CAPITAL FORMATION IN COMMUNITY FOREST USER GROUPS (CFUGS) IN NEPAL

(A Case Study of Two CFUGs of Makawanpur District)

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ABSTRACT

Forest Act 1993 of Nepal has clearly defined the roles and rights of the community forest user groups (CFUGs) and the act also gives the legal right for the management, utilization and protection of the forest handed over to them. Community Forest (CF) in Nepal is taken as a holistic approach where the forest is managed as a source of income, employment and community development.

This study was carried out in the two CFUGs of Makawanpur district, which lies in the central region of Nepal with an objective of investigating the roles of CF in capital formation. Questionnaire surveys, semi structured interviews and groups discussions were carried out to meet the objectives. The respondents were the members of the two selected CFUGs, government and non-government staffs working in the CF. The study examines the sources of income, people's attitudes towards the fund management and the effects of the capital formation from the CF to the community development.

The analysis of the data showed that both CFUGs had benefited from the capital formation from the CF. The status of the natural resources has improved and this has helped to improve the livelihood of the people. The improvement of the natural capital has helped to save the time of people and ease the process for getting the products. Beside this natural capital has been major source of fund, which is used for the development of other types of Capitals. CF has helped to improve the Human Capital as trainings on Income Generating Activities (IGAs) are frequently obtained by the users and this has helped in creating more diversity in employment. Construction of school, roads and drinking water has been done by the funds from the CFUGs thus improving the Physical Capital. Most of the activities are carried under the active participation of the community thus this has helped in bringing the community closer and cohesive bond among the members are formed. This results in social harmony and improves the Social Capital. Ultimately, Financial Capital is the backbone of all the capitals. The CFUG has its own funds and beside this there have been other financial institutions, which are providing the financial services to the community, and thus people have to no longer depend on the moneylenders with high interest rates.

All the respondents agreed that their livelihood has been changed after becoming the member of the CFUGs. The multiple befits of the funds, community development and forest improvement has changed the attitudes and behaviour of the members of the CFUGs. This has increased people's interest and awareness in CF. This makes CF more secure, protected and wisely managed for sustainable development. The numbers of issues are also discussed by the researcher and conclude that Capital Formation is an effective medium for moving people towards the attainment of the sustainable management of CF. Thus in future; there is need to carry out more researches on this aspect to increase the benefits of CF to local people.

KURZFASSUNG

Nepals Forstgesetz von 1993 definiert klar die Aufgaben und Rechte der Benützergruppen von Gemeinschaftswäldern (CFUG). Das Gesetz festigt die Rechte der Bewirtschaftung und den Schutz der Wälder. Die Rechte wurden an die CFUG übergeben. Die Gemeinschaftswälder in Nepal bestreiten einen ganzheitlichen Weg, bei dem der Wald als Einkommensquelle, Arbeitsplatz und Grundlage zur Entwicklung der Gemeinschaft genutzt wird. Die vorliegende Studie wurde in zwei CFUG im Makawanpur Distrikt durchgeführt. Der Distrikt liegt in der zentralen Region von Nepal. Das Ziel der Studie war es, die Rolle der Gemeinschaftswälder bei den Investitionen herauszuarbeiten. Fragebögen, Interviews und Gruppendiskussionen wurden zu diesem Zwecke durchgeführt. Die Angesprochenen waren Mitglieder der beiden ausgewählten CFUG, Regierungsmitarbeiter und Mitarbeiter von Nicht-Regierungsorganisationen, die in den Gemeinschaftswäldern arbeiteten. Die Studie prüfte die Einkommensquellen, die Anforderungen der Menschen an das Vermögensmanagement und die Effekte der Investitionen der Gemeinschaftswälder auf die Entwicklung der Gemeinden.

Die Analysen der Daten zeigen, dass beide CFUG von den Investitionen profitierten. Der Waldzustand verbesserte sich. Das half, den Lebensstandard der Bevölkerung zu heben. Es konnten Zeitersparnisse erreicht werden, die Arbeiten zur Gewinnung von Waldprodukten wurden erleichtert. Die Verbesserung des Waldzustandes war wesentlich daran beteiligt, dass sich auch die anderen Arten von Kapital entwickelten. Die Gemeinschaftswälder halfen, das Humankapital durch Training zu verbessern. Dieses Training brachte nicht nur mehr lohnendere Einkommensaktivitäten, sondern auch eine größere Vielzahl von Beschäftigungen. Der Bau von Schulen, Straßen und Wasserversorgungsanlagen wurde von den CFUG vorangetrieben und erhöhte das Anlagenkapital. Die meisten Investitionsaktivitäten wurden unter aktiver Teilnahme der Gemeinschaft durchgeführt. Dies brachte auch eine engere Verbindung unter den Mitgliedern der CFUG. Daraus resultierten eine soziale Harmonie und ein verbessertes Sozial-Kapital. Die CFUG haben ihren eigenen Finanzfonds, der finanzielle Dienste der Gemeinschaft und jenen Leuten, die nicht länger an die Geldverleiher mit ihren hohen Zinsen angewiesen sein wollen, anbietet. Die Befragten antworteten übereinstimmend, dass sich ihr Lebensstandard durch die Mitgliedschaft an den CFUG verbessert hat. Die vielfältigen Nutzen des Finanzfonds, der Gemeinschaftsentwicklung und der Verbesserung des Waldzustandes änderten die Einstellungen und Verhaltensweisen der Mitglieder der CFUG. Dies hat das Interesse der Menschen und ihre Verantwortung für ihre Gemeinschaftswälder erhöht. Dadurch wurden die Gemeinschaftswälder besser abgesichert und im Sinne einer nachhaltigen Entwicklung bewirtschaftet. Darüber hinaus wurden die verschiedensten Fragen diskutiert. Es zeigte sich, dass Investitionen der wichtigste Faktor sind, um die Menschen für eine nachhaltige Waldbewirtschaftung zu gewinnen. Es sollten noch mehr Forschungen gemacht werden, um Wege zur Verbesserung des Nutzens von Gemeinschaftswäldern für die ansässige Bevölkerung zu finden.

ABBREVATION

AFO	Assistant Forest Officer
CBO	Community-based Organization
CF	Community Forestry
CFD	Community Forestry Division
CFs	Community Forests
CFUG	Community Forestry User Group
CFUGC	Community Forest User Groups Committee
CFUGs	Community Forestry User Groups
DAGs	Disadvantage Groups
DDC	District Development Committee
DFID	Department for International Development
DFO	District Forest Office
DKA	Dreikönigsaktion der Katholischen Jungschar Österreichs (Catholic Children's Movement Austria)
DoF	Department of Forests
FAO	Food and Agriculture Organization
FPs	Forest Products
FUGC	Forest User Groups Committee
FUGs	Forest User Groups
HHs	Households
HMG	His Majesty Government of Nepal
ICIMOD	International Centre for Integrated Mountain Development
IDRC	International Development Research Centre
IFAD	International Fund for Agriculture Development
IGAs	Income Generation Activities
ILO	International Labour Organization
INGO	International Non-governmental Organization
KFB	Katholische Frauenbewegung Österreichs (Catholic Women's Movement Austria)
MFSC	Ministry of Forest and Soil Conservation
MPFS	Master Plan for Forestry Sector
NARMA	Centre for Natural Resources Analysis, Management, Training and Policy Research
NGO	Non-governmental Organization
NTFPs	Non-timber Forest Products
ÖAD	Österreichischer Austauschdienst (Austrian Exchange Service)
OP	Operational plan
PF	Panchyat Forest
PPF	Panchyat Protected Forests
RRN	Rural Reconstruction Nepal
UN	United Nation
VDC	Village Development Committee

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CHAPTER ONE

1.1. INTRODUCTION

When we talk of Community Forest (CF) in Nepal, it is most accurately and usefully understood as an umbrella term denoting a wide range of activities which link rural people with forests, trees, and the products and benefits to be derived from them. Gilmour and Fisher (1991) defined CF in terms of control and management of forest resources by the rural people who use them especially for domestic purposes and as an integral part of their farming systems. Since CF constitutes both social and biophysical elements, both are equally important. The "resource" can be managed effectively with a clear understanding of forest management principles and knowledge of natural system, and "social" part can be dealt with a clear understanding of a society and their relationships with the resource and institutions related to it.

Over thirty years, a movement has been evolving towards the complete involvement of Community Forest Users Groups (CFUGs) in the management and utilization of forests of Nepal. The major success of the CF lies in the participation of the community in the management of natural resources. This community participation has been increasingly regarded as a necessary basis for effective sustainable development and for determination of the overall quality of development projects, including forest conservation (UN, 1990; Cernea, 1992; Narayan, 1996).

Community forestry is one form of participation in managing forests owned by the community. It evolved during the 1980s as a means of both resolving environmental problems associated with deforestation and satisfying the subsistence needs of rural communities.

In the initial stages, focus was on participatory environmental conservation through planting of trees. Later, the emphasis turned to the institutional development of CFUGs so that they could undertake forest management activities themselves and have better control of local resources. The government's forest service would provide a facilitating regime within which these CFUGs could function. The objective of this move towards decentralized local governance in forest management was originally to produce forest products sufficient for the needs of CFUG members. Later, the objective expanded to include the mobilization and empowerment of these CFUGs into broader development of their local communities.

There are over 13,000 CFUGs composed of people living in or near forests across Nepal. They include almost one third of Nepal's population and cover 25% of the country’s biodiversity-rich forests. For most of these communities, medicinal plants and Non-timber Forest Products (NTFPs) trade are the only means of livelihood beside subsistence agriculture (DoF, 2005).

Though, in average two FUGs are being formed every day and they are given authority and responsibility to manage and use the national forest resources, their sustainability is a question. The sustainability of community-based organizations depends on a common interest, capital formation, capacity building, grooming activists, and formal organization. The absence of any of these factors casts serious doubts on the long-term viability of a community-based organization because each factor is complementary (IFAD 1997). Whereas many studies have been done on most factors, little attention has been paid to capital formation (Dongol, 1999).

Thus, this study tried to explore the role of the capital formation in the sustainability of the CF in Nepal. DFID has defined five core categories upon which sustainability is built. Five arms of Asset Pentagon represent five assets upon which sustainability of CFs is built (Fig 1.1).

A) Natural capital

Community forests handed-over to community are natural capital. Evidences show that there are positive changes in both forest condition and the availability of forest products, with a concurrent reduction in the time spent for collecting forest products. Thousands of CFUGs have planted and protected denuded hills, carried out forest management and Silvicultural operations, utilized and marketed various forest products for their livelihoods.

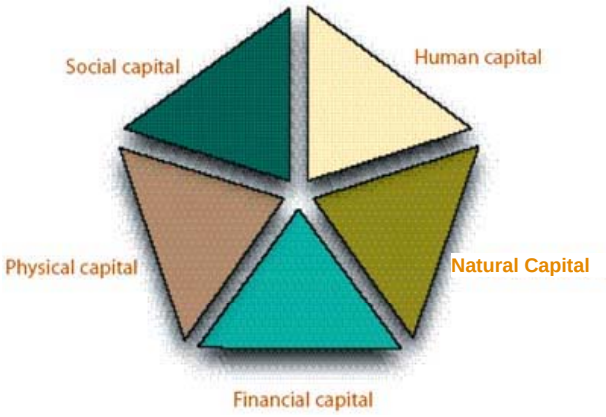


Fig 1.1. Asset pentagon to analyze sustainable livelihood

B) Social capital

It is reported that the CF process has increased social cohesion, which has enhanced social capital of those who have been powerless, left in isolation and excluded from mainstream social and political processes.

C) Human capital

Since the inception of the CF Program, a number of trainings, workshops and exposure visits have been conducted for a number of organizations and individuals at community level, government and non government organization level that has increased knowledge and skill related to forest Silvicultural, community development, organizational management and leadership development, all of which are basically human capital.

D) Financial capital

The group's fund generated from the sale of forest products, levies and outside grants are the financial capital created through community forestry. It is reported that there is a balance of about of US $ 1.41[1] million among 12,000 FUGs in the country (CFD, 2002). This amount is almost equivalent to government's annual forestry development budget allocated to all districts. There are numerous examples where many of these FUGs have established low interest credit scheme as well as grants to poorest household members from the FUG fund.

E) Physical capital

Numerous FUGs have carried out many community development activities on their own. Construction of village trails, small bridges, community building, schools and temples are the good examples of physical capital created through community forestry program.

1.2. STUDY RATIONALE

Forests provide timber and fuelwood for households and fodder for livestock, thus playing a major role in the Nepalese economy, which is based largely on subsistence agriculture and tourism. In the past, forest act, policies and management plans all excluded people from the forest. The reduced access by local communities to forest products to meet their basic needs that were critical to the maintenance of rural livelihoods not only directly affected the rural livelihood but also the sustainability of natural resources with widespread of deforestation leading to environmental degradation. This showed that governments acting alone were not able to reverse this trend (Gilmour et al., 2004).

In 1993, the government of Nepal abandoned national management, passing the Forest Act of 1993 that transferred all accessible forestland from the central government to local communities through the creation of ‘‘Forest User Groups’’. This Forest Act redirected the field staff (‘‘foresters’’) of the Department of Forests from protecting national forests towards building forest user groups to manage all of the nation's forestland without interference from outside of the community.

As per Gadgil and Guha, (1995), there are three main objectives and key policy issues of forest management within the policy discourse of forest management, and Nepal is no exception:

- *Ecological and resource conservation objectives:* maintenance of soil and water regimes; conservation of biological and genetic diversity.

[1] US$ 1= NRs 70.90

- *Livelihood and subsistence objectives:* provide for production of appropriate biomass and access entitlements to fulfill livelihood and subsistence needs as far as possible, for example fuel, fodder, agricultural implements and building materials.

- *Commercial development function:* provide woody biomass and non-timber biomass to fulfill commercial demand, for example for industry.

After the handover of the national forests to the communities as CF, the major forest management policy remains as such and that is to meet the above-mentioned three objectives. But the major objective behind the formation of the CF at its earlier stages was to support the livelihood and subsistence need of the rural poor.

The formation of CFUGs has led in many cases to improved natural capital and consequent improved and sustainable benefit flow in the longer term. However, population growth (see table below) has contributed to deforestation, threatening the sustainability of Himalayan ecosystems (Hausler 1993).

Table1.1. Population Trend of Nepal

Census year	Total population	Growth rate	Doubling time
1911	5,638,749	-	-
1920	5,573,788	-0.13	-
1930	5,532,574	-0.07	-
1941	6,283,649	1.16	60
1952-54	8,256,625	2.3	31
1961	9,412,996	1.65	42
1971	11,555,983	2.07	34
1981	15,022,839	2.66	26
1991	18,491,097	2.08	33
2001	23,151,423	2.25	31

Source: CBS 1995; CBS 2002

The sale of timber has been major source of income in CFUGs and is becoming the major incentive for forest conservation. This income has also been the source of increase in physical capital (KC, 2001).

However, sustainability of income depends upon how the income is earned and used. It is therefore imperative to understand the role of capital formation in community forestry in Nepal.

1.3. HISTORY OF FOREST MANAGEMENT IN NEPAL

The current Forest Management system is a result of an evolution of forest polices over a long period of time. The forest policy has had high influence from the political changes in the country over a long period of time. Therefore, the history of forest policies in Nepal can be divided into 4 different periods following policy changes and the political changes that have taken place in the country. The four periods are

a) Prior 1950s

b) 1950 – 1976, Regulatory period

c) 1976 – 1990, Participatory period

d) 1990 – till date, Community forestry period

1.3.1. Prior 1950s - Exploitation Period:

Prior 1950s Nepal consisted of small kingdoms and principalities until Shah dynasty of Gorkha unified those into present Nepal in 1769. Till that time there no any forest policy and there was also no need to regulate the forest as the population was small and forest resource plenty. The rulers encouraged individuals to convert forestland to agriculture to increase especially in the hills in order to increase food production and to increase state revenue through land tax collection (Wallace 1981; Mahat et al. 1986). Therefore, in absence of state regulation and control, the people collected what they need from the forests for their subsistence but occasionally royal orders were issued to regulate specified forest areas. This was continued till 1845.

This policy of encouraging individuals to convert forestland to agriculture was continued during the hereditary dynasty of the Ranas (1846–1950). In the mountains and hills, talukdars (village headmen appointed by the Ranas) had the responsibility of regulating forest use, but there was hardly any restriction on forest product extraction for subsistence (Mathema et al. 1999).

The extensive terai forests were little disturbed until the late 1920s, when the government initiated expansion of cultivated areas by clearing some forests and extracting timber in other forests for export to India to collect revenue (Joshi 1993). The government hired an experienced British forester (J.V. Collier) who had a long working experience in India for 1925–1930 to supervise and improve timber felling in the terai. Collier produced a report in 1928, which suggested extensive clearing of the terai forests for conversion to agriculture and settlements (Graner 1997). Large areas of forest were also allocated as "*birta*[2]"

[2] Land granted to individuals for special services. The system of granting *birta* was increasingly abused during the *Rana* period when members of the extended ruling family started issuing *birtas* favourably within their family and close relatives (Regmi, 1978).

land to the members of extended Rana families as favor by the government. According to one estimate, almost one-third of the total forests and cultivated lands were under birta tenure by 1950, 75% of that belonged to the Rana family (Joshi 1993).

In contrast, many rural communities in the hills and mountains used to protect and "manage" the forest for common benefits by establishing systems on their own initiatives. Those Indigenous Management Systems involved locally accepted rules through which a clearly fixed group of beneficiaries regularized forest use which were relatively sustainable to meet the subsistence need. Similarly, the traditional management systems involving "Talukdars" i.e. unofficial functionaries nominated by the Rulers, were also practiced in the hills and mountains. The Talukdars used to regulate the use of forest by local communities for their need of fuelwood, fodder, leaf litter etc. These systems worked well because, firstly, the demand on vast forest resources was limited due to low population and secondly, the Rana ruler used to recognize these system.

1.3.2. 1950 – 1976 Regulatory Period:

In the democratic revolution of 1950, the feudal Rana rulers were overthrown. The following government took the initiative to protect the forest resources by preparing a draft policy on rural forestry in 1952-53 with the help of a Food and Agriculture Organization (FAO) expert, E. Robbe. The policy pointed to two important problems requiring immediate attention, namely the problems of reforestation in the hills and soil conservation in the *siwaliks*[3] (Graner 1997). The draft policy, however, was not enacted and the practice of converting forestland into farmland and export of timber from the Terai continued even after 1950.

The first initiative was promulgation of Private Forest Nationalization Act 1957 which nationalized all private forest in order to remove the remnants of feudal land tenure and to prevent the deposed Rana rules and their family members from continuing the use of the Terai forest including "birta" land as their own property. But as a result of the nationalization of private forests, there had been a widespread conversion of soon to be deprived private forest into farm land in the Terai by the de facto owners taking advantage of lack of effective communication and a limited forestry administration. In addition, the government initiated the clearing of large areas of forestland in central Terai for resettlement of people affected by big flood in 1954.

The democratic government, however, was replaced by Panchayat system in 1960 in which the Shah Kings regained the power. The Panchayat government took the initiative to consolidate forest boundaries and to categorize the forest

[3] *Siwaliks* are a narrow strip of fragile hills extending east-west in between the middle hills and the *terai*. *Siwaliks* are also known as the *churia*.

into national, religious, lease and private forest by enacting the Forest Act 1961. The Act also tried to regulate the use of forest by listing offences and prescribing the penalties to be administered by forestry officials. To re-enforce the authority of the forestry officials, the government passed Forest Preservation Act 1967 which gave the forestry officials quasi-Judicial power to sentence the offenders. But local people in the accessible areas of hills overtime because apathetic towards government control of the forests, which they had been using for their daily needs. Alienation of people from resource use brought rampant destruction of the forests. The destruction of forests was aggravated by the population growth, their need of forest products and illegal conversion of more forestland into agriculture. The massive degradation of forest in the hills and mountain coupled with low agriculture productivity brought influx of migration to Terai illegally clearing natural forest for cultivation.

