and regulations enabled user rights to be recognized, respected and not questioned by external authorities. The government of Nepal already established these rules and regulations.

To guarantee the 'robustness' of Community Forestry institutions, at least three of the remaining design-principles should not be overlooked.
- Those that monitor user behaviour and their compliance to the rules should be accountable to the users and/or be the users themselves.
- Users who violate rules should receive graduated sanctions from other users or monitors.
- There should be rapid access to low-cost, local arenas to resolve conflicts among users or between users and officials.

Besides, to avoid uprising of the deeply embedded factors that lead to the 11-years lasting civil war, CF in Nepal has to tackle the following issues: socio-economic inequality; good governance practice; needs of the people living in absolute poverty; equal representation of caste and ethnic groups in government and civil society posts. The more issues are addressed and the more design principles a CFUG institution has, the more robust and sustainable it is and hence the more positive effects it has on local livelihoods. Furthermore, as NSCFP entered aims to withdraw support completely in 2011, it is of vital importance that the CF institutions going to be implemented in Gumdel VDC are robust. Knowledge transfer to partner organizations should be accurate and secure, as they will have to support, next to the existing CFUGs, recently established CFUGs and the formation of new CF institutions.

The above mentioned recommendations should be kept in mind during the implementation of Community Forestry in Gumdel VDC. Without adequate livelihood support, people will continue to utilize the remaining forest resources at an unsustainable rate. Without direct benefits from forest areas, communities will not protect forests from clearing or illegal cutting. Without development of health services, sustainable agricultural systems, enterprise management skills, and faith in the security of their tenure and market access, they will not be able to sustainably use natural resources and to sustain themselves (Emtage, 2004). I believe that, when users are engaged in the decisions regarding rules, they are more likely to follow the rules and to monitor others than when authorities simply impose rules on them. Local communities are interested in securing their future access to resources if they have the feeling that it is legitimate, that is to say, that they are caring for something that belongs to them and that will give them positive response in the future. Community Forestry can therefore have positive outcomes not only in slowing down the process of deforestation and increasing greenery and biodiversity, but also in improving local livelihoods. This is obviously only possible when local communities are truly involved in the implementation process and when sustainable policy changes that provide adequate livelihood support are made.

References

Acharya, K. P. (2002). Twenty-four years of community forestry in Nepal. The International Forestry Review, 4(2), 149-156.

Adhikari, B., Williams, F. and J. C. Lovett (2007). Local benefits from community forests in the middle hills of Nepal. Forest Policy and Economics, 9(5), 464-478.

Alcorn, J. B. (2005). Dances around the fire: Conservation organizations and community-based. In J.P. Brosius; A.L. Tsing and C. Zerner (Eds.) Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management. Altamira Press, Walnut Creek.

Barber, C. V., Miller, K., and M. Boness (2004). Securing protected areas in the face of global change: Issues and strategies The World Conservation Union (IUCN). xxxiii, 234p. : ill.

Becker, C. D., and E. Ostrom (1995). Human ecology and resource sustainability: The importance of institutional diversity. Annual Reviews in Ecology and Systematics, 26(1), 113-133.

Bernard, H. R. (1988). Research methods in cultural anthropology AltaMira Press. Beverly Hills: Sage.

Brandon, K. E. (1997). Policy and practical considerations in land-use strategies for biodiversity conservation. In R. Kramer, C. van Schaik and J. Johnson (Eds.), Last stand. protected areas and the defense of tropical biodiversity (pp. 90-114). New York: Oxford University Press.

Bray, D. B., Merino-Perez, L., Negreros-Castillo, P., Segura-Warnholtz, G., Torres-Rojo, J. M. and H. F. M. Vester (2003). Mexico's community-managed forests as a global model for sustainable landscapes. Conservation Biology, 17(3), 672-677.

Bruner, A. G., Gullison, R. E., Rice, R. E. and G. A. B. Da Fonseca (2001). Effectiveness of parks in protecting tropical biodiversity. Science, 291(5501), 125-128.

Butler, R. (2005). Deforestation figures for selected countries. Retrieved 11/07, 2008, from http://rainforests.mongabay.com/deforestation/

CARE International (unknown). CARE initiated saving and credit groups in Nepal. Terms of reference: 080103.