1.3.3. 1976 – 1990 Participatory Period:

Alarmed by the destruction of forests, the government tried to look at the forestry sector in totality and for the first time, tried to introduce scientific forest management in the country focusing on three main interlinked components – conservation, silvicultural management and utilization through the formulation of a National Forestry Plan 1976. The Plan also, for the first time, recognized the need for people's participation or communities' involvement in protection and development of forests. To implement the plan, the government in 1977 amended the Forest Act 1961 by making provision for a category of forest namely Panchayat Forest and Panchayat Protected Forest. In the follow up, Panchayat Forest and Panchayat Protected Forest Regulations 1978 were adopted which governed the handing over of parts of government forest land to village Panchayat, the local elected body, for management with benefit sharing mechanism. These rules were considered to be a landmark in the evolution of community forestry because of their formal recognition of the rights of local people or communities to manage their forest resources.

The move towards transferring the control of forest to the local people was further strengthened with the implementation of Decentralization Act 1982. The Act authorizes the district and village Panchayat to plan and execute district and village level development works. It also promoted the User's Committee concept as effective approach to development at the local level. But village Panchayat institution were unable to manage the forest as they could not muster the support of grass-root resulting into partial success. On the other hand, to combat the deterioration of mountain environment and protect the plains from natural disaster such as landslides, soil erosion and floods, the government enacted Soil and Watershed Conservation Act 1982 which allows the government to declare any area as a protected watershed and adopt land use planning system. However, the Act was not effectively implemented and remained defunct.

The government through the National Planning Commission formulated the Seventh Five Year plan (1985 – 1990) adopting and building on the policies of

National Forestry Plan 1976. The policy objectives were to meet the needs of people of forest products and to maintain or restore the ecological balance through reforestation and watershed management program. However, the main policy of the Seventh Five Year Plan in the Forestry Sector was to supply the need of fuel wood, timber, fodder and grass by carrying out afforestation on a large scale with the maximum participation of local people. In addition, the plan envisaged maximum people's participation in activities related to soil and water conservation by giving priority to protecting water sources of villages and the watersheds serving heavily populated areas of hills. Although the intentions of the Plan were noble, the policy declarations were less effective because of the absence of strong implementation institutions at the local and national level.

The government took another important initiative to formulate the Master Plan for the Forestry Sector 1989 providing a 25 years policy and planning framework for the forestry sector. The long term objectives of the Master Plan for the Forestry Sector were to meet the people's basic needs for forest products on a sustained basis, to conserve ecosystems and genetic resources, to protect land against degradation and other effects of ecological imbalance and to contribute to local and national economic growth. The Master Plan envisioned six primary programs, which are

- Community and Private Forestry
- National and Leasehold Forestry
- Wood based Industries
- Medicinal and Aromatic Plants
- Soil Conservation and Watershed Management
- Conservation of Ecosystems and Genetic Resources

Out of these six programs Community and Private Forestry Program was prioritized in the Master Plan. The primary program are supported by six supportive programs which includes Policy and legal Reforms, Institutional reforms, Human Resources Development, Research and Extension, Forest Resource Information System and Management Planning and Monitoring and Evaluation. The Master Plan is considered to be a turning point in taking program approach in Forestry Sector. Although the Master Plan was formulated with high hopes, most of the primary and supportive program could not be implemented effectively except Community and Private forestry program and Conservation of Ecosystems and Genetic resources program due to various reasons including resource constraints.

1.3.4. 1990 – till date - Community Forestry Period:

In 1990, the Panchayat system was overthrown and democracy was restored. The National Planning Commission formulated the Eight Five Year Plan (1992 – 1997) in which the policies of the Master Plan for the Forestry Sector 1989 were incorporated. The policies adopted for the Forestry Sector were:

- Public participation will be intensified through the implementation of private forestry, leasehold forestry and user's group based community forestry programs.
- Public participation in the prevention and control of soil erosion will be encouraged
- Public participation will be sought to help manage National Parks and a share of fee generated will be spent on developing neighboring rural areas to restore people's faith in National Parks & Reserves.
- The development of industrial forestry will be emphasized in appropriate areas.

In 1993, within the frame work of Master Plan, and the concept and policy of community forestry, the Forest Act 1993 was framed which legally empowered the local communities to manage their community forests.

The salient feature of Forest Act 1993 relating to community forestry are:

1. Forest User Groups are recognized as legal entities and as autonomous and corporate body.
2. Forest User Groups get registered as the District Forest Office along with its operational constitution.
3. Forest User Groups will have a fund of its own and 100 per cent of sale proceeds goes to the fund.
4. Forest User Groups can utilize 25% of the fund generated through sale of forest products for community forest development and the rest for and community development works.
5. District Forest Officer has been given authority to handover any part of National forest as community forest to Forest User Groups.
6. Forest User Groups can freely fix price, transport and market the forest produce from community forest.
7. Forest User Groups must manage the community forest according to operational plan approved by District Forest Officer.

8. Forest User Group can revise or amend operational plan with the consent of District Forest Officer except when it is likely to affect the environment.

9. Forest User Groups can punish its members who break the rules.

10. Forest User Committee members can be punished if they commit acts contrary to the provisions of Operation Plan and the constitution of Forest User Groups.

11. District Forest Office can take back community forest from Forest user Groups who fail in the implementation of their constitution or operational plan but can be re-handed over by re-constituting the User Group.

12. Forest User Groups can appeal against the decision of District Forest Officer with Regional Director.

To enforce the Forest Act 1993, Forest Regulation 1995 was promulgated which prescribed the procedural matters relating to community forests.

The salient features of Forest Rule 1995 relating to community forests are:

1. The boundary of ward, village or district will not be any bar in handing over forest to Forest User Groups.

2. There is no limit of forest area to be handed over as community forest to Forest User Groups provided they are willing and capable.

3. Forest User Groups can grow long term cash crop in a community forest.

4. Forest products in community forests can be mortgaged in financial institution to get loan for the development of community forest.

5. Forest User Groups are allowed to establish forest based industry to be run with the raw material yielded by community forests with the approval of District Forest Office.

6. Any (I) NGO can help the Forest User Group in the process of community forestry.

With the legal base implemented, the local communities were enthused to take over local forests as community forest by organizing or forming into Forest User Groups especially in the hills and mountains. Large areas of forests were handed over as community forest to FUGs by the government. Community forests program has taken a shape of mass campaign in the hills in restoring and conserving forests and at the same time, fulfilling the basic needs of forest products of communities.

Although the Master Plan for the forestry sector envisioned community forestry program in the hills, the Forest Act 1993 and Forest Regulation 1995 widened the scope of community forestry in the Terai plain also because the legislation encompassed the whole country.

1.4. COMMUNITY FORESTRY:

1.4.1. Concept and Policy of CF:

The concept of community forestry is not a new concept to Nepal. In the hills of Nepal, the local people had been practicing and managing local resources with their own initiatives through Indigenous management system. Though it was in a crude form, they were able to meet their basic needs of forest products in a sustainable way. Though there were no written rules or formal mechanism and legal authority, they work through consensus among themselves. In the present context, community forestry is based on the concept of traditional users, which formally forms into Forest User Groups (FUGs). The decision as to how these community forests should be managed and utilized is based on full participation of all members of FUGs and through consensus. The basic concept is that one who protect and manage the forest shall also utilize its products and that the forests should be managed in a sustainable way. All the users, rich and poor, and men and women should get benefit from the forest in an equitable way.

The community forestry policy basically considers the forest as community property as against the earlier recognition of it as national property. It aims to develop and manage forest resources through active participation of communities to meet their daily needs of forest produce. To achieve this strategy is to hand over all accessible forest to the communities to the extent that they are able and willing to manage them. The community forest policy recognizes the transfer of management responsibility of the forests but not the ownership of the land, which remains with the government. The policy does not allow differentiating between good forest and degraded forest when it comes to handing over for communities. Furthermore, the policy allow the communities to keep all the funds generated through the sale of forest products and even allow the fund to be used in any community development works.

This provision of allowing the funds to be utilized by the CFUG has helped in increase of different capitals in community. The incidence of capital formation in CFUG is further described in chapter 2.4.2.

1.4.2. Emergence of Community Forestry:

In 1978, Nepal's government introduced a new policy, which centered on the hand over of responsibility for the forest protection and management to local people in the form of Panchyat[4] Forest (PF) and Panchyat Protected Forest

[4]Lowest administrative unit at a village level of party less political system with active monarchy, which existed in Nepal prior 1990s.

(PPF). The approach was to designate specific forest areas and transfer responsibility for these forests to Panchyats. Nepali foresters have developed this policy in recognition of limitations of existing forest management policies.

The new policy, while it represented a move away from the previous approach, still did not allow increased access to forest products unless the hand over was accompanied by a forest management plan. Unless there was such a plan, approved by the Forest Department, legal use of forest products still excluded the cutting of green products. One way of looking at the changes is that, essentially they transferred responsibility for forest management, without transferring authority. Emphasis remained on plantations, protection of forest and motivating people to look after forests. While it was recognized that forest conversion was impossible with out active support from rural people, it was not quite recognized that obtaining cooperation was more likely if the legitimate needs of these people for forest products were met (Fisher, 1997)

Release of Master Plan for Forestry Sector (MPFS) Nepal in 1989 made it clear that CF had become the major component of forest policy. A significant point about the emergence of CF in Nepal is that the program was largely initiated and developed by forestry officials.

Implementation of community forestry in 1978s, which was top down, prescriptive and target-driven, was not really developing good systems of local management. The greatest focus was given to this sector when a 20-years MPFS was developed (HMG, 1989). This placed greater emphasis on CF, giving people more right and responsibilities in managing, protecting and utilizing the resources, with 47% of proposed investment of the forest sector in supporting the program.

Several principles were clearly defined to meet this priority:

- Phase hand over of all accessible hill forests to the local communities, to the extent they are willing and able to manage.

- Authorizing the user with the task of protecting and managing the forests and receiving all the income

- Emphasis on an extension approach aimed at gaining the confidence of forest users.

Studies showed that potential of such CF to be 3.5 million ha, 61 percentage of the total forest area of Nepal. The procedure for handing over a forest to a community consists of:

- Formation of user group, following an identification process

- Demarcation of a forest as a CF

- Preparation and approval of an operational plan
- Handing over the forest to the user group and implementation of the operational plan.

1.5. FOREST POLICIES AND PEOPLE

As forest losses and degradation are recognized and perceived by the state and local communities, forest policies have been changed. Along with the revision of forest policy, local communities have been also forced to change their familiar management systems or relationships with other social actors. Going through the history of the forest policies and management in Nepal we can find the following impact of the forest policies and management on people.

Table 1.2. Forest Policies and Impact on People

Management Regimes	Control Of Resources	Impact on People
Indigenous Forest Management	Local People	▪ Free to collect forest products. ▪ Rules were set by the community ▪ Little role of government
Government Managed Forest	Government	▪ Restriction for people to enter into the forest ▪ Collection of forest products banned ▪ Should seek permission from government to collect forest products ▪ Severe punishment for any violation of rules
Panchyat Forest	Partial Control of Community	▪ Community can protect and utilize the degraded forest. ▪ No control over the timber but limited collection of fuelwood and fodder ▪ To some extent protection of forest was possible through people's participation ▪ No legal right of the people so most of the time possibilities for harassments by forest staffs.
Community Forest	CFUG	▪ Legal right to use the forest ▪ Government has very little role except providing technical expertise. ▪ Rules for collection are set by the CFUG themselves ▪ Provision of own fund which can be utilized as per decision of general body of CFUG.

1.5.1. Indigenous Forest Management Systems:

Under indigenous forestry, local knowledge was fully utilized, possessing information about agriculture, agro-forestry, pest management, soil fertilization, multiple cropping patterns, health care, and food preparation (Agrawal 1995). According to Gautam (1991), indigenous forestry in Nepal is defined as the management systems that are not significantly affected by Western influences and that are operated as responses to local requests or initiatives through village or villager group meetings. Therefore, it indicates being a product of the time before forests were managed without any technical “inputs from other countries by way of imposition, inducement or extension” through seminars, workshops, meetings, plantation activities, and training.

According to Arnold and Campbell (1985), in this type of management system forest use was shared amongst adjoining villages. Management was undertaken with strong cohesive bonds amongst households and use of the forests was controlled with restricted access at certain times of the year, while during the rest of year the areas were protected and regenerated under the rules set up by groups who had their own management systems to deal with forest- related problems. Harvesting was regulated depending on the type of products and species, the condition of products, and the season. Villagers were willing to participate in co-operative forest management and to exercise rational use in line with the changes in forest condition. They preferred not to collect when they were aware of problems of diminishing resources such as shortages of fuel, fodder, and composting material. In order to exercise effective management and to enforce regulations, a watcher was hired, who was paid in grain gathered from every household except the poorest. The duties of the watchman were to patrol the forest and control access for collection and cutting of firewood and fodder, and for livestock grazing, according to the rules set up by the user group committee.

Indigenous forest management systems combine traditional authority and self-regulation in order to organize informal institutions. Households co-operate in such a way that individuals manage and minimize damage to the resources they rely on in order to meet their long-term needs (Soussan et al. 1995).

1.5.2. Government Managed National Forests

Government, formed after the 1951, introduced Forest Nationalization Act 1957 (2013) to bring all the forests handed over by the previous government to limited class of people in the form of *birta*. It ignored the diversity of existing management systems and took over the responsibility and autonomy of local people to manage the lands, converting community lands into state lands. It then released a new Forest Act in 1961 defining forest offenses and a new policing role for the department. The government also expanded its role in forest production and marketing. It initiated several forest-based industries, mainly in the lowland Tarai, with support from various donor agencies (Gautam, 1991). The

Forest Department was responsible for harvesting forests and supplying raw materials to these industries. The government was also heavily involved in exporting logs and other semi-processed forest products to the neighboring states of India.

This new policy took away the powers and interests of local people who had enacted rules to limit forest use and conducted monitoring, and also removed any incentives for sustainable use and co-operative management. Instead new stakeholders in the form of forest department and donor agencies were introduced. Forest department took the control of the forest management from the birta owners and also from the communities who had been managing their forest under their own indigenous system. On the other hand donor agencies were interested in fostering the industrial growth in "underdeveloped" nations. The role of the forest resource was to support the growth of industries and generate revenue for the state. To this end, donors supported the government's nationalization of forest resources and provided financial and technical support to establish forest-based industries in the Tarai. Under this scheme local people were not fitted anywhere and jeopardize the relationships between the local communities and the government (Malla, Undated).

This resulted in the rapid destruction of the forest, which was unable to be controlled by the limited numbers of staffs in Department of forests.

1.5.3. Panchayat Forest and Panchayat Planted Forests

In the 1970s, the government started to place a considerable emphasis on rural development and the protection of environment. In rural development, the government oriented its policies more towards fulfilling the "basic needs," taking a holistic approach through Integrated Rural Development Projects. It shifted its geographical focus for development activities from urban centers and more accessible areas of the Tarai to the neglected hills and mountain areas. The government also saw the need to seek wider public participation in the development process, especially in determining local people's needs and managing the planned development programs and activities at the village level. Consequently, in 1982, it passed a Decentralization Act, formally devolving decision-making authority to political units in the districts and villages. The government began to express an overwhelming concern for forest resource conservation and for the need to meet rural communities' requirements for forest products. In the late 1970s, it introduced community forestry rules and regulations with provisions to hand over forests to local communities for protection, management, and sustainable use. Thus two types of forest management namely Panchayat Protected Forest and Panchayat Plantation Forest came to existence. Through community forestry, it also intended to encourage rural communities to grow trees on their private farmlands by providing free seedlings.

Under this scheme there was some space for the local people to take breathe. To some extent the local people had control over the forest. But most of the forest where they had control was degraded forest and situation of most peasant farmers did not improve much during this period. For them, the community forestry policy reflected the typical attitude of government towards the rural poor, as well as the inability of its Forest Department staff to manage the country's forest resource, rather than a new concern for rural communities' forestry needs.

There has been a better policy environment for the peasant farmers, compared to the previous periods, because of the increased willingness of the national government and donor agencies to provide funds for community forestry and other rural development programs. However, the improvement was confined to somewhat better access to subsistence products from the forest, and this primarily in the hills of Nepal. Generally, peasant farmers were unable to take full advantage of the new policies to meet their own economic and political goals, in part because they were preoccupied with earning livelihoods, in part because other stakeholders were unwilling to form alliance with them.

1.5.4. Community Forestry

In 1990, following the people's movement and the disbanding of the Panchayat system, the political system based on parties was restored in the country. Since then civil societies organizations, especially NGOs have emerged at the national and local levels. Some key field projects (especially Nepal Australia Community Resource Management Project, Nepal Swiss Community Forestry Project, and the UK Government Supported Livelihood and Forestry Program) have continued to concentrate on community forestry activities.

During this period, government maintained CF policy and recognized the use rights of local communities to the forests, both within and outside the protected areas. It also passed the new Forest Act in 1993 and issued bylaws to implement the act, which is more in line with the democratic principles, with control and authority for community forest management vested in the local community.

Under this system the forest is officially handed over to the community and the users are entitled to enjoy the all rights of use of the forest.

1.6. RESEARCH OBJECTIVES

1.6.1. General objective:

The general objective of this study was to explore the contribution of the Community Forests (CFs) on the capital formation for the sustainable management of CFs and sustainable livelihood of its members.

1.6.2. Specific objectives:

- To find out the sources and status of financial capital formation.
- To find out the sources and status of human capital formation.
- To find out the sources and status of physical capital formation.
- To find out the status of social capital formation.
- To find out the status of natural capital formation.
- To explore on the contribution of community forests on reducing the vulnerability of people.
- Role of different capitals in livelihood of the people.

1.7. LIMITATION OF THE STUDY

The study was severely affected by the political disturbances in field area. The research team wasn't allowed to spent night at the field and wasn't allowed to carry any electronic equipment. There was ban on group discussions. The team was allowed to be in the field from 10:00Am to 3:00PM. Thus as per the situation it was only possible to select two CFUGs.

CHAPTER TWO: LITERATURE REVIEW

2. Major Problems in Forest Management in Context to South Asia and Nepal

2.1. Introduction:

This chapter examines how the forest management has changed over the time in developing countries. It also examines the changing needs of the people and their dependence on the forest for their livelihoods. The sustainability of the CF lies in the fact that it should be able to meet the needs and expectation of the present and future generations.

The objective of the forest management in the developing countries and developed countries lies far different. Management of the forest in developed countries is more market oriented, capital intensive, and managed for timber supply, tourism, wildlife and recreation. Whereas the forests in developing nations are more focused on meeting the basic needs of the rural poor and still far behind from the market oriented management (Mallik and Rehman, 1994).

This chapter will basically focus on different aspects of the CF. First would be the evolution of the CF and its trends in South Asia. Secondly it will cover the constraints and opportunities of CF, thirdly it would cover the capital formation in CF and its sustainability. Lastly it will also cover the people's access in different forest management adopted in Nepal. This chapter will also review the terms of livelihood and sustainability.

2.2. Evolution of Community Forestry in South Asia:

Historically, substantial parts of the forest resources in many regions of the world have been managed as common property. In a wide range of situations, people have depended on the outputs of forest resources that were best controlled and managed collectively. This was often because forests and woodland formed part of larger systems in which land needed to be controlled by the users as a group, or because rural households needed to fill gaps in the material and income flows from their own resources by drawing on nearby areas of forest, woodland or scrubland (Arnold, 1998).

South Asia has also the same history of forest resources being managed as a community property but under different environment as it encompasses a wide range of ecological and cultural conditions. There are marked differences between hill and plain and between forested and agricultural regions. Forest products from forest have historically constituted an important part of livelihood systems nearly everywhere. For large numbers of people this is still the case. Much of the area has a common history of the state exercising progressively greater control over forests. Though earlier rulers frequently claimed control over

forest areas, this seldom amounted to more than attempts to collect royalties. It was after the British colonial period that government started to lay legal claim to use of much of the forest estate, and to exercise these new powers. The control by the central government was greatly extended after postcolonial periods (Arnold, 1998).

The initiatives of the colonial government, from the mid-nineteenth century on, were directed at gaining control over the wealth represented by the forests and consequently focused on commercial forest management which was later followed by the respective governments. Early legislation limited private property to continuously cultivated land. Many local people lost their rights of access to the forests during the process of forest reservation, and those 'rights' that were legally recognized at that time have tended to be progressively circumscribed, downgraded from 'rights' to 'privileges', or extinguished by subsequent legislation and practices (Lindsay, 1994; Poffenberger and Singh, 1996). The best example of putting people away from the forest through legislation is the introduction of the Forest Nationalization Act 1957. This Act was brought to nationalize all private forests distributed by Rana regime to their loyal. This was done as a part of mobilizing the natural resources for national development and to allow more sustainable as well as equitable use of the resources. But government failed on every aspect. Due to poor organization it was unable to stop local elites from converting forest into agriculture and on the next hand the ordinary people who had been enjoying the traditional management and rights were kept away from the forest. The total impact was unregulated use of forest resources that lead to the deforestation and degradation.

Policies taken by the government were also responsible in large for the deforestation and degradation of the forest resources as most of the policies followed were just the continuation of the British which were more oriented in the timber supply. The loggings were allocated to the non-local people and during this the traditional rights where community were involved in forest resource management, were ignored (Lynch and Talbott, 1995; Poffenberger, 1996). This practice lead to more centrally controlled with very few room for the local people.

But the centrally controlled practice of forest management failed as it could not ensure the protection of the forestry largely due to the financial and lack of trained human resources in the forest departments (Lynch and Talbott, 1995; Poffenberger, 1996).

In some cases the situations of deforestation and degradation were presented as serious, and produced an immediate need for enhancement of biomass supply to mitigate the fuelwood and fodder crisis (GOI, 1976; World Bank, 1978). These views encouraged donors and national governments to go for large-scale afforestation projects in many regions of south Asia.

These large-scale afforestation projects brought more top-down approaches and conflicts between local communities and government got worse. Some success

stories of forest management with involvement of local community from the hills of Nepal and the continuous problem with the existing management system forced the governments to seek the alternative management options which involved local people. There were evidences of failure of the projects which excluded the people from the management and had top-down approach (Strum, 1994).

Thus, Social forestry was originally conceived by the national governments as a response to the 'fuelwood crisis' and to accelerating deforestation and success of the local communities in rejuvenating degraded public forests. This drew the attention of not only governments but also the donor agencies and first time the importance of the community participation in forest management was realized (Sekhar and Jørgensen, 2003; Lynch and Talbott, 1995; Poffenberger, 1996). The success of the hill forest managed by the community in Nepal forced the donors, NGOs, social scientists, planners to realize the importance of the local people participation in the forest management (Poffenberger, 1996). As a result, several community-based collaborative forest management between the community and the government were seen under different names such as community forestry in Nepal, Joint forest management in India and participatory forestry in Sri Lanka (Gilmour and Fisher, 1998).

But by large this system of management remained technocratic throughout the sub-continent emphasizing on biomass production and failed to respond to the needs of the poor and landless and was just a means for the government to attract the donors for funds (FAO, 1993). Though the management was a partnership, it was based on the 'Fuelwood Orthodoxy' approach. So, poor people from the rural community were still suffering. The rules for the management were still top-bottom approach.

Conservation and management of biomass resources and environment are embedded in an array of knowledge and local practices which was totally ignored by the most development projects. They also tend to ignore the ingenuity of rural people in responding to the local problems based on their local knowledge (Chambers, 1983). There was need to realize the importance of the indigenous management. For example in the Himalayan region, common practices of obtaining biomass resources from forests are through pollarding, pruning or selective cutting and not by felling of tress (Chambers, 1983). Similarly studies from Nepal have shown that, communities adjacent to forests mostly use dry wood as fuelwood and grasses for fodder that normally does not involve cutting of trees (Sharma and Shaw, 1993). For many local communities across South Asia, forests are not only of consumptive value, but also revered as places of great socio-cultural and religious significance (Chandrakanth *et al.;* 1990; Udaya Sekhar, 2001). The other factors that regulate resource extraction from forests include (a) traditional rights (b) religious practices (c) and non-use of certain tree species in the region. For example, people have a strong belief that felling of certain tree species such as 'neem' (*Azadirach indica*) and 'pipal' (*Ficus religiosa*) brings evil to the members of the household. Thus local systems of

knowledge and management are sometimes rooted deeply in their religion and belief systems, which help in conserving the resources. But, state's planning was often based on flawed premises or a lack of understanding of the people-nature dependency (Chandrakanth et al., 1990; Sharma, 1991).

It was only towards the beginning of 1990s that the shortcomings of the approaches became evident and since then community forestry interventions started taking a new direction. The forestry interventions started to encompass a rhetoric on a more 'people-oriented approach'. Community Forestry was then redefined as a concept, "where forest is managed by local people (living near or in the concerned forest) for their own benefit".

This importance of the people and communities and their participation in the resource management was highlighted in the Agenda 21[5] which gave strong platform to support the community-based nature conservation (Johnson, 1993).

As a result today people's participation in forest management has spread rapidly and many countries have changed their policy to ease the way to the people's participation. The concept of people's participation has revolutionized the management of forest in South Asia mostly in the hilly areas. The achievement today was unimaginable some 15 years ago (Poffenberger, 1996). As a result now we see evidences of growing involvement of people and communities in natural resource management with state involved in paving the way for the ease of people by bringing more decentralized forest policies. People in South Asia has witnessed the problems brought due to being put away from the forest management so they are more active in management then before with well organized rules and regulation. This has resulted more than 10.25 million ha. of Indian forest managed under Joint Forest Management in 22 states of India[6]. In Nepal, about an area of 3.5 million ha. (61% of total forest area) is identified as the potential forest area to be handed over to community as community forestry. Out of these the state has been successful in handing over 1.1 million ha. of forest to 13,000 forest user groups[7]. The people's participation in forest management has come in different names in different countries. Some countries the community are sole managers of community with very least interferences with the state as in Nepal well in other there are communities which manages forest with collaboration with the government as in India (Lynch and Talbott, 1995).

The success of the involvement of the community in South Asia has been a good example for the other part of the world. This management system has been projected as the sustainable forest management system (Adhikari, 1990; Lynch and Talbott, 1995). Changes in democracy, changes in society's interests in

[5] Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment

[6] http://www.iifm.org/databank/jfm/progress.html

[7] http://www.recoftc.org/02programs/COPS/nepal.html

forests and changes in the sustainable management of forests have increased the people's participation in forestry (ILO, 2005). The community forest management system has been popular in the sense that it has been able to bridge the gap that existed between the state and the people. This system has tried to balance the interest of both groups and mean time able to remain sensitive to ecological conditions, institutions and forest dependency (Lynch and Talbott, 1995).

Though the present scenario seems favourable to the community, there are some aspects which should be addressed immediately. Present management of the community is more on meeting the subsistence need of the people so there is still need for the external support from state to increase their capabilities.

2.3. CONSTRAINTS AND OPPORTUNITIES OF COMMUNITY FORESTRY:

2.3.1. Constraints:

Despite the expectations associated with community participation, these processes also have limits. Some of these limits are inherent in the issues, some in the broader institutional and cultural context in which community participation processes take place, and some relate to the stakeholders in a given process.

a) Community Participation – a long time consuming process

Community participation as defined is a process, which all participants undertake entirely voluntarily and in good faith (ILO, 2005). As such the community participation process cannot:

- Guarantee or predetermine the outcome
- Require the involvement of any who do not wish to take part
- Require implementation from those who do not wish to abide by the process.
- Determine areas or subjects, if others outside the process are responsible for these, without their agreement.

Thus to have the community participation, it needs to project the outcomes and should try to include all those who doesn't want to be involved and who doesn't want to abide by the rules. So, it is a process that should be followed to achieve the participation. Single conflict within the community or with outer community can stretch this time period of participation (Edmunds, 2002). To avoid the conflict, the first important aspect is the proper identification of the user and CF area. There should be representation from caste and ethnic groups (Chettri and Sigdel, 1999).

b) Threat from Government:

Though government has been very active in introducing the CF and supporting the process, still there is always fear hovering over the CFUGs. The potential for government to initiate community institutions is unclear in the theoretical literature on local resource management (Benhabib and Radner 1986; Dutta and Sundaram 1993, Seabright 1997), and in the model of Sethi and Somanathan (1996), government interference could destroy local norms that constrain resource use.

The autonomy enjoyed by the CFUGs in Nepal is always under threat from the government. There has been controversial proposed amendment of Forest Act 1993. The amendment if goes would be a catastrophe for the autonomous CFUGs. The government has reasoned that the bill is to 'regulate FUGs to check abuse of forests by its members'. The government claims that the proposed amendments will strengthen its 20-year-old CFM. Experts believed that the bill appeared to be a strategic legislation to snatch control over the densely forested and highly valued Terai (plain) forests from an aggressive community that wants to protect it from timber smugglers backed by politicians (Mahapatra, 2001).

c) Meeting Forest Products Needs From the CF

Most of the forests handed over to the communities are degraded national forests. These forests are unable to meet the subsistence needs of the community in its current status. So, the management plans are more focused in the conservation of the forest rather then utilization. Conservationists and development professionals argue that CF should be confined to sustainable yield harvesting in order to make sure that there is continuous supply of the forest products needs to the community (Hunt et al., 1996). Thus, the current management plans forbids harvesting of trees and is focused to rejuvenate the forest and the people are directly suffering. The direct impact of this rule set in the management plan is people are forced to enter into the national forest to meet their demands and thus further degrading the national forest at the cost of the CF (Soussan et al., 1991).

There has not only been ban on the harvesting of the forest products but in the process of handing over the CF to community, the need of the local people and local environment has totally been forgotten which has lead to serious consequences in the western part of Nepal. The user groups in Achham didn't include the herders and traders from Humla whose sheep used to enjoy the tradition winter grazing in those forests. Forest user groups along the route have also harassed herders by imposing excessive fees for passing through community forests, not allowing their sheep to graze, capturing the sheep, and physically beating the herders. The Humlis' lack of access to traditional grazing lands at lower elevations due to community forestry caused many sheep to die, so they either sold or slaughtered most of their sheep. This greatly affected their agriculture, food and wool supply, as well as job opportunities for young men. In

1998, 400 people died in Humla due to famine and a diarrhoea epidemic. Although a variety of events contributed to this tragedy, excluding Humlis from traditionally used land with the onset of community forestry certainly contributed to their food insecurity. The spirit and intention of the policy to provide equity and access to the users failed (Winrock, 2002).

Similarly in India after the initiation of the forest protection under JFM many women have suffered. The sale of the Sal (*Shorea robusta*) leaf plates was common source of income for many people in West Bengal, Orissa and Bihar. But after the initiation of the JFM, harvesting of these leaves were restricted due to heightened protection (Sarin, 1995). Beside this the labour and time spent in household chores increased due to combined effects of switching to inferior fuelwood and travelling long distance to unprotected forest to collect fuelwood (Sarin 1995).

d) Problems at community Level:

The people's participation is the major backbone for the successful implementation of CF. But at present context there are several constraints existing at the local level which should be addressed for the effective management of the CF. These issues are

- Technical Know How
- Institutional and Administrative Weakness of Communities
- Inequality
- Lack of vision in Management

Although much experience has been gained in how to develop local organisations for management of forest resources, it is still unclear what the long-term developmental impact of these organisations will be, particularly on forest-dependent groups access to resources. In several instances, as the products increase in value it has become apparent that the access of marginalized groups to the forests is questioned by more powerful groups. However, more knowledge is required to determine distributional impacts among groups and to assess the trade-offs that are occurring at local level. Similarly, local management of resources to fulfil local objectives also implies that other trade-offs will also be happening and that perhaps other stakeholder groups are losing out (Hobley and Shah, 1996).

Despite the successful development of community forestry in Nepal there are instances when not all people receive the same benefits (Shrestha 2002). Management problems are basically issues relating to equity within local forest communities with disadvantaged groups, whether by wealth, gender or caste, being the ones, most likely to suffer from one or more, of the following: (i) failure to give access rights to all people who depend on local forests, (ii) disputes over

the geographical boundaries of forests and other land uses, (iii) unequal and discriminatory portioning of the uses, (iv) unequal participation by stakeholders in key decision-making process, and (v) unfair distribution of workloads (Agarwal 2001; Ostrom 2001). Although the above-mentioned are the current social and socio-political issues those need to be solved for further development of CF. CFs in Nepal are having a positive impact on restoration of degraded land and forest vegetations, increasing biodiversity, reduction of excessive grazing, forest fires and forest encroachment activities.

2.3.2. Opportunities:

With over 13,000 of CFUGs spread over the 75 districts proves popularity of the CFs in Nepal despite many constraints in CF management because it can act collectively to restore population and resource imbalances and establish harmonious relations between local livelihoods (Leach et al., 1997). Opportunities from the CF can be summarized broadly into following broad categories:

- Rural Development
- Sustainable Management of Natural Resources

a. Rural Development:

There are numerous documented cases where community forest management has helped in rural development through the use of the CFUG funds and also through the voluntary service in the community development. Activities such as construction of village trails, small bridges, community building, schools and temples are the good examples of rural development initiated by the CFUG in their own fund generated through the CF. These developments though seems in a small scale are very important. Local community determine their needs, solutions and act accordingly. When these initiatives are compared to the outside sponsored development activities, these are more sustainable as outside sponsored development activities many times fail to provide continuous benefit after the termination of the project. On other hand there is continuous support from the CFUG to carry out the maintenance of development activities they had carried on their own.

CFUG has also been able to provide some off-farm employment such as in the harvesting of timber and non-timber forest products, processing and transportation of these products to the growing labour force (Hunt et al., 1996; Maharjan, 1996; Campbell et al. 1996). Improvements in resources in terms of productivity and diversity of the vegetation have helped rural communities to increase their income thorough sale of timber and NTFPs (Mutamba, 2004; Jackson and Ingles, 1995; Hunt et al., 1996; Maharjan, 1996; Sarin, 1995). These activities are extremely important to make community self-reliant.

b. Sustainable management of natural resources:

One of the main reasons for the success of CF in Nepal is that there are rights to access for limited specific users (McKean and Ostrom, 1995) which was not guaranteed in any other management regimes. In absence of such rights, the resources are always vulnerable for over exploit leading to the *tragedy of the commons* (Ascher, 1995). CF management regime involves local communities in all aspects for their own benefits and conserve the forest for future generation thus prevents the tragedy of commons as described by Hardin (1968). Community forestry management consists of institutions and rules which define and assign duties, rights and rewards and is based on sound management principles that incorporate transparency, accountability and democracy because the unit of management is community (Child, 1996). Thus there is possibility of sustainable management of natural resources under this management regime maintaining critical balance between economy and ecosystem.

2.4. CAPITAL FORMATION IN COMMUNITY FORESTRY:

Wise forest management has never been more important or more urgent challenge. People everywhere depend on trees for an enormous range of vital products and materials. Trees supply not only that most versatile of building materials, wood; they also bear fruit and provide a variety of useful resins and oils. Many families derive a major part of their cash income from the sale of these products. As well, by far the most important source of energy in developing countries is neither petroleum nor hydroelectricity but wood used as fuel. Even trees that do not supply food themselves may help agriculture by contributing to soil conservation, by providing livestock fodder, or by giving shelter to herds and crops and creating favorable microclimates.

The practice of forestry has changed dramatically over the last 30 years. In addition to its traditional role in the protection and management of trees, forestry now takes a holistic approach to resource use and now they are managed through people's participation as CF or social forestry. CF stresses the need for the participation and active involvement of local communities in all aspects.

Initially, community forestry was conceived as a strategy to address deforestation and rural development in developing countries. Hence, there is a long list of community forestry initiatives in developing countries during the past two decades (Carter, 2000). It is well aware that every rewards and incentives are important factors for people's participation and keeping CF successful. CF in developed countries, has created growing public interest as CF has been an alternative form of sustainable forest management in improving local economy, environmental improvement, community value and needs including creating a feeling of community stewardship in forest resource management (Duinker et al. 1991). There has been also reorganization of the importance of the capital formation for ensuring the sustainability (Thoms, 2004; Dongol, 1999).

2.4.1. Role of Forest Products in Rural Community:

Trees and forests provide a range of benefits in the form of goods and services that arise from direct and indirect use. These may be tradable goods, such as timber, fuelwood, Non-timber Forest Products (NTFPs), and those that cannot be traded, the latter mainly being services such as a regular supply of clean water or the conservation of soil fertility. Arnold and Bird (1999) present main features of forest output/livelihood relationships, and the ways in which they are impacted by change, in the following table 2.1.

Table 2.1: Forest Outputs and Rural Livelihoods

Livelihood inputs	**Characteristics**	**Impacts of change**
Subsistence goods	Supplement/complement inputs of fuel, food, medicinal plant products, etc., from the farm system; often important in filling seasonal and other food gaps; forest foods enhance palatability of staple diets, and provided vitamins and proteins	Can become more important where farm output and/or non-farm income declines Likely to decline in importance as incomes rise and supplies come increasingly from purchased inputs; or as increasing labour shortages/costs militate against gathering activities, or divert subsistence supplies to income generating outlets
Farm inputs	On-farm trees provide shade, windbreaks and contour vegetation; trees/forests also provide low cost soil nutrient recycling and mulch Arboreal fodder and forage, fiber baskets for storing agricultural products, wooden ploughs and other farm implements, etc.	Trees can become increasingly important as a low capital means of combating declining site productivity, and a low labour means of keeping land in productive use (e.g. home gardens) Increased capital availability, and access to purchased products, likely to lead to substitution by other materials (e.g. by pasture crops, fertilizer and plastic packaging)
Income	Many products characterized by easy access to the resource, and low capital and skill entry thresholds; mainly low return activities, producing for local markets, engaged in part-time by rural households, often to fill particular income gaps or needs (though they can be major sources of employment and income for forest dwelling populations); overwhelmingly very small, usually household based, enterprises (with heavy involvement of women, as entrepreneurs as well as employees); Some forest products provide the basis for more full time and higher return activities; usually associated with higher skill and capital entry thresholds, and urban as well as rural markets Some low input gathering activities involve raw materials for industrial processes and external markets	With increasing commercialization of rural use patterns some low-input low-return activities can grow; however, others are inferior goods and decline, some are displaced by factory made alternatives, and others become unprofitable and are abandoned as labour costs rise Higher return activities serving growing demand are more likely to prosper, particularly those serving urban as well as rural markets; as this happens an increasing proportion of the processing and trading activity is likely to become centered in small rural centers and urban locations Gathered industrial raw materials tend to be displaced by domesticated supplies or synthetic substitutes
Reduced vulnerability	Can be important in diversifying the farm household economy - e.g. providing counter-seasonal sources of food, fodder and income. Also important in providing a reserve that can be used for subsistence and income generation in times of hardship (crop failure, drought, shortage of wage employment, etc); or to meet special needs (school fees, weddings, etc.)	The "buffer" role of forests and trees can continue to be important well into the growth process Likely to decline in importance as government relief programs become more effective, or new agricultural crops, or access to remittance incomes, make it less necessary to fall back on forest resources

People living in rural environments are likely to draw heavily on that forest and its outputs. The forest, as well as providing a wealth of material outputs of subsistence or commercial value and the basis for rotational agriculture systems that depend on the ability of bush fallow to revive the productivity of the land, constitutes an integral part of social and cultural framework of those living within it. Elsewhere, the importance of forest products is more likely to be in the way they complement other sources of subsistence inputs and income, than in their absolute magnitude or share of overall household inputs. The majority of rural households in developing countries meet most part of their construction, storage, agricultural, energy, nutritional, medicinal and income needs from forests. These inputs are often particularly important in bridging seasonal gaps, and in helping households tide themselves over longer periods of shortage (Arnold and Bird, 1999).