Carney, D. (1998). Sustainable rural livelihoods: What contribution can we make?. London: DFID.

Chapagain, D. P., Kanel, K. R. and D.C. Regmi (1999). Current policy and legal context of the forestry sector with reference to the community forestry programme in Nepal. Working Overview. Nepal-UK Community Forestry Project, Kathmandu, Nepal

Chaudhary, R. P. (2000). Forest conservation and environmental management in Nepal: A review. Biodiversity and Conservation, 9(9), 1235-1260.

Christensen, T. E. (2003). What is discourse? Retrieved 07/15, 2008, from http://www.wisegeek.com/what-is-discourse.htm

CIA - The World Fact Book. (2008). Nepal. Retrieved 22 May, 2008, from https://www.cia.gov/library/publications/the-world-factbook/print/np.html

Crystal Youth Club. Crystal youth club. Retrieved 10/29, 2008, from http://www.crystal.org.np/introduction.html

Dev, O. P., Yadav, N. P., Springate-Baginski, O. and J. Soussan (2003). Impacts of community forestry on livelihoods in the middle hills of Nepal. Journal of Forest and Livelihood, 3(1), 64-77.

DFID. (1999). Sustainable livelihoods guidance sheets. DFID, London. www.livelihoods.org

Emtage, N. F. (2004). Stakeholder's roles and responsibilities in the community-based forest management program of the Philippines. Small-Scale Forestry, 3(3), 319-336.

FAO. (1997). Irrigation technology transfer in support of food security. Water Reports 14

FAO. (1999). FAO Asia-Pacific forestry commission: Development of national-level criteria and indicators for the sustainable management of dry forests of Asia: Workshop report

FAO. (2005). Global forest resources assessment. Retrieved 05/22, 2008, from http://www.fao.org/forestry/32185/en/npl/

Gilmour, D. and R. Fisher (1991). Villagers, forests and foresters. The Philosophy, Process and Practice of Community Forestry in Nepal, Sahayogi Press, Katmandu

Gilmour, D. A. (1988). Not seeing the trees for the forest: A re-appraisal of the deforestation crisis in two hill districts of Nepal. Mountain Research and Development, 8(4), 343-350.

Hardin, G. (1968). The tragedy of the commons. Science, 162(3859), 1243-1248.

Harrison, S. and J. Suh (2004). Progress and prospects of community forestry in developing and developed countries. Small-Scale Forestry, 3(3), 287-302.

Hayes, T. and E. Ostrom (2005). Conserving THE World's forests: Are protected areas THE only way? Development, 35, 39.

Hayes, T. M. (2006). Parks, people, and forest protection: An institutional assessment of the effectiveness of protected areas. World Development, 34(12), 2064-2075.

Hebinck, P. and M. Bourdillon (2001). Ch.1 analysis of livelihood. In P. Hebinck, and M. Bourdillon (Eds.), Women, men and work, rural livelihoods in South-Eastern Zimbabwe. Harare: Weaver Press.

ICARRD. (2006). Agrarian reform and rural development in Nepal. Retrieved 10/01, 2008, from http://www.icarrd.org/sito.html

Kanel, K. R. (2006). Current status of community forestry in Nepal. A report submitted to the regional community forestry training center for Asian and the Pacific. Bangkok, Thailand

Kapborg, I. and C. Bertero (2002). Using an interpreter in qualitative interviews: Does it threaten validity? Nursing Inquiry, 9(1), 52-56.

Karki, M., Karki, J. B. S. and N. Karki (1994). Sustainable management of common forest resources: An evaluation of selected forest user groups in western Nepal. Kathmandu: ICIMOD.

Karna, B. K., Gyawali, S. and M.B. Karmacharya (2004). Forest condition change: Evidence from five revisited community forests. In Kanel K.R., Mathema P., Kandel B.R., Niraula D.R., Sharma A.R., and M. Gautam (Eds.). Twenty-Five Years of Community Forestry. Proceedings of the Fourth National Workshop on Community Forestry (Community Forest Division, Department of Forest, Kathmandu) pp. 118–123.

Kramer, R., van Schaik, C. and J. Johnson (1997). Last stand. protected areas and the defense of tropical biodiversity. New York: Oxford University Press.