Ease of access and proximity to widely dispersed rural markets enable very large numbers of people to generate some income from forest products. Income from forest products seldom appears to account for a large share of a household's total income, but is often important in filling seasonal or other cash flow gaps, and in helping it to cope with particular expenses or to respond to unusual opportunities. Income from forest products activities may, for example, finance the purchase of seeds for the new crop season, or the hiring of labour for cultivation, or generate working capital for trading activities (Leach and Fairhead 1994). Forest product activities can also provide an important supplemental source of income that people can fall back on.

These activities can therefore be very important to the poor in situations in which they are unable to obtain income, or sufficient income, from agriculture or wage employment, and few other options exist. Though it is often the wealthier in a community, with more resources to devote to forest product gathering and production, who are the heaviest users, the poor usually derive a greater share of their overall needs from forest products and activities (Ogle, 1996; Leach and Fairhead, 1994). Easy access to the resource and low entry thresholds enable many women to generate income from forest products activities, and they can be more dependent on such income than men.

Peters et al. (1989) have showed that an hectare of Amazonian forest managed for NTFPs can perennially yield better economic returns per hectare than a comparable area from which only timber is extracted. Poffenberger (1990) further supported this study. Several other studies have confirmed the large-scale income and employment generation potential of NTFPs across different regions (IDRC, 1980; Weinstock, 1983; FAO, 1989).

Awareness is now growing on the importance of NTFPs and its role in livelihood of rural poor. Tewari and Campbell (1995) point that management and development of NTFPs is important for various reasons. First, forest management focused on the production of NTFPs may be ecologically and economically sustainable provided that extraction rates do not exceed the

maximum sustainable yield. Second, these are a vital source of livelihood for a large portion of the poor in many developing countries. Third, in addition to subsistence and income-generating potential, NTFPs also provide food security to large low-income populations, their cattle and other domestic animals, particularly during droughts or famines (FAO, 1989).

Around 80 per cent of the population in developing countries use NTFPs to meet nutrition and health needs (FAO, 1999). Particularly for the poor in developing countries, NTFPs can be of crucial importance, both for the material needs of the family and as a means to generate a little income. For example, in West Bengal, India many village communities derive as much as 17 percent of their annual household incomes from NTFPs (Malhotra et al., 1991). Other estimates suggest that up to 35 percent of the income of tribal households in India comes from the collection of unprocessed NTFPs. Also, since NTFPs involve a large variety of seasonal products, returns are frequent and relatively continuous. Moreover, local processing of NTFPs can increase off-farm rural employment opportunities. Small-scale forest-based enterprises, many of them based on NTFPs, provide up to 50 percent of income for 20 to 30 percent of the rural labour force in India (Campbell, 1988). Similarly, in China, villages with poor transportation, income from tea, shellac and collecting non-timber products in and outside of reserve account for 50% to 60% of total family income (Quingkui, 1999)

Employment is critical to economic development. Rich and poor nations alike have national policies and programs to attain full employment and to avoid the dangers of high unemployment. Forests and forest-based industry are increasingly recognized as key elements of development as they figure prominently in people's lives in terms of social and economic benefits. Increasingly, policies are explicitly constructed to maximize the economic and employment benefits of forests and forest-based industry. Small-scale forest-based enterprises make significant contributions to rural employment.

2.4.2. Incidence of Capital Formation in Community Forestry:

When speaking of capital formation in CF most of the people’s first impression would be the fund generated in the CF. The financial capital is one of the major capital formation in CF. But we cannot underestimate the other four capital formation through the CF. The literatures have been able to cover widely on the financial capital formation in CF but very few studies has been carried out to disclose the other remaining capital formation in CF.

The major financial capital is generated through sale of timber, membership fees, and sale of NTFPs but still many CF should rely on the government and donors to support fully themselves as most of the forest handed over were degraded forest and these forests are not yet in position to earn substantial revenue. This is directly preventing income generation opportunities for communities (Lal, 1997; Lynch and Talbott, 1995).

But this is the financial capital we see. The other capital is seen very effectively increasing such as natural capital is growing along with the human and social capital. People have now realized the importance of unity and this has led them to create an ethic in the use of resources. Handing over of the forest has increased organizational behaviour in them and this has lead to some success of forest conservation through CF. With more organized and strengthening other capitals, the CFs are now starting to increase their physical and financial capital. Sati-Karnali CFUG in Kailali district of Nepal has been investing on development activities such as infrastructures of their communities. They have been constructing roads, store house, drinking water facilities, even have two ambulances and have constructed separate rooms in hospital for the people of their community. This is all done by the sale of rattan and not timber (KC, 2001). Similarly, table below shows that 12 years old CF with an area of 70 ha. was found to generate around US $150/ha (Frits, 2000).

Table 2.2. Revenue Generated from 12-years old 70 ha. CF

Items	**Revenue in NRs**
Organic Leaf Litter	36,000
Fodder	90,000
Timber Harvest	168,000
Fuelwood	90,000
NTFPs	270,000
Penalty	5,000
Total	**819,000** **(US$ 10,500) = US$ 150/ha**

Source: Frits, 2000

The growing strength of the CF in terms of financial capital can be also seen from the fact that in the year 2002, the income of Department of Forestry (DoF) was US $ 7.76 million whereas the income of CFUGs which covers around 25% of forest area was US$ 10.44 million (Kanel and Niraula, 2004).

2.5. CONCEPT OF SUSTAINABLE LIVELIHOOD:

The concept of sustainable livelihoods has been gradually developing over the last decade to a position where it is widely accepted as offering new insights into the dynamics of development and the diversity of experiences of poor (and other) people throughout the world. It is an approach that is flexible and dynamic, and in particular that provides a basis for understanding the relationship between poor communities, their local environment and external socio-economic, environmental and institutional forces.

Chamber and Conway (1992) presented a definition of sustainable livelihoods that is widely accepted:

> "*A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable*

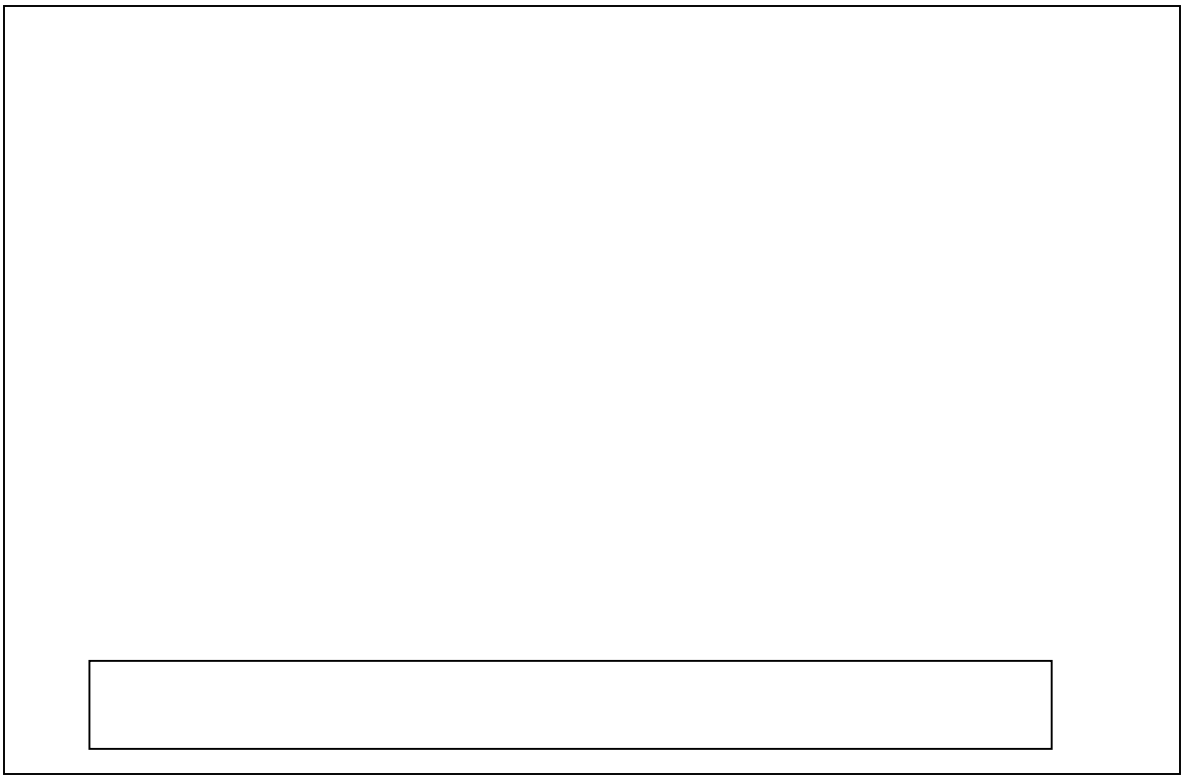
livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the long and short term"

Predominantly the poor of the world depend directly on natural resources, through cultivation, herding, collecting or hunting for their livelihoods. Therefore, for the livelihoods to be sustainable, the natural resources must be sustained (Rennie and Singh, 1996). This is certainly true where, as is the case for many rural communities, access to natural resources is vital to many activities that are key parts of the livelihoods of the poor.

Thus DFID (1999) further adds that

"A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base"

Figure 2.1: Sustainable Livelihood Framework (DFID, 1999)



Source: DFID, 1999

Sustainable livelihood is a way of thinking about the objectives, scope and priorities for development with the ultimate aim of poverty elimination (DFID, 2001). It is a holistic approach that tries to capture, and provide a means of understanding, the vital causes and dimensions of poverty without collapsing the focus onto just a few factors (e.g. economic issues, food security, etc.). It also

tries to sketch out the relationship between the different aspects (causes, manifestations) of poverty, allowing for effective prioritization of action at an operational level (figure –2.1) (DFID, 1999).

As per Scoones (1998), the sustainable livelihood framework has a number of basic elements. The key question to be asked in any analysis of sustainable livelihoods is:

> *Given a particular context (of policy setting, policies, history, agro-ecology and socio-economic conditions), what combination of livelihood resources (different types of capital) in the ability to follow what combination of livelihood strategies (Agricultural intensification, livelihood diversification and migration) with what outcomes? Of particular interest in this framework are the institutional processes (embedded in a matrix of formal and informal institutions and organizations) which mediate the ability to carry out such strategies and achieve (or not) such outcomes.*

The livelihoods framework is a tool to improve our understanding of livelihoods, particularly the livelihoods of the poor that was developed by the sustainable rural livelihoods Advisory Committee, building on earlier work by the Institute of Development Studies (amongst others) (DFID, 1999). The framework presents the main factors that affect people's livelihoods, and typical relationships between these. It can be used in both planning new development activities and assessing the contribution to livelihood sustainability made by existing activities (DFID, 1999).

2.5.1. Livelihood Resources

The ability to pursue different livelihood strategies is dependent on the basic material and social, tangible and intangible assets that people have in their possession. Drawing on an economic metaphor, such livelihood resources may be seen as the ‘capital’ base from which different productive streams are derived from which livelihoods are constructed. In the above figure 2.1, five different types of ‘capital’ are identified. Within each of these areas there is a wide literature and much debate about definition and measurement (Scoones, 1998). Here a simple set of definitions is offered, each amenable to empirical investigation.

- ***Natural Capital*** – the natural resource stocks (soil, water, air, genetic resources etc.) and environmental services (hydrological cycle, pollution sinks etc) from which resource flows and services useful for livelihoods are derived.

- ***Economic or Financial Capital*** – the capital base (cash, credit/debt, savings, and other economic assets, including basic infrastructure and production equipment and technologies) which are essential for the pursuit of any livelihood strategy.

- ***Human Capital*** – the skills, knowledge, ability to labour and good health and physical capability important for the successful pursuit of different livelihood strategies.

- ***Social Capital*** – the social resources (networks, social claims, social relations, affiliations, associations) upon which people draw when pursuing different livelihood strategies requiring coordinated actions.

- ***Physical Capital –*** Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods. Infrastructures consist of changes to the physical environment that help people to meet their basic needs and to be more productive. Producer goods are the tools and equipment that people use to gathering more productivity.

In order to create livelihoods, therefore, people must combine the 'capital' endowments that they have access to and control over. These may be made up of personal capabilities, tangible assets (e.g. stores and material resources) and intangible assets (claims and access) (Chambers and Conway, 1992). At any scale, livelihoods are composed in complex ways, with multiple and dynamic portfolios of different activities, often improvised as part of an on-going 'performance' (Richards, 1989).

CHAPTER THREE: METHODOLOGY

3.1. CONCEPTUAL FRAMEWORK

This study used the Sustainable Livelihood Framework (SLF) for assessing the contribution of community forestry on capital formation and all of the five capitals of the SLF. The study focused on five capitals – social, natural, human, financial and physical. But this study did not assess the social capital in depth considering the time availability and complexity in measuring it. However, descriptive analysis on social capital was made.

- **Natural capital**, land, water and communal property resources
- **Human capital**, education and health status
- **Financial capital**, landing institutions, pensions and remittances
- **Physical capital**, in particular roads, electricity and sanitation

In order to measure the different capital, following indicators and verifiers were used.

Table 3.1. Criteria Indicators and Verifiers To Access Capital Formation in CFUGs

SN	Criteria	Indicators	Verifiers
1	Natural capital	Forest Condition	• Species Richness • Tree Density • Crown Cover • Regeneration • Erosion • Plantation • Regeneration
		Biotic Pressure	• Grazing • Encroachment • Illicit Felling • Green Harvesting • Fire Incidence
		Forest Products	• Availability of forest products (FPs) • Demand and supply analysis • Change in time taken to collect FPs • Changes in cost of FPs
		Initiation of Multiple use Management	• Forest management measures • Establishment of forest nursery • Soil and water conservation measures • Biodiversity conservation measures • NTFPs cultivation and management
2	Human capital	Literacy	• Access to adult education • Education opportunities for children • Education (stipend, literate and illiterate rate)

		Health	• Access to better health facilities • Operational health safety
		Training	• Types of trainings - IG, Leadership, Gender, Good governance, Decision making, Safe motherhood, Sanitation and health • No. of people participated
		Exposure Visits	• No. of people participated
		Seminar/Workshops	• No. of people participated
3	Financial capital	Fund Mobilization	• CFUGs' income and sources • CFUGs' expense and sources
		Loan	• Soft loans offered by CFUGs • Change on dependency on money lender
		Financial Institutions	• Change on access to financial institutions • Change on dependency on money lenders
		Financial Support	• Change in financial costs to collect forest products • CFUG fund and grants and available in crisis • Investment on enterprise development
4	Physical capital	Infrastructure/Community Development	• Construction and maintenance of trails, bridges, community building, training center, schools, temples, health post, and other community based facilities and services (cycle maintenance, bookshop retailer shops, green vegetable market. • Forest protection measures: demarcation, boundary alignment, tools for tending operation, nurseries, land tenure
		HH asset position	• Value of HH assets
		Livestock holdings	• Livestock numbers
5	Social Capital	Membership	• Participation in community organizations/activities • Formation of sub groups/special interest groups • Influence on decision making
		Networking	• Membership with federation • Coordination and linkages with other line agencies
		Conflicts	• Within group • Outside group
5	Cross cutting	Gender	• Role of women • Participation level of women in different levels

Tools used for study 2005 by researcher

3.2. STUDY AREA:

The study was carried out in two CFUGs of Makawanpur district. This district lies in the inner Terai of Nepal. The climate here is tropical climate with Sal (*Shorea robusta*) forest as the major forest, which is economically very valuable species of Nepal.

3.3. CFUGS SELECTION:

For the purpose of this study, following procedure was followed to select the CFUGs.

- A list of the CFUGs handed over by the DFO Makawanpur and whose operation plan has been renewed was prepared along with their area and numbers of household. This renewal meant that CFUGs were older than five years.

- From this prepared list of CFUGs, two CFUGs ware selected after the consultation with District forest staffs. The selection of the CFUG was based on

    - Implementation of various programs focusing on various aspects of community forestry for the last 9 years.

    - Different forms of capital formation through collection of funds and their utilization in community development activities.

3.4. DATA COLLECTION:

In order to obtain required information, both Participatory Rural Appraisal (PRA) and conventional approach of data collection was used. Table 3.1 presents tools used for the study and its specific purposes. Well being ranking was carried out at each CFUGs and Households (HHs) survey was carried out on the basis of their proportion with intensity of 10 percent sample units (HH). Information was collected through structured questionnaires and interviews with local people.

Table 3.2: Tools Used for the study

S.N	Data collection/information generated	Tools used
1.	VDC physical location, natural resources, ward division, physical infrastructures, settlement pattern etc. (Study area overview)	VDC sketch map
2.	Household number, ethnic composition and resources (a Ward)	Social and natural resource map
3.	Identification of local's criteria for well-being, number of households (poorest of the poor), Economic status classification	Well-being ranking
4.	General understanding of situation	Observations
5.	Information related to capital formation	Questionnaire survey

FOCUS GROUP DISCUSSION AND INTERACTION

Following data collection method was adopted to meet the objectives of the study.

- ***Review analysis:*** Secondary information was collected from related publication, documents, research papers, district forest office, and CFUGs documents as per necessary to assess the contribution of CF on capital formation.

- ***Questionnaire Survey:*** Questionnaire survey was developed to collect the data from the CFUG members and from the CFUC members. Following themes were included in the questionnaire.

    - Respondents' knowledge of FUG funds and forest management;

    - Perception of fund raising and the sustainability of CF;

    - Current attitudes about CF after collection and utilization of funds in community development activities; and

    - Current feelings about CF.

- ***Interview:*** Based on the outcome of the questionnaires and groups discussions, interview was conducted with government and non-government staffs. The interviews were mostly based on their perception on the collection and use of CFUG's fund, the effect of the capital formation in the respective CFUGs.