Lama, A. D. (2006). High altitude forest management tour. Report NSCFP

Lama, A. D. (2007). Case study on non timber forest products in Gumdel, Bamti-Bhandar and Chuchure VDCs in Ramechhap district in central Nepal. Report NSCFP

Land Tenure Centre. (1998). Tenure brief University of Wisconsin, Madison.

Liamputtong, P. and D. Ezzy (1999). Qualitative research methods: A health focus. Oxford University Press, Melbourne.

Metz, J. J. (1991). A reassessment of the causes and severity of Nepal's environmental crisis. World Development, 19(7), 805-820.

Nagendra, H., Karmacharya, M. and B. Karna (2005). Evaluating forest management in Nepal: Views across space and time. Ecology and Society, 10(1), 24.

NSCFP. (2004). NSCFP program operational manual, phase V (2004-2008) - draft version.

NSCFP. (2006). 1990-2006: 16 years along the way - progress report 2005/2006. Intercooperation.

NSCFP. (2007a). 1990-2007: Seventeen years along the way - progress report 2006/2007. Intercooperation.

NSCFP. (2007b). Working in and on armed conflict situation: NSCFP's experiences and response Issue Paper No.03

NSCFP. (unknown). NSCFP introduction achievements and challenges. Intercooperation.

Oates, J. F. (1999). Myth and reality in the rain forest. how conservation strategies are failing in West-Africa. University of California Press, Berkeley.

O'Connor, A. and College, C. (1996). What are the historical causes of deforestation in Nepal and what is the current situation? Retrieved 10/02, 2008, from http://www.colby.edu/personal/t/thtieten/defor-nep.html

Ostrom, E. (1990). Governing the commons: The evolution of institutions for collective action. Cambridge University Press, New York.

Ostrom, E., and H. Nagendra (2006). Inaugural article: Insights on linking forests, trees, and people from the air, on the ground, and in the laboratory. Proceedings of the National Academy of Sciences, 103(51), 19224.

PAF. (2007). Poverty Alleviation Fund. Retrieved 10/30, 2008, from http://www.pafNepal.org.np

Pandey, T. R. (1993). The failure of confidence mechanism: Reflections on the 1990's social change movement in the light of policy measures affecting farming system in Nepal. Occasional Papers on Sociology and Anthropology, 3(0), 96.

Paudel, A. and S. Vogel (2007) Community Forestry Governance in Nepal: a case study of the role of services providers in a Community Forest User Group. Universität für Bodenkultur Wien

Paudel, G., Ito, K., Oura, Y., Takeya, H., Hattori, S. and K. Kitagawa (2005). The influence of NGO involvement on local people's perception of forest management: A case study of community forestry in Nepal. Journal of Forest Research, 10(6), 453-463.

Pearce, D. W. (2001). The economic value of forest ecosystems. Ecosystem Health, 7(4), 284-296.

Pokharel, B. K. (1997). Foresters and villagers in contention and compact: The case of community forestry in Nepal. Thesis submitted for the degree of Doctor of Philosophy, The University of East Anglia, Norwich, UK. 425 pp.

Pokharel, B. K. and J. Carter (2007). Addressing chronic poverty and spatial poverty traps in Nepal's middle hills: The Nepal Swiss community forestry project. Kathmandu.

Pokharel, B. K. and D.R. Niraula (2004). Community forestry governance in Nepal: Achievements, challenges and options for the future. presented at the national community forestry conference. Kathmandu.

Pokharel, B. K. and M. Nurse (2004). Forests and people's livelihood: Benefiting the poor from community forestry. Journal of Forest and Livelihood, 4(1), 19-29.

Pokharel, B. K., Ojha, H. R. and D. Poudel (2005). Assessing development space and outcomes in conflict situation: A reflection from Nepal Swiss community forestry project. NSCFP Discussion Paper no.02. Kathmandu

Pokharel, B. K., Paudel, D., Branney, P., Khatri, D. B. and M. Nurse (2006). Reconstructing the concept of forest-based enterprise development in Nepal: Towards a pro-poor approach. Journal of Forestry and Livelihood, 5(1), 53-65.