3.5. DATA ANALYSIS:

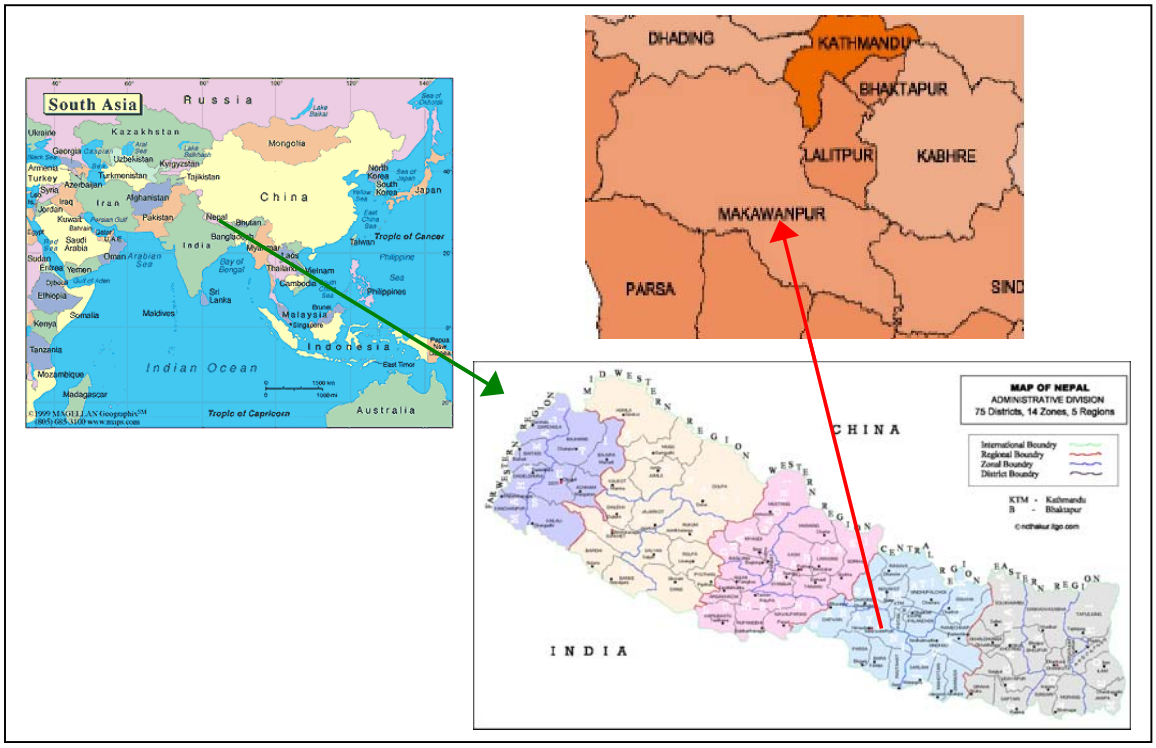
The quantitative data obtained from questionnaire surveys was analysed using simple statistical tools. Each question was treated as a variable for analysis. Frequency counts; percentages, means, and standard deviations for different variables were calculated to describe the beliefs of respondents in different clusters. Similarly, cross-tabulation analyses were carried out to determine the relationship between independent, intervening, and dependent variables. Qualitative information was analysed by using summarizing and typologizing techniques. The average value of each variable for each cluster was calculated and presented in tabular form, graphs and charts in order to determine the elements of a successful FUG and to reduce the range of information to a few key characteristics.

CHAPTER FOUR: THE STUDY AREA

4.1. MAKWANPUR DISTRICT

Makwanpur district of Nepal is situated in Narayani Zone of the Central Development Region having Bagmati River in the east and Lohthar River in the west boarder. Geographical position on the globe is longitude 84°41' E to 85°31' E and latitude 27°10' N to 27°40' N. Total area of the district is 2426 sq. km. which is 1.65% of total area of Nepal. Geographically, it may be divided into three regions from north to south; viz. Mahabharat, Siwalik Bhanwar and Terai or plain region. It is divided into three electoral constituencies, forty-three VDC[8]s and one Municipality. The altitude of the district ranges from 166 to 2584 m. from msl.

Figure 4.1. Location of Study Area:



Likewise, of the country, the livelihood of more than 85% of the district population depends on the agriculture. The living standard of rural people could not be improved, despite of the top priority given to the agriculture sector, because the rural infrastructure/service centers such as rural roads, market centers, communications are not within the reach of them, with respect to agricultural sector, roads and irrigation can play a vital role in raising the living standard of the inhabitants of Makwanpur district. The rural roads, termed, as Agricultural Roads are even more important in this regards. The existing rural road network, which is fair weathered, is about 291 km. in the district. According to the

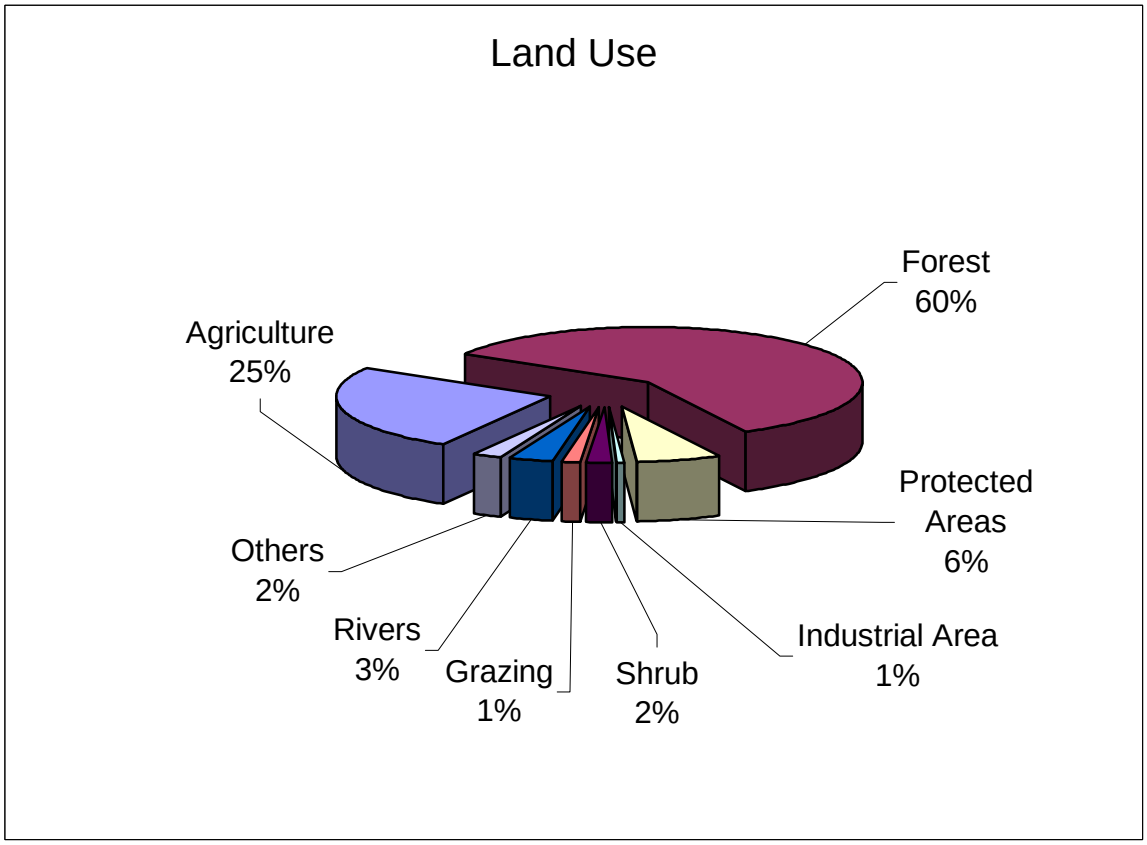
[8] Smallest administrative unit at village level.

Agricultural perspective plan, the ninth five-year plan has focused on the development of the rural infrastructure as a major component.

The district is bounded in the west by Chitwan district, in the north by Dhading and Kathmandu districts, in the east by Kathmandu, Lalitpur, Kavre and Sindhuli districts, in the south by Bara, Parsa and Rautahat districts of Nepal.

Out of total area of Makawanpur district, major land use is forest cover followed by agriculture lands. The detail land use is given in the figure below.

Figure 4.2. Land Use of Makwanpur District



Source: Makwanpur DDC, 2005

The economic sector of the district is mainly dominated by primary production activities. Industrial production and service sector production account very low proportion. The overall development status of the district computed by composite index is ranked at 38 out of 75 districts (ICIMOD, 1997). Status of this district in some of development infrastructures and services indexes in comparison to all other districts of Nepal is shown in table 4.1.

Table 4.1. Status of infrastructures, services and resources development of Makwanpur

Sn	Indicators	Rank	Remarks
1	Poverty and deprivation	29	
2	Natural resource endowment	46	
3	Socio-economic & Infrastructure development	30	
4.	Landless and marginal farm households	26	40.92%
5	Per capita food production (in calorie)	51	2917ca.
6	Drinking water coverage	09	37.15%
7	Agricultural credit	49	12.3%
8	Farm size	20	0.65 ha
9	Cropping intensity	70	
10	Irrigated area	46	12.02%
11	Road density	67	1.87 m ha^{-1}
12	Per capita forest area	50	
13	Overall average ranking	38	

Source: Makwanpur DDC, 2005

From the above table we can see that about 41% of people are landless and have marginal farm but still it stands at the rank of 26 out of 75. In context to drinking water coverage it ranks at 9^{th} with about 37% of people access to drinking water. Average farm size is 0.65 ha. and only 12.02% is irrigated.

4.1.1. The Rani CFUG

The Rani CF is located in ward no-6 of Hetauda municipality in Makwanpur district of Nepal. It covers and area of 151.87 ha natural forest, with some plantation. It is handed over to a 635 households of 4,000 populations for its protection, management and utilization in 1993. The community forest is dominated by Sal (*Shorea robusta*). It is reasonably dense forest comprising of other species Saj (*Terminalia tomentosa*), Chilaune (*Schima Spp)*, Chap *(Michelia champaca)*, Botdhaero, Masala (*Eucalyptus spp.*), Sissoo (*Dalbergia sissoo*), Bakaino (*Melia azadirach*), Bhorla (*Bauhinia vahlii*), Khamari (*Gmelia arborea*) etc. The Wild animals found in this CF are Common Leopard (*Panthera* pardus), Nigale Chituwa (*Neofelis nebulosa*)*,* Monkeys (*Macca mulatta*), Jackals (*Canis aureus*), Ban biralo (*Felis silvestris)* etc. The birds Mayaur (*Pavo cristatus*), Kalij (*Lophura leucomelanos*), Lueche, Dhukur (*Streptopelia spp*.) etc. are found in this CF. Similarly the CF also rich in Non-timber forest products (NTFPs) like Kurilo (*Asparagus racemosus*), Jhau, Sarpaganda (*Rauvolfia serpentine*) Parijat (*Nycanthes arbortrisis*), Rajbriksha (*Cassia fistula*), Chiraito (*Swertia chiraita*) etc.

The Community forest has been divided into seven blocks for management. Rani CFUG is a heterogeneous group including many castes like Brahmin/ Chhetri (68%), Rai (15%), Tamang (10%), Newar (5%) and others[9] (2%). People are protecting forest by alternative watchman hiring within the members. Users are allowed to collect fodder, grasses and leaf litters free of cost once a year as

[9] Kami, Sarki, Damai – Occupational Caste

decided by the committee .The major income of this forest users group is sale of forest product: timber, firewood, tree barks within group members. These rules and regulations are clearly and legally mentioned in the Operational Plan (OP) of the CFUGs.

This CF is 5 km far from the main industrial city and district headquarter Hetauda. Agriculture crops and green off-season vegetable farming, livestock rearing and sale of milk and meat are major sources of income of the users of this CFUG. Since this CF is close to the Indian border and direct links to the Terai region of Nepal, it has also high possibility of NTFPs business and timber processing for the future income for community forest user's group. Altitudinal variation makes possibility of the advanced cultivation of the NTFPs in this CF.

Last twelve years experiences Of Rani CFUG:

A) Achievements: This CFUG was awarded "*Sarbmanya Ganeshman Singh Forest Conservation Prize*", highest award given by the ministry of forest and soil conservation, Nepal for the CFUG with best performance, in year 2000. The award comes with cash prize of NRs 100,000 (US $ 1400[10]). Other prizes won by the CFUG include "Forest Conservation Youth Prize" in 1997. Stood first in the CFUG performance competition held by District Forest Office (DFO), Makwanpur in year 1995 and 1996. "Forest Fire Prevention Prize" by DFO, Makwanpur in 1999. Beside these major prizes, the introduction and achievement of this CFUG is also mentioned in the school textbook of class six.

On the field level it has been able to control the erosion and landslides. The denuded slopes are now forested and increase in biodiversity. Water resources are protected. Timber smuggling and encroachment of the forest areas has been decreased. There has been increased awareness of forest conservation among the members of the CFUG.

B) Major Activities: Besides managing the forest and other regular activities mentioned in the forest management plan of the CFUG, it has also been able to carry out some other activities through its human resources and funds. The construction of the drinking water, improvements of the roads and other infrastructures have been done by CFUG. It also has helped the community by providing scholarships and prizes to the student. It has also been awarding prizes for the best user of the CFUG. For increasing awareness, the CFUG has made documentary entitled "Our Forest Conserving Ourselves". It has also shown street dramas and conducted several seminars and trainings in order to increase the awareness of the people.

4.1.2. Chuchekhola CFUG

Chuchekhola CF is one of the oldest CFUG of Makawanpur district whose major area is located in ward no-1 of Hatiya VDC and some area on ward no-6 of

[10] Exchange rate US $ 1=NRs. 70.90

Hetauda municipality in Makawanpur district of Nepal. The area of this CF is of 280 ha natural forest and handed over to 785 households with population of 4,773 for its protection and, management and utilization in 1990 and regarded as the oldest CF in the district. The community forest is dominated by Sal *(Shorea robusta*). Other species found in this forest are Chap (*Michelia champaca)* , Saj (*Terminalia tomentosa*), Karma (*Adina cordifolia*) Botdagero *(Lagerstroemia parviflora*), Tatari (*Dillenia pentagyna*), Amala (*Phyllanthus emblica*), Harro (*Terminalia chebula*), Barro (*Terminalia bellirica*), Katus (*Castanopsis Spp*), and Chilaune (*Schima Spp*) etc. The forest is also rich in fodder species like Latikatha, Taki (*Bauhinia purpurea*), Jamun (*Syzygium* cumini), Kyamun (*Syzygium operculata*), Kanayo (*Ficus semicordata*), Siris (*Albezzia spp*.), Koiralo (*Bauhinia veriegata*), Parijat (*Nycanthes arbortrisis*), Dhagaro, Halunde etc. The Community forest has been divided into five blocks for management. This CFUG is a heterogeneous group and includes castes like Brahmin, Chhetri, Magar, Newar, and other occupational caste. Most of the people from this CFUG are poor as they are unable to support their family from their farm so many migrate to the cities like Kathmandu and India as a seasonal labour. Livestock mainly buffalo are becoming the major source of income of the people. People are protecting the forest by themselves and have no any forest watcher. Users are allowed to collect fuel wood and grasses over the year as decided by the committee.

Since the CFUG lies at a distance of 8 km from the district headquarter, there are high possibilities for the Sal (*Shorea robusta*) timber processing and selling for the future income. Nearby blacktopped road gives more chances to the accessibility for the business of the forest products as well as the probability of the encroachment from the outs also.

Last sixteen years experiences Of Chuchekhola CF:

A) Achievements: The biggest achievement of this CFUG is its ability to control the riverside erosion caused by the annual flood, which had been eroding very fertile agriculture fields. They have carried out plantation in the riverbanks with construction of several physical structures such as gabion check dams. Every year people had to observe helplessly in lack of support and fund from the government but after CFUG, they are able to do it on their own. They feel proud on this. Beside this the other achievements include their ability to check the timber smuggling to the Hetauda Municipality from where it is smuggled to various parts of Nepal. Similarly forest encroachment has also been stopped after being handed over to CFUG. The other big achievement was stop of forest fire. There had been no any forest fire after CFUG had taken the responsibility.

B) Major Activities: Plantation is one of the major activities of this CFUG. Beside this, providing grants for the installation of the biogas plant, construction of toilets in every HHs, adult literacy classes, scholarships for the students, support in IGAs training are other major activities of this CFUG. It has also been funding in activities such as repairing roads, drinking water and schools.

CHAPTER FIVE: RESULT

5.1. SOCIOECONOMIC CONDITION

5.1.1. Socioeconomic differences within forest user groups

The socio-economic characteristics of households are becoming a growing concern in use of common property resources. Differences in the wealth relate directly to the extent of economic stratification within the group, which in turn partially depends upon the occupation or livelihood strategy of each household (Varughese, 1999). The economic condition of the respondents was determined in three classes – well off, medium and poor. The definitions of these classes were carried out on the basis of local definition of wealth. Similarly the social condition of the respondent was expressed in three classes – Brahmin/Chettri/Newar (here onwards Group 1), Ethnic[11] (here onwards Groups 2) and Occupational[12] (here onwards Group 3). The table 5.1 shows the composition of the respondents in terms of social and economical characteristics.

Table.5.1: Social and Economic Status of the Respondents

	Well Being Rank of Respondent's Household			
Caste/Ethnic	Well Off	Medium	Poor	Total
Brahmin/Chettri/Newar	6 (75.00)	40 (64.52)	36 (51.43)	82 (58.57)
Ethnic	2 (25.00)	14 (22.58)	20 (28.57)	36 (25.72)
Occupational	0 (0.00)	8 (12.90)	14 (20.00)	22 (15.71)
Total	8 (5.72)	62 (44.28)	70 (50.00)	140 (100)

Figure in parentheses indicate percentage of each category

Two CFUGs and 140 respondents were involved in the questionnaire survey. Out of these of these 5.72% belonged to well off, 44.28% belonged to medium and 50% belonged to poor group. Caste wise 58.57% belonged to Brahmin/Chettri/Newar group, 25.72% belonged to ethnic group and 15.71% belonged to occupational caste group. From this table we can see that out of the well off group, groups 1 constituted 75% and group 2 constituted 25% and there were not a single respondents from group 3 falling under the well off class. Similarly, groups 1 constituted the major proportion in other two groups followed by group 2 and then groups 3.

5.1.2. Sex of the respondents

Out of the total respondents of 140, 93 (66.43%) were male and remaining 77 (33.57%) were female. The distribution of the gender in two CFUGs were 68.25% male and 31.75% female in Rani CFUG and 57.14% male and 33.57% female in Chuche Khola CFUG. For details see table 5.2

[11] Gurung, Sherpa, Rai, Magar, Chepang
[12] Blacksmith, Tailor, Cobbler

Table 5.2: Sex of the respondents

	Sex of Respondents		
CFUG	**Male**	**Female**	**Total**
Rani CFUG	43 (68.25)	20 (31.75)	63 (45.00)
Chuchekhola CFUG	44 (57.14)	33 (42.86)	77 (55.00)
Total	93 (66.43)	77 (33.57)	140 (100.00)

Figure in parentheses indicate percentage of each category

5.1.3. Household Size

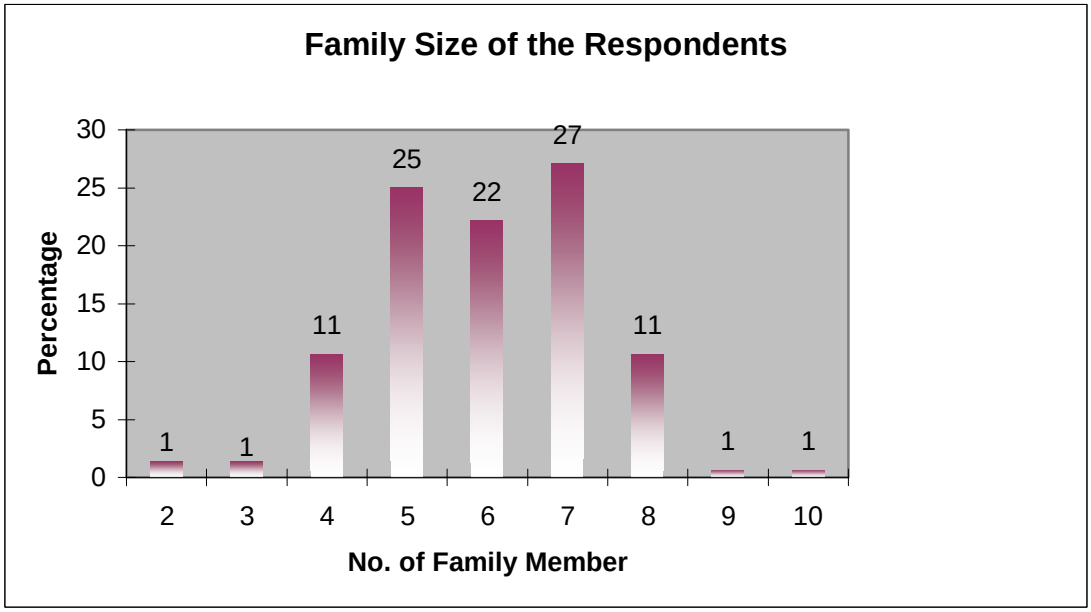
Average family size of the respondents was 6 with minimum family members of 2 and maximum of family members 10, range 8, median 6 and standard deviation of 1.40.

Table 5.3: Correlations of household size with caste and wealth ranks

		Ethnic Groups	Well Being	Household size
Household size	Pearson correlation	-0.081	0.127	1

The table above shows that family size has weaker relation with well being but had negative and weaker relation with ethnic group.

Figure 5.1. Family Size of the Respondents



5.1.4. Age Structures of the Respondents

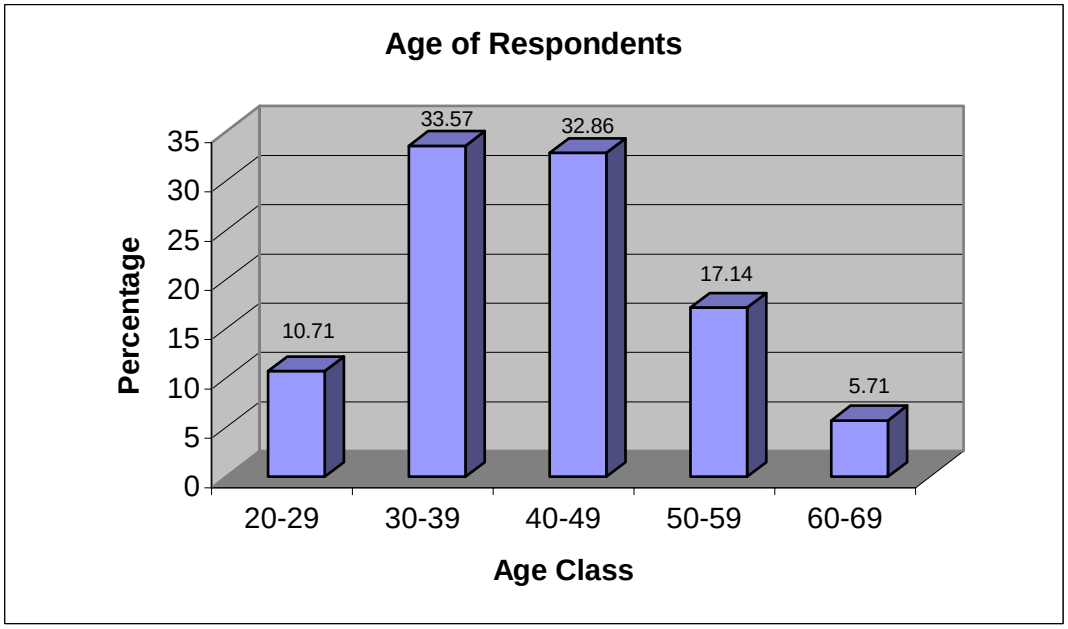
Table 5.4 shows the characteristics of the respondents in terms of age. All the respondents were above 20 years. Out of total respondents, most of them fell into the age class of 20-39 years with 33.57% followed by 40-49 years (32.86%). Only 5.71% of the respondents fell under age class of 60-69 years.

Table 5.4: Percentage of the respondents of age groups

CFUG	Age of Respondents					
	20-29	30-39	40-49	50-59	60-69	Total
Rani CFUG	11 (17.46)	17 (26.98)	19 (30.16)	10 (15.87)	6 (9.52)	63 (45.00)
Chuchekhola CFUG	4 (5.19)	30 (38.96)	27 (35.06)	14 (18.18)	2 (2.60)	77 (65.00)
Total	15 (10.71)	47 (33.57)	46 (32.86)	24 (17.14)	8 (5.71)	140 (100.00)

Figure in parentheses indicate percentage of each category

Figure 5.2. Family Size of the Respondents



5.1.5. Education status of the respondents

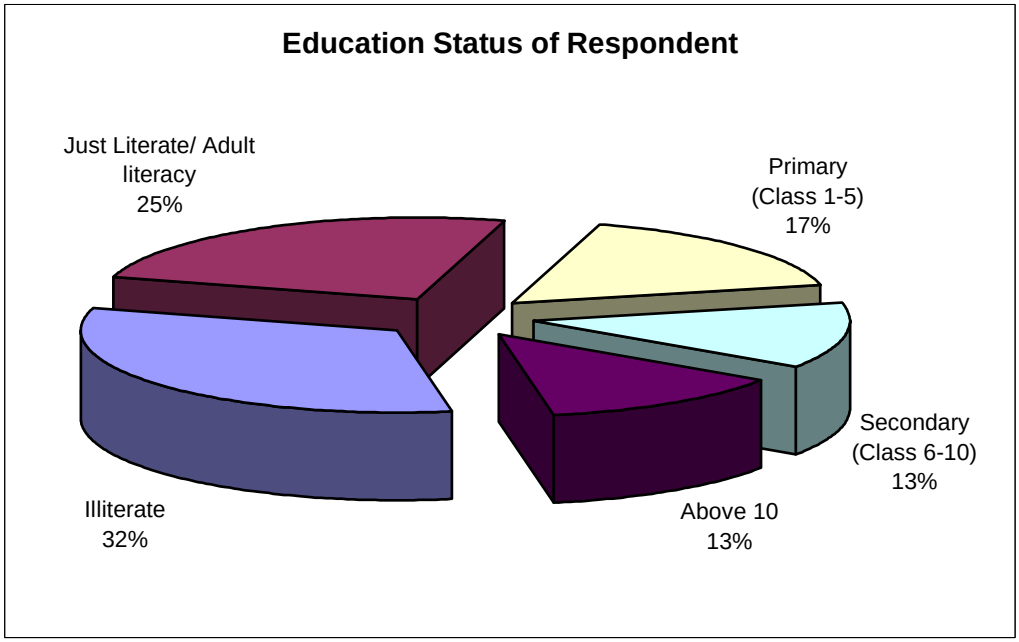
Out of the total respondents, 32.14% of them was found total illiterate. 25% of the respondents were found just literate especially through adult literacy class. 17.14% of respondents had obtained primary education. The respondents who had received secondary education was 12.86% and equal percent of respondents had obtained education above class 10.

Table 5.5: Education status of the respondents in each site

Education Level	Education Status of Respondent		
	Rani CFUG	Chuchekhola CFUG	Total
Illiterate	15 (23.81)	30 (38.96)	45 (32.14)
Just Literate/ Adult literacy	16 (25.40)	19 (24.68)	35 (25.00)
Primary (Class 1-5)	11 (17.46)	13 (16.88)	24 (17.14)
Secondary (Class 6-10)	11 (17.46)	7 (9.09)	18 (12.86)
Above 10	10 (15.887)	8 (10.39)	18 (12.86)
Total	63 (100.00)	77 (100.00)	140 (100.00)

Figure in parentheses indicate percentage of each category

Figure 5.3. Education Status of the Respondents



5.1.6. Landholding

Table 5.6 shows landholding of the respondents as per well-being and caste. Respondents from well off had more land in compare to medium and poor. The mean landholding of the well off was 32.75 katha[13] (approx. 1 ha.). Medium class had 8.15 katha (0.25 ha) and poor had 1.36 katha (0.05 ha). Most of the respondents falling under the poor category had no lands.

The landholding of the respondents when seen from the caste perspectives we can see that respondents belonging to Brahmin/Chettri/Newar possessed more lands with mean area of 8.01 katha (0.25 ha). Respondents from ethnic category had landholding of 3.56 katha (0.110 ha) and respondents from occupational category had only 1.36 katha (0.05 ha).

Table 5.6: Distribution of cultivated land area per household

Respondents Status		No	Land holding (ha)	Mean	SD
Well Being	Well Off	8	7.86	0.98	0.63
	Medium	62	15.15	0.24	0.15
	Poor	70	2.85	0.04	0.08
Caste	Brahmin/Chettri/Newar	82	19.71	0.24	0.34
	Ethnic	36	3.84	0.11	0.20
	Occupational	22	2.31	0.11	0.14
	Total	**140**	**25.86**	**0.18**	**0.29**

[13] 1 katha = 0.03 ha

5.1.7. Animal Husbandry

Buffaloes, cattle (cow and ox) and goats were the three major livestock possessed by the respondents. Medium class had mean 0.53 LSU[14] of buffaloes, which was higher than the other two categories. In terms of cattle, well off had more LSU of cattle then other two. But in total both well off and medium had equal LSU. On the other hand Brahmin/Chettri/Newar had highest number of LSU (mean 1.17 and SD=0.99). But ethnic group had more goat than well off and poor.

Table 5.7: Livestock type and population per household

Respondents Status		Livestock Types and Population						
		No	Statistics	Buffaloes	Cattle	Goat	Total	LSU
Well Being	Well Off	8	Mean	0.50	1.00	0.00	1.50	1.30
			SD	0.93	0.93	0.00	1.85	1.36
	Medium	62	Mean	0.53	0.85	1.02	2.40	1.30
			SD	0.86	1.14	1.66	3.67	1.45
	Poor	70	Mean	0.19	0.50	0.99	1.67	0.66
			SD	0.43	0.86	1.61	2.90	0.84
	Total	140	Mean	3.01	4.42	3.67	11.10	3.26
			SD	0.70	1.01	1.60	3.31	1.19
Caste	Brahmin/Chettri /Newar	84	Mean	0.45	0.80	0.93	2.18	1.17
			SD	0.75	1.02	1.62	3.39	0.99
	Ethnic	34	Mean	0.28	0.50	1.06	1.83	0.76
			SD	0.68	0.83	1.64	3.15	0.56
	Occupational	22	Mean	0.14	0.55	0.82	1.50	0.64
			SD	0.47	1.22	1.50	3.19	0.64
	Total	140	Mean	2.29	3.69	6.07	12.06	2.57
			SD	2.89	5.46	8.39	16.75	0.87

5.2. FINDINGS ON CAPITALS FORMED DUE TO CF:

Households have access to both tangible and intangible capitals that allow them to meet their needs and achieve livelihood outcomes. This section discusses on findings of the capitals formed due to the CF.

5.2.1. Natural Capital Formation:

CF is one of the most important natural resources available to community. People depend on the CF for firewood, fodder, charcoal and leaves for making compost. Beside this CF is also source for valuable timber and NTFPs. One of

[14] LSU = Livestock Unit, 1 Buffalo = 1 unit of LSU, 1 Cattle = 0.8 unit of LSU, 1 Goat/sheep =0.08 unit of LSU (Neupane, 1995 after APROSC, 1985)

the backbones for success of the CF is its success in restoring the degraded forests. To access the impact of the CF on natural capital formation respondents following four aspects were studied

- Forest condition
- Initiation of Multiple Use Management
- Biotic Pressure
- Forest Products

a. Forest Conditions: To identify the perception of respondents on the change of forest condition, respondents were simply asked to tell their perception regarding the change in the below mentioned aspects:

- Species Richness
- Crown Cover
- Plantation
- NTFPs
- Tree Density
- Regeneration
- Wildlife
- Water resources
- Overall forest condition
- Soil Erosion
- Harvesting Damages

Out of the above-mentioned aspects, all the respondents had single view regarding the tree density, wildlife, regeneration and overall forest condition. Every respondent mentioned that these factors have increased after CF. Beside this, soil erosion and harvesting damages have been decreased in forest areas after forest has been handed over to the CFUG. But in case of remaining aspects, the perceptions of the respondents were accessed in terms of caste and well-being.

Species Richness:

i. <u>*Caste:*</u> 72.62% of respondents from group 1 (Brahmin/Chetteri/Newar) perceived that the species richness has increased after the forest has been handed over to CFUG and 19.05% perceived that there has been no any changes in the species whereas 8.33% felt that the species richness has decreased. Similarly, 73.53% from groups 2 (ethnic) and 81.82% from group 3 (occupational) felt that the species richness has increased after the hand over of the forest to CFUG. Similarly 14.71 % from group 2 and 18.81% from group 3 felt that the species richness hasn't changed even after being handed over to

the CFUG. 11.76% of respondents from group 2 felt that the species richness has decreased after being handed over to CFUG but group 3 respondents didn't felt that there has been any decrease in the species richness.

Table 5.8: Perception on changes in species richness after handover of forest to CFUG based on caste group

Caste	Increased	Similar	Decreased
Brahmin/Chettri/Newar	61 (72.62)	16 (19.05)	7 (8.33)
Ethnic	25 (73.53)	5 (14.71)	4 (11.76)
Occupational	18 (81.82)	4 (18.18)	0 (0.00)

Figure in parentheses indicate percentage of each category

ii. *Well-Being:* 62.50% of respondents from well-off felt that species richness has increased after handing over to CFUG and 25% felt there has been no any change in the species whereas 12.50% felt that species richness has decreased. Similarly, 74.19% from medium and 75.71% from poor felt that species richness has increased after the hand over of the forest to CFUG. Similarly, equal percentage (17.74 %) from medium and poor felt that species richness hasn't changed even after being handed over to the CFUG. 8.06% of respondents from medium and 7.14% from poor felt that species richness has decreased after being handed over to CFUG.

Table 5.9: Perception on changes in species richness after handover of forest to CFUG based on well-being.

Well Being	Increased	Similar	Decreased
Well Off	5 (62.50)	2 (25.00)	1 (12.50)
Medium	46 (74.19)	11 (17.74)	5 (8.06)
Poor	53 (75.71)	12 (17.14)	5 (7.14)

Figure in parentheses indicate percentage of each category

The reason put forward for the decrease of the species richness is that people only prefers to keep the species which seems valuable. But these valuable is seen only from the value of a tree as a timber. So, many species have been wiped out. Only plant density has increased but diversity has decreased.

Crown Cover: *The crown cover is the percentage of the area assessed, which is within the vertical projection of the periphery of tree crown, where tree crowns are treated as opaque (Jackson and Ingles, 1998).*

People from both CFUGs mentioned that crown cover has increased and is dense after handing over. This was verified by ocular estimation of crown cover in both CFs by transect walk. It was found to be dense as both CFUGs had crown cover more than 70%. The people's perception regarding the status of crown cover after handing over to CFUG is discussed below.

i. *Caste:* Out of total respondents, most of them felt that crown cover has increased after forest has been handed to CFUG. 90.48% from group 1, 97.06% from group 2 and 95.45% from group 3 perceived that crown cover has

increased after hand over. Similarly, 9.52% from group 1, 2.94% from group 2 and 4.55% from group 3 felt that there were no any changes in crown cover.

Table 5.10: Perception on the changes in crown covers after handover of forest to CFUG based on the caste group

Caste	Increased	Similar	Decreased
Brahmin/Chettri/Newar	76 (90.48)	8 (9.52)	0 (0.00)
Ethnic	33 (97.06)	1 (2.94)	0 (0.00)
Occupational	21 (95.45)	1 (4.55)	0 (0.00)

Figure in parentheses indicate percentage of each category

ii. *Well-Being:* According to well-being class of total respondents, most of them felt that crown cover has increased after CF. In figures 75.00% from well off, 95.16% from medium and 92.86% from poor perceived that the crown cover has increased after hand over. Similarly, 25.00% from well off, 4.84% from medium and 7.14% from poor perceived that there were no any changes in crown cover.

Table 5.11: Perception on the changes in crown covers after handover of forest to CFUG based on the well-being

Well Being	Increased	Similar	Decreased
Well Off	6 (75.00)	2 (25.00)	0 (0.00)
Medium	59 (95.16)	3 (4.84)	0 (0.00)
Poor	65 (92.86)	5 (7.14)	0 (0.00)

Figure in parentheses indicate percentage of each category

Plantation: Both CFUGs have natural forest and regeneration status is good. So, there was no need of plantation to restore the forest. But it was found that they are carrying out annual plantation activities in areas such as riverside, erosion prone areas and also on roadside, bond and borders of the farmland. Major species for plantation activities on riverside are bamboo (*Dendorcalamus spp.*) whereas on other areas it is multiple purpose tree species such as *Artocarpus lakoocha, Melia azedarach, Ficus nemoralis, Ficus semicordata* etc*.* Increase in stall-feeding and improved species has made plantation of grasses and legume species popular in the community.

i. *Caste:* Out of three groups, group 2 and 3 felt that the plantation has increased after hand over of the forest but there were few respondents from group 1 (7.14%) who felt that the plantation activities haven't changed even after the hand over of the forest to CFUG.

Table 5.12: Perception on the changes in plantation after handover of forest to CFUG based on the caste group

Caste	Increased	Similar	Decreased
Brahmin/Chettri/Newar	78 (92.86)	6 (7.14)	0 (0.00)
Ethnic	34 (100)	0 (0.00)	0 (0.00)
Occupational	22 (100)	0 (0.00)	0 (0.00)

Figure in parentheses indicate percentage of each category

ii. *Well-Being*: Out of three classes, all the respondents from the poor class felt that the plantation has increased after hand over of the forest followed by 95.16% of medium and 62.50% of well off. But there were few respondents (4.84%) from medium and 37.50% from well off who felt that the plantation activities haven't changed even after the hand over of the forest to CFUG. As per these respondents there used to be annual plantation activities by the government but in lack of community participation these plantation works didn't become successful.

Table 5.13: Perception on the changes in plantation after handover of forest to CFUG based on the caste group

Well Being	Increased	Similar	Decreased
Well Off	5 (62.50)	3 (37.50)	0 (0.00)
Medium	59 (95.16)	3 (4.84)	0 (0.00)
Poor	70 (100.00)	0 (0.00)	0 (0.00)

Figure in parentheses indicate percentage of each category

NTFPs: One of the important issues after the hand over of the forest is the realization of importance of the NTFPs and their role in income generation. This important resource was not tapped before and no any commercial harvesting was done. Government had no any management plans for NTFPs found in the forest and was only concentrated in timber harvesting. But after the handover of the forest to the community, the importance has grown.

The available of some valuable NTFPs such as - *Swertia chiraita and Asparagus* in the forest area has helped them to realize their importance. The suitability for the cultivation of these species in terms of climatic condition has helped both CFUGs to establish nursery of these species from the grants (US$ 1,410) received from DFO.

So there had been increase in the knowledge and importance of the NTFPs in both CFUGs. There are now specific management plans for it. To find out the perception regarding the NTFPS, respondents were simply asked "if the NTFPs have increased decreased or similar after the hand over of the forest".

i. *Caste:* All the respondents from group 3 felt that it has increased whereas the figure that felt it has increased was 84.45% from group 1 and 88.24% from group 2. 15.58% from group 1 and 11.76% from group 2 felt that there were no changes in the availability of the NTFPs before and after.

Table 5.14: Perception on the changes in NTFPS after handover of forest to CFUG based on the caste group

Caste	Increased	Similar	Decreased
Brahmin/Chettri/Newar	71 (84.52)	13 (15.48)	0 (0.00)
Ethnic	30 (88.24)	4 (11.76)	0 (0.00)
Occupational	22 (100)	0 (0.00)	0 (0.00)

Figure in parentheses indicate percentage of each category

ii. *Well-Being:* Most of the respondents (90.32%) from medium class felt that it has increased whereas the figure that felt it has increased was 87.14 from poor class and 75.00 from well off class. 25.00% from class well off, 12.86% from class poor and 9.68% from medium class felt that there were no changes in the availability of the NTFPs before and after the handing over of CF.