Pokharel, B. K., Stadtmuller, T. and J. L. Pfund (2005). From degradation to restoration: An assessment of the enabling conditions for community forestry in Nepal. Intercooperation, Swiss Foundation for Development and International Cooperation, Switzerland.

Pokharel, R. K. and H.O. Larsen (2007). Local vs. official criteria and indicators for evaluating community forest management. Forestry, 80(2), 183.

Poteete, A. R. and E. Ostrom (2004). In pursuit of comparable concepts and data about collective action. Agricultural Systems, 82(3), 215-232.

Pradhan, S. M., Pariyar, D., Adkihari, J. R. and R.C. Ghimire (unkonwn). Range systems study of Ramechhap district (Thodung region) of Nepal FAO Crop and Grass Land Service. Italy.

Ravindranath, N. H., Murali, K. S. and P. Sudha (2006). Community forestry initiatives in Southeast-Asia: A review of ecological impacts. International Journal of Environment and Sustainable Development, 5(1), 1-11.

Schweik, C. M., Nagendra, H. and D.R. Sinha (2003). Using satellite imagery to locate innovative forest management practices in Nepal. AMBIO: A Journal of the Human Environment, 32(4), 312-319.

SDC. SDC at a glance. Retrieved 10/14, 2008, from http://www.sdc.admin.ch/en/Home/About_SDC/Brief_portrait

Seddon, D., Adhikari, J. and G. Gurung (2002). Foreign labor migration and the remittance economy of Nepal. Critical Asian Studies, 34(1), 19-40.

Sherbinin, A. (2008). Is poverty more acute near parks? an assessment of infant mortality rates around protected areas in developing countries. Oryx, 42(01), 26-35.

Shrestha, K. (2000). Active vs. passive management in community forestry. Issues Paper no 1, Paper Prepared for the Joint Technical Review Committee, MoFSC, Kathmandu.

Shrestha, N. R. (1990). Landlessness and migration in Nepal. Boulder, Colorado/Oxford, England, Westview Press, 1990, 284 p.

Southwold, S. (2002). Chapter: 'interviewing'. In S. Southwould (Ed.), Methods and techniques of field research (pp. 7-11) Wageningen: WAU.

Springate-Baginski, O., Soussan, J., Dev, O. P., Yadav, N. P. and E. Kiff (2001). Community forestry in Nepal: Progress and potentials. School of Geography University of Leeds, Leeds.

Stevenson, G. G. (1991). Common property economics: A general theory and land use applications Cambridge University Press. Cambridge, UK.

Subedi, J., Sidky, H., Hamill, J., Spielbauer, R. H., Singh, R., Blangero, J. and S. W. Blangero (2000). Jirels, Jiri, and Politics: an Overview. Contributions to Nepalese Studies: The Jirel Issue,117-126.

Terborgh, J. (1999). Requiem for nature. Washington, DC: Island Press.

Terborgh, J. and C.P. van Schaik (1997). Minimizing species loss: The imperative of protection. In R. Kramer, C. van Schaik and J. Johnson (Eds.), Last stand. protected areas and the defense of tropical biodiversity (pp. 15-35) New York and Oxford, Oxford University Press.

The World Bank. (2007). Country classification. Retrieved 12/07, 2007, from http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20420458~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html

Thoms, C. (2004). Livelihoods forestry in rural Nepal: The need for partnership. Presented at the 2004 Rural Sociological Society's 67th Annual Meeting,

Thulonagi CFUG. (1996). Constitution and management plan Thulonagi community forestry user group. Jiri, Nepal.

Thulonagi CFUG. (2007). Self monitoring book of community forest user group - Thulonagi CFUG. Jiri, Nepal.

Wiersum, K. F. (2004). Social and community forestry. In J. Burley, J. Evans and J. A. Youngquist (Eds.), Encyclopedia of forestry sciences (pp. 1136-1143) Elsevier.

Wilshusen, P. R., Brechin, S. R., Fortwangler, L. and P.C. West (2005). Reinventing a square wheel: Critique of a resurgent" protecting paradigm" in international biodiversity conservation. *Society and Natural Resources,* 15, 17–40.

Worah, S. (2002). The challenge of community-based protected area management. Parks, 12(2), 80.