Table 5.15: Perception on changes in NTFPS after handover of forest to CFUG based on well-being

Well being	Increased	Similar	Decreased
Well Off	6 (75.00)	2 (25.00)	0 (0.00)
Medium	56 (90.32)	6 (9.68)	0 (0.00)
Poor	61 (87.14)	9 (12.86)	0 (0.00)

Figure in parentheses indicate percentage of each category

Water Resources: The Karra, one of the major river of Makwanpur districts, flows through two CFUGs. This river has been the sources for irrigation and drinking water to the community. But sever forest degradation in its catchment areas has affected the flow and volume of this river. Annual disaster caused by heavy monsoon rains caused flood. This results in loss of very fertile agriculture land by either bank erosion or by deposition of sands in the agriculture land. There is also loss in the human and livestock and same time the sources for drinking water are severely affected.

But things are seen improving after the forest conservation. People are no more relying on the river for drinking water as they have now natural springs in their forest areas and they also have more managed irrigation system under CFUG sub-committee 'Irrigation management sub-committee'. Bank of rivers are checked through checkdams and plantation eroded areas.

i. *Caste:* Though numbers of respondents on overall felt that the condition of water resources before and after the hand over of the CF are almost same but everyone agreed that these sources are now permanent and not limited to seasonal. 64.71% of respondents from group 2, 63.64% from group 3 and 50.00% from group 1 said that condition of water resources has been increased due to the increase in the coverage of the forested area. Similarly, 50.00 % of group 1, 36.36% of group 3 and 35.29% of group 2 perceived that there were no changes in the availability of source of water.

Table 5.16: Perception on changes in water resources after handover of forest to CFUG based on caste

Castes group	Increased	Similar	Decreased	Total
Brahmin/Chettri/Newar	42 (50.00)	42 (50.00)	0 (0.00)	84
Ethnic	22 (64.71)	12 (35.29)	0 (0.00)	34
Occupational	14 (63.64)	8 (36.36)	0 (0.00)	22
Total	78 (55.71)	62 (44.29)	0 (0.00)	140

Figure in parentheses indicate percentage of each category

ii. *Well-Being:* Most of the respondents on overall felt that the condition of water resources before and after the hand over of the CF is almost same, everyone agreed that these sources are now permanent and not limited to seasonal. 62.50% of respondents from well-off, 59.68% from medium and 51.43% from poor said that condition of water resources has been increased due to the increase in the coverage of forested area. Similarly, 48.57 % of poor, 40.32% of medium and 37.50% of well off perceived that there were no changes in availability of source of water.

Table 5.17: Perception on changes in water resources after handover of forest to CFUG based on well-being

Class	Increased	Similar	Decreased
Well Off	5 (62.50)	3 (37.50)	0 (0.00)
Medium	37 (59.68)	25 (40.32)	0 (0.00)
Poor	36 (51.43)	34 (48.57)	0 (0.00)

Figure in parentheses indicate percentage of each category

b. **Initiation of Multiple Use Management:** Forest under government lacked multiple use management and was focused in timber management. After CF, the CFUG has tried to manage their forest for multiple uses. Thus, there are more diversity of products available for the CFUGs. These products are also helping community to obtain more income. Sale of NTFPs has been the major source of income in both CFUGs. Major NTFPs of both CFUGs is *Asparagus*. Market of this product is Dabur India Pharmaceutical, a multi national company. It has one of the factory located close to the CFUGs which is buying all the products from the CFUGs. Plantation of bamboo is carried out in the CF. These bamboo are used for making handicrafts and which is also sold to the nearby market. Thus in total the forest is now utilized in multiple way bringing diversity in forest products and resulting in improved income.

c. **Biotic Pressure:** People were always kept away from forest management when the government managed it. Thus there was always the biotic pressure. These pressures were in the form of grazing, encroachment, illicit felling, green harvesting and forest fire incidence. After the handover of the forest to the CFUG the pressure has decreased. 100% of the respondents stated that all types of above mentioned biotic pressure has decreased after the hand over of forest to the CFUG. The reason put forwards for the decrease on the biotic pressure by the respondents were that

- Decrease in grazing: CFUG made total ban on free grazing of livestock and encouraged for stall-feeding. Anyone found violating the rules were made to fine penalty by the CFUG. This rule also forced members to lower their livestock population and mean time CFUG encouraged members for keeping improved variety.
- Illicit Felling: Rules were set in both CFUGs that only the team of members who are trained in harvesting operation will make selection of the tree to be felled and same team will then carry out harvesting of

tree. Anyone found felling trees were severely punished through heavy penalty.

- Encroachment: Members had idea of their forest boundary and the users themselves surround the forest so there was no any encroachment of the forest.

d. **Forest Products (FPs):** One of the big developments after the hand over of the forest to CFUG is the increase of the forest products. There have been several impacts of the forest improvement. Increase in the forest products has lead to impacts on collection time, quantity, cost and also the fulfillment of the forest products.

Change in time taken to collect FPS: When respondents were asked, "*the process of collection of FPs is less time consuming then before*" all the respondents from every well being class and ethnic class perceived that time for collection of the different FPs has decreased. The reason put forward for this decrease by the respondents were:

- Forest was degraded heavily so to collect forest products, they had to spend more time. There was always fear of being caught by government forest guard so they used to collect whatever they had in hand.
- Biotic pressure has decreased after CF and this has lead to the improvement of forest condition resulting in increase of forest products.
- There are rules on collecting forest products, which forbids collecting whatever comes in sight. This has allowed the forest to grow well and thus resulting in quality forest products.
- Forest is divided into blocks and in past this was absent. People used to extract products from those areas where government staffs had low presence. This resulted in deterioration of forest and forced people to travel more into the forest in search of forest products. But after the blocking of the forest after CF, forest products are extracted from different areas and there is no pressure on same site.
- Getting timber legally was great problem in past as the respondents had to go through lengthy administrative procedure and it was costly as well. This has been changed after CF. There is no any such requirement to go to DFO as permission is now given by the CFUG.

***Change in Availability of FPs Collected*:** CFs are major sources for the day-to-day needs of people. Perception of the respondents on the availability of FPs before the hand over and after the hand over of the CFUG were accessed by simple asking them "*what is the status of the different forest products after the hand over of the CFUG in terms of availability*". The results are discussed from two aspects viz. well-being wise and caste wise.

Perception on availability of FPs based on well-being***:*** All the respondents from three classes – well off, medium and poor responded that the availability of the FPs such as fuelwood, fodder, grass, litter and NTFPs has increased after the hand over of the forest. But in case of timber, the respondents had different views. 37.50% of the respondent from the well off thought that the availability of the timber has decreased after the hand over of the forest to CFUG. Whereas 62.50% of respondent from well off thought the availability of the timber has increased. Similarly, 17.74% of the respondents from medium class and 11.43% of the respondents from poor class thought the availability of the timber have decreased after hand over to CFUG. 14.25% from medium and 12.86% thought the availability is same before and after the hand over of the forest to CFUG and only 67.74% from medium and 75.71% from poor felt that timber availability has increased.

Table 5.18: Perception on availability of forest products based on well-being.

Forest Products	Perception on availability of forest products based on well being			
	Wealth Category	**Increased**	**Similar**	**Decreased**
Timber	Well Off	5 (62.50)	0 (0)	3 (37.50)
	Medium	42 (67.74)	9 (14.25)	11 (17.74)
	Poor	53 (75.71)	9 (12.86)	8 (11.43)
Fuelwood	Well Off	8 (100)	0 (0)	0 (0)
	Medium	62 (100)	0 (0)	0 (0)
	Poor	70 (100)	0 (0)	0 (0)
Fodder	Well Off	8 (100)	0 (0)	0 (0)
	Medium	62 (100)	0 (0)	0 (0)
	Poor	70 (100)	0 (0)	0 (0)
Grass	Well Off	8 (100)	0 (0)	0 (0)
	Medium	62 (100)	0 (0)	0 (0)
	Poor	70 (100)	0 (0)	0 (0)
Litter	Well Off	8 (100)	0 (0)	0 (0)
	Medium	62 (100)	0 (0)	0 (0)
	Poor	70 (100)	0 (0)	0 (0)
NTFPs	Well Off	8 (100)	0 (0)	0 (0)
	Medium	62 (100)	0 (0)	0 (0)
	Poor	70 (100)	0 (0)	0 (0)

Figure in parentheses indicate percentage of each category

Perception on availability of FPs based on caste group***:*** All caste groups felt that availability of FPs such as fuelwood, fodder, grass, litter and NTFPs have increased after the forest handed over to the CFUG. But in case of availability of timber 73.81% of respondents from Brahmin/Chettri/Newar perceived that availability of timber has increased but 11.90% felt availability of timber was similar and 14.29% felt that availability has decreased. Similarly, 70.59% from ethnic group and 63.64% from occupational caste felt that the timber has increased after handed over of the forest to the CFUG. 17.65% of ethnic caste and 9.09% of the occupational caste respondents thought that the availability was similar. Whereas 11.76% of the ethnic caste and 27.27% of the occupational

caste respondents felt that the timber availability has decreased after the hand over of the forest to the CFUG.

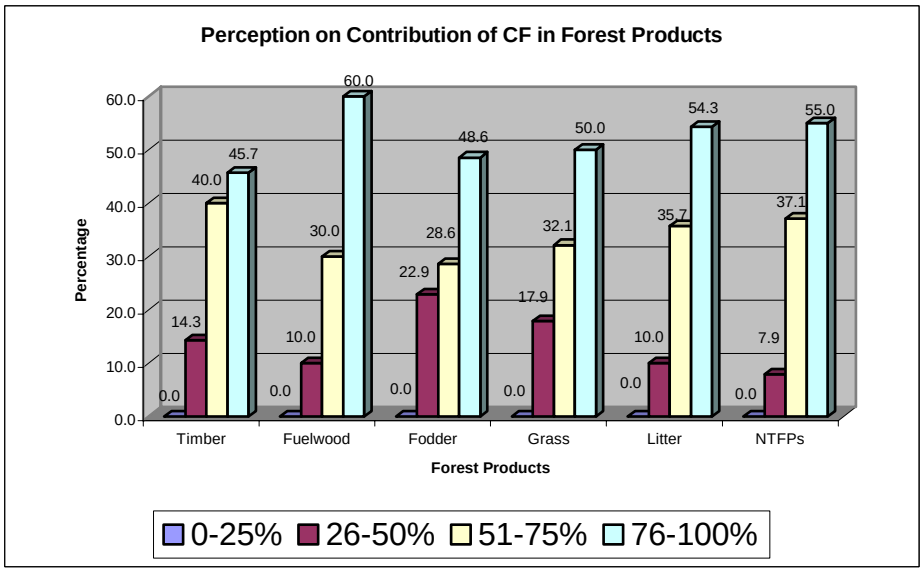
Table 5.19: Perception on availability of forest products based on caste

Forest Products	Perception on availability of forest products based on Caste			
	Caste	Increased	Similar	Decreased
Timber	Brahmin/Chettri/Newar	62 (73.81)	10 (11.90)	12 (14.29)
	Ethnic	24 (70.59)	6 (17.65)	4 (11.76)
	Occupational	14 (63.64)	2 (9.09)	6 (27.27)
Fuelwood	Brahmin/Chettri/Newar	84 (100)	0 (0)	0 (0)
	Ethnic	34 (100)	0 (0)	0 (0)
	Occupational	22 (100)	0 (0)	0 (0)
Fodder	Brahmin/Chettri/Newar	84 (100)	0 (0)	0 (0)
	Ethnic	34 (100)	0 (0)	0 (0)
	Occupational	22 (100)	0 (0)	0 (0)
Grass	Brahmin/Chettri/Newar	84 (100)	0 (0)	0 (0)
	Ethnic	34 (100)	0 (0)	0 (0)
	Occupational	22 (100)	0 (0)	0 (0)
Litter	Brahmin/Chettri/Newar	84 (100)	0 (0)	0 (0)
	Ethnic	34 (100)	0 (0)	0 (0)
	Occupational	22 (100)	0 (0)	0 (0)
NTFPs	Brahmin/Chettri/Newar	84 (100)	0 (0)	0 (0)
	Ethnic	34 (100)	0 (0)	0 (0)
	Occupational	22 (100)	0 (0)	0 (0)

Figure in parentheses indicate percentage of each category

Following figure shows the perception of the respondents towards the contribution of the CF in the increase of the forest products. The figure reflects that contribution of CF is 76 –100%in the change of availability of forest products.

Figure 5.4. Perception on Contribution of CF in Availability of Forest Products



Supply condition of fuelwood, timber, poles, grasses and fodder

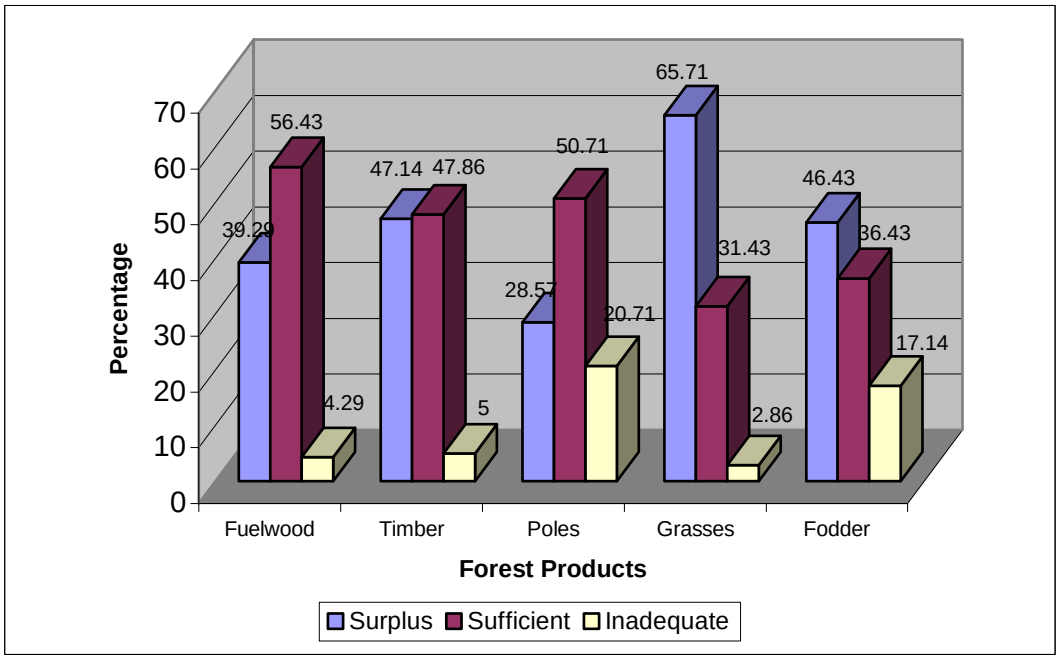
Forests are the sources for fulfilling various basic needs of the local people. Timber, fuelwood, poles, grasses and fodder are the major forest products that are extracted from the CF. To analyze the perception of the respondents on the supply condition of the forest products after the hand over of the forest to the CFUG a question "What is your views on the supply condition of the different forest products – surplus, just sufficient or inadequate?" was asked.

Table 5.20 shows that supply condition of the forest products such as timber, grasses and fodder are surplus. Forest products such as fuelwood and poles were just sufficient.

Table 5.20: Perception on supply condition of different forest products

Category	Response in %			
	Surplus	Sufficient	Inadequate	Total
Fuelwood	39.29	56.43	4.29	100.00
Timber	47.14	47.86	5.00	100.00
Poles	28.57	50.71	20.71	100.00
Grasses	65.71	31.43	2.86	100.00
Fodder	46.43	36.43	17.14	100.00

Figure 5.5. Supply Condition of Forest Products after hand over of the forest to CFUG



5.2.2. Human Capital Formation

Human capital represents skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. At a household level human capital is a factor of amount and quality of labour available; this varies according to household size, skill levels, leadership potential, health status, etc. (DFID, 1999). This amount and quality of labour is increased by investment in education and trainings as well as by the skills acquired through pursuing one or more occupations (Ellis, 2000). To access the human capital formation from the community forestry following variables were analysed.

- Training Opportunities
- Health Care
- Non-formal and formal education
- Exposure Visits
- Capacity Building
- Support for micro enterprises

a. Training opportunities:

The major task of many CFUG after hand over of the forest was to create awareness of importance of the forest and their role in the management and utilization. Training has been key issues in many CF activities. In the countries where CF is a national program, training needs can be identified at both levels i.e. to community members responsible for managing their CF resources and to institutional staff (both government and non-government) responsible for implementing and supporting CF program (Singh, 2001).

Training provides relevant skills for community members, knowledge for the effective management of their community forests and to strengthen their own group, and institutional staff to fulfill the training needs of the community members.

Trainings in both CFUGs were focused on forest management, skill development and IGA, fund management, office administration, leadership and awareness, gender, biogas and others which included conflict resolution and biodiversity conservation. Trainings such as forest management, fund management, office administration, leadership and awareness, conflict resolution were mostly oriented to office bearers whereas trainings on forest management, skill development, IGA, gender, biogas and biodiversity management were focused for the general members of the CFUG.

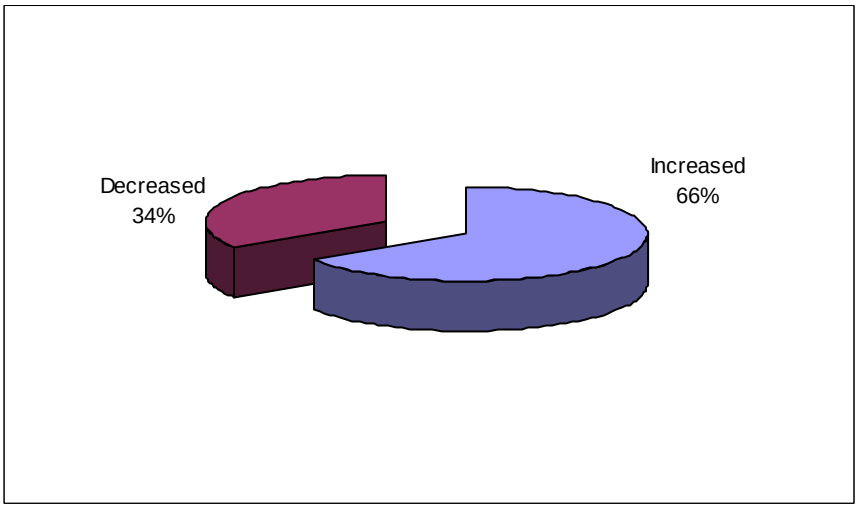
Out of the total respondents 42.14% took part in the trainings and 57.86% didn't participate in the trainings.

Table 5.21: Percentage of respondents who received trainings from CFUG.

CFUG	Obtained	Not Obtained	Total
Rani	34.92	65.08	100
Chuchekhola	48.05	51.95	100
Total Mean	42.14	57.86	100

Figure in percentage

Figure 5.6. Perception of the respondents on the opportunity of trainings

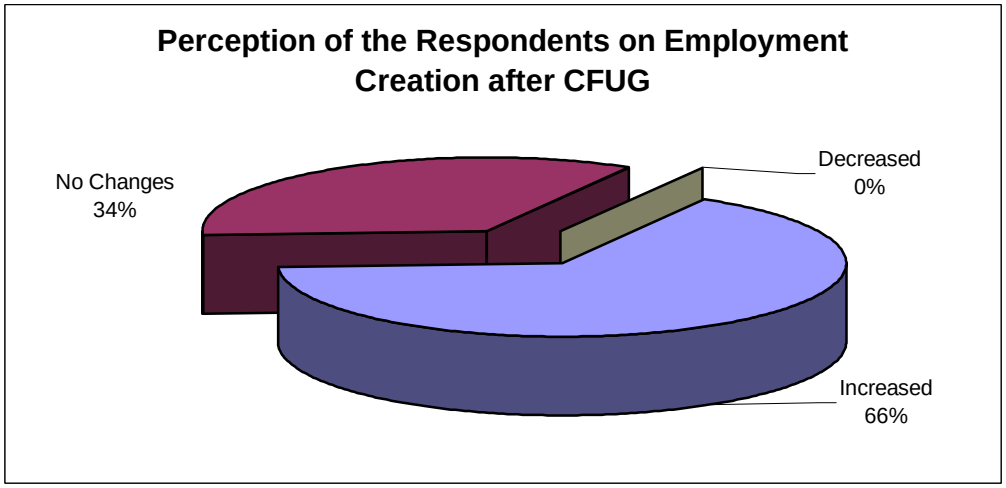


b. Employment creation due to community forestry

Direct employment created due to hand over of the CF is creation of jobs such as forest guard, office secretary for CFUG, nursery head and nursery workers and carpenters in the processing stall of CFUG. But beside these few jobs there are numerous other jobs that are created or supported by CF directly or indirectly. There are examples of health workers and teachers being employed from the CFUGs. Employments are also created due to various income generating trainings conducted by the CFUG. Simple question " Has hand over of the forest to CFUG helped in creating employment to the community?" was asked to the respondents. The responses were 100% favouring that CFUG has been able to create some employment. Most of the respondents mentioned that trainings conducted time to time are the major reason for helping local people to get employment.

But people still feel that it is not sufficient and more programs and fund should be released as they felt that it has been very effective. Trainings related to vegetable farming, livestock farming, handicrafts are the major demand of the people. Easy access of the market is the major attraction for vegetable farming and livestock farming.

Figure 5.7. Perception of the Respondents on Employment Creation After CFUG



c. Health care facilities improvement due to Community Forestry

One of the major issues of the development activities is the improvement of the health care facilities. Support to the health of the user's can be direct facilities viz. help to go to the hospital, construction or support of the health center. Indirect facilities can be funding in the awareness program. Respondents were asked, "Has the health care facilities improved after the hand over of the forest to the CFUG?"

Out of the total respondents majority of the respondents (65.71%) felt that the facilities have improved after the hand over to CFUG. Similarly, 34.29% of the respondents felt that there have been no any changes whereas none felt that the facilities have decreased.

Table 5.22:Improvement of Health Facilities After CF

CFUG	Increased	No changes	Decreased	Total
Rani	63.49	36.51	0.00	100
Chuchekhola	67.53	32.47	0.00	100
Total Mean	65.71	34.29	0.00	100

Figure in percentage

d. Contribution on education

Education is one of the most important sectors in any community development. The contribution of the CFUG on the education sector is evaluated from two aspects. First being the investments done for direct support to school either in the form of constructing school buildings or providing scholarships for the students. The second is running the adult literacy non-formal education programs. Respondent were asked, "*The CFUG has been supporting to*

education sector of the community?" There was single voice supporting the CFUG. Everyone felt that there has been a great improvement in the education sector after the CFUG. There are scholarships at the school levels and schools are provided with financial support for various works. These various activities vary from constructing the classrooms, furniture and equipping school library and laboratory.

But most of the respondents also commented that there should be scholarships at higher level education as well as the students has to travel for more than an hour to reach the university so the scholarships will help them to large extent.

e. Exposure Visits

Observations help people to understand. The awareness level is greatly increased after the people are able to see them with their own eye. Several observation trips are organized by the CFUGs to show their people that what conservation can lead and what can be done at the people's level. The observation visits also help the local people understanding the various management systems adopted for the forest and others aspects such as income generating activities.

The respondents were asked, "*if you have ever participated in the exposure visits conducted by the CFUG?*" 38.57% of the respondents mentioned that they had participated in the exposure visits conducted by CFUG against to the 61.43% of respondent who hadn't participated. But on other hand out of total respondents, 70% felt that the opportunities for such types of visits have increased after CFUG. The only reasons for low participant in the exposure visits are that there was no timely information of the program and the time of conducting these trips were not suiting the time of the respondent.

Table 5.23: Perception of Respondents on Exposure Visits

CFUG	Participation in Exposure Visits		Increase in Exposure Visits after CF	
	Participated	Not Participated	Yes	No
Rani	36.51	63.49	60.32	39.68
Chuchekhola	40.26	59.74	77.92	22.08
Total Mean	38.57	61.43	70.00	30.00

Figure in percentage

f. Capacity Building

After he handover of the forest to CFUG, there has been several training programs either by the CFUG itself or by other NGOs with the initiation of the CFUG. These trainings had been diverse ranging from forest management trainings to the income generating activities training. These trainings have been greatly benefited to the community and people. These trainings have increased the capacity of the people of the community. Ultimately helping in the support and improvement of the livelihood of the people.

So all the respondents perceived that there has been improvement in the capacity of the people after the hand over. Trainings on the field of vegetable farming and livestock farming has paved a new horizons for the people as today they are benefiting with huge income from this newly gained capacity.

5.2.3. Financial Capital Formation

Financial capital denotes the financial resources that people use to achieve their livelihood objectives (DFID, 1999). However, it has been adopted to try to capture an important livelihood building block, namely the availability of cash or equivalent, that enables people to adopt different livelihood strategies.

There are two main sources of financial capital.

- **Available stocks:** Savings are the preferred type of financial capital because they do not have liabilities attached and usually do not entail reliance on others. They can be held in several forms: cash, bank deposits or liquid assets such as livestock and jewellery. Financial resources can also be obtained through credit-providing institutions.

- **Regular inflows of money:** Excluding earned income, the most common types of inflows are pensions, or other transfers from the state, and remittances.

To access the contribution of the CF in financial capital formation various parameters such as income sources of respondent, role of CF on income of the households and employment status were analysed.

a. Financial Support:

The biggest advantage of the formation of CFUG is the mobilization of their fund by themselves. Annual general assembly decides the major programs where its funds are to be spent. Out of the several programs of the CFUG, the financial support to the members for the improvement of livelihood is one. Under this program the members are given a loan from the CFUG in order to start some livelihood support activities such as small enterprises, livestock rearing, home gardening, etc. or grants for installation of biogas, construction of toilets, schools etc. To find out the provision of financial support to the members, the constitutions of both the CFUGs were studied and the findings are discussed below.

CFUG Funds and Grants: Supporting the members in the form of loan or grants from the CFUG funds is clearly mentioned in constitution of both CFUGs. The loans are usually granted for activities that support the uplift of livelihood of the members and these activities could be livestock rearing, vegetable farming, small-scale retailer shops etc. Whereas grants are provided for the people in need such as members suffering from natural disasters, poor families who cannot support their children's education requirements such as stationeries and

school dress. Grants are also provided to those members who wishes to install biogas and also to students who are talent.

The respondents were asked the simple question, “what is your perception on the access to the funds?” to find out the access of the respondents in getting financial support from the CFUG. The result is listed in table 5.23 from three aspects viz. CFUG, Well Being and Caste wise. It was found that in total the access of the respondents in getting support from the CFUG fund was medium.

Some respondents representing poor class, ethnic groups and occupational groups felt that they had no access at all. The reason for this group for no access to the funds of the CFUG is that there had been special programs run by the CFUGs in collaboration with other NGOs and INGOs such as co-operatives under which the poor, ethnic and occupational groups are supported. So, there is less priority while giving direct benefits from the CFUG funds.

Table 5.24 Perception of Respondents on Level of Access to the CFUG Fund

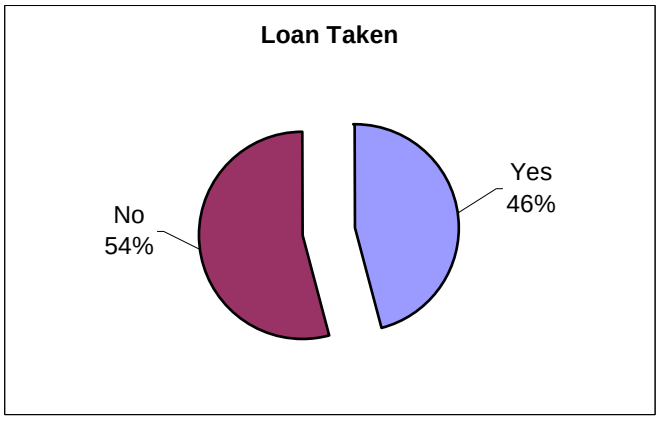
Level of Access	CFUG (%)		Well Being (%)			Caste (%)		
	Rani	Chuchekhola	Well Off	Medium	Poor	Group A15	Group B16	Group C17
High	11.11	16.88	25.00	16.13	11.43	13.10	17.65	13.64
Medium	52.38	45.45	37.50	54.84	44.29	52.38	41.18	45.45
Low	30.16	28.57	37.50	27.42	30.00	29.76	29.41	27.27
Not at all	6.35	9.09	0.00	1.61	14.29	4.76	11.76	13.64
Total	100	100	100	100	100	100	100	100

Figure in percentage

b. Financial Institutions:

Financial services, especially access to credit, are achieved through the financial institutions. Out of the total respondents, 46% had taken loans.

Figure 5.8. Loans Taken by Respondents



[15] Brahmin/Chettri/Newar
[16] Ethnic
[17] Occupational

Respondents used the services of different institutions available in the community to take the loans. These institutions can be broadly classified into following groups:

- Community-based Financial Organizations: The majority of the respondents preferred community based institutions when they want loan to carry out some livelihood activities such as livestock farming or establishing small scale enterprises. Their preference to this institution is the easiness and simplicity in getting loans in minimum interest. They also seek loans from these institutions as in some way they had their contribution. Some such institutions prevailing in the CFUG area were CFUG Fund, co-operatives run by the members of the CFUG and mother groups.

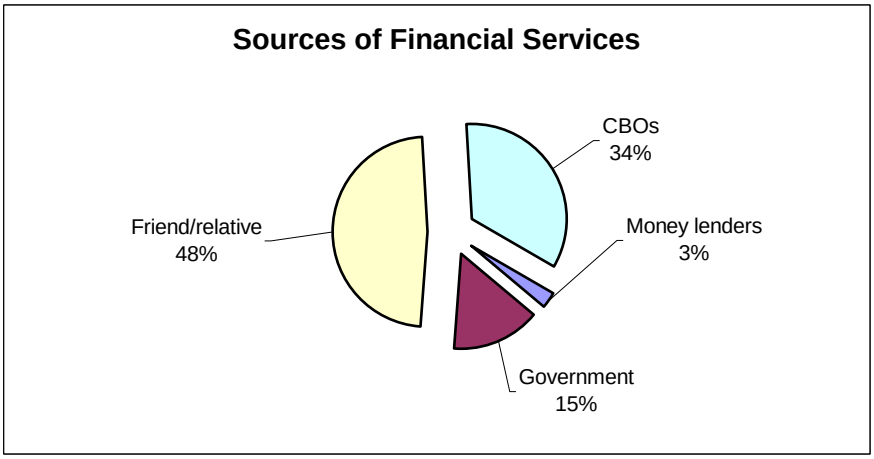
- Moneylenders: Moneylenders are still one of the major sources that provide the loan to the people. People who are interested in going abroad in search of employment looks towards the moneylenders for the loan. This is because other organizations have no provisions for allowing loans for people going abroad in search of employment.

- Government Institutions: There are several government banks that provide loans to the members. Some of the banks are Nepal Agriculture Development Bank, Nepal bank Limited, Nepal Commercial Bank. The interest rates are low in compare to the moneylenders but it involves lengthy paper works.

- Relatives and Friends: This is one of the major sources of respondents seeking small amount of loans. Usually there is no need for paying interest and the time limit is also flexible.

Figure 5.9 shows that out of total respondents who took loans 48% of them went to friends and relatives for getting loans while 34% took loan from CBOs and 15% took loan from government. Only 3% took loan from moneylenders.

Figure 5.9. Sources of Financial Services in the Community



c. Major Income Sources of People

Out of total respondents, 47.86% had agriculture as major source of income. Well being wise, all three classes had agriculture as major source of income. In total, service was followed by wage labour as major source of income of respondents. It was noteworthy that business was second major source of income of well off class whereas service was second major source of income for middle class and wage labour was second major source of income in poor class. When analysed from caste wise, it was found that agriculture was the major source of income for all the three groups but for poor class daily wages and labour was as equal as agriculture.

Figure 5.10: Major Sources of Income from the Wealth Rank wise

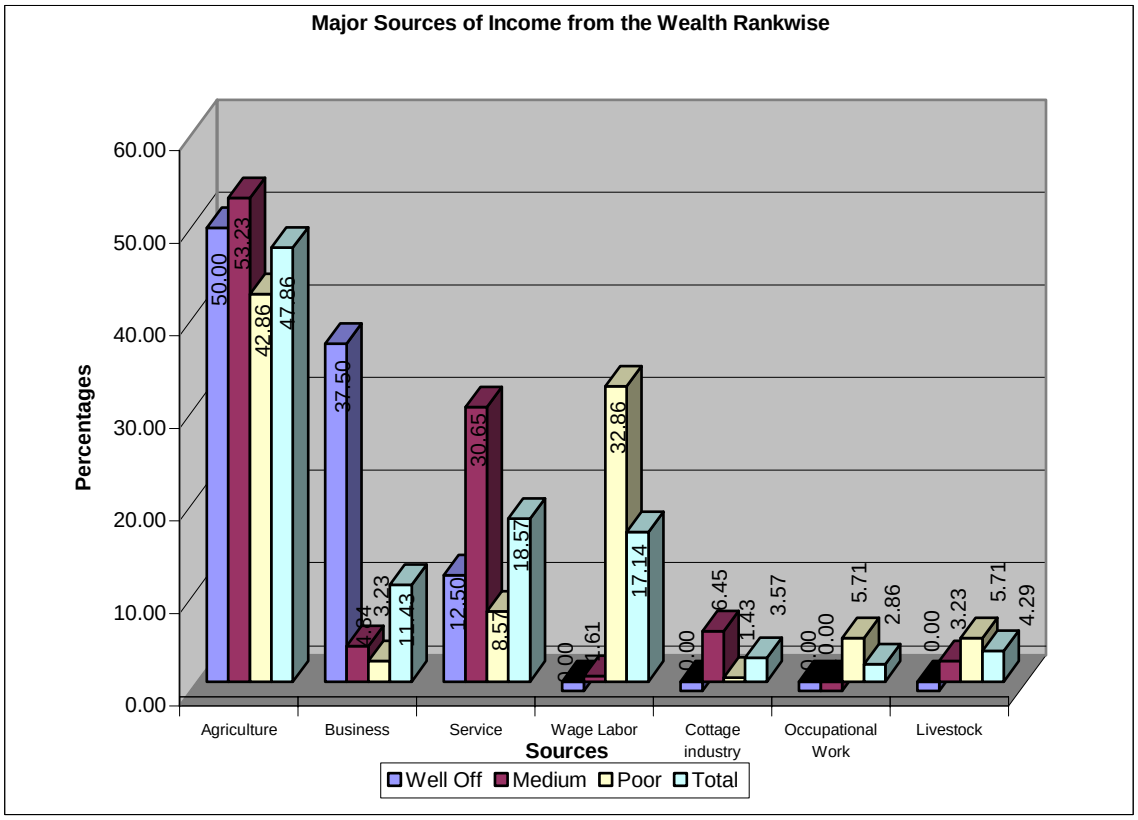


Figure 5.11: Major Sources of Income from the Caste Wise

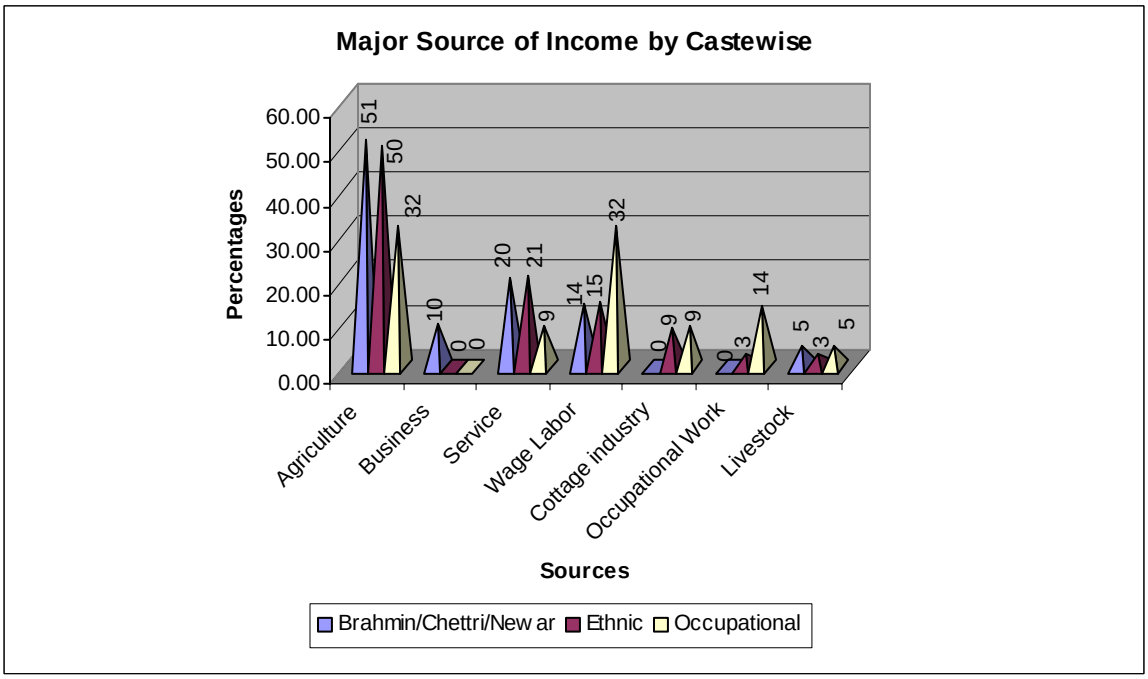


Table 5.25:Secondary Sources of Income

Secondary Sources of Income							
Sources of Income	Wealth rank (%)			Caste (%)			Total (%)
	Well Off	Medium	Poor	Brahmin/Chettri/Newar	Ethnic	Occupational	
Agriculture	25.00	8.06	32.86	20.24	23.53	22.73	21.43
Business	12.50	11.29	2.86	9.52	5.88	0.00	7.14
Service	37.50	30.65	18.57	25.00	26.47	22.73	25.00
Wage Labor	0.00	22.58	30.00	25.00	26.47	22.73	25.00
Cottage industry	12.50	3.23	1.43	2.38	2.94	0.00	2.14
Occupational Work	0.00	3.23	5.71	1.19	2.94	22.73	5.00
Livestock	12.50	20.97	8.57	16.67	11.76	9.09	14.29

d. Role of community forestry on income of the households

Community forestry schemes had developed the income generation activity for the well being of the households. Either from the IGA or from the forest products collection, responses of the respondents have been collected and analysed.

Community Co-operative Schemes: One of the major benefits of the CFUG is also its ability to bring the people together. During the study it was found that the CFUG had its own mechanism of fund mobilization. Forest management plans clearly outlines the necessary of spending 25% of total budget in uplifting the livelihood of the poor people. So, there were several programs introduced such as buffalo and goat farming. To carry out this effectively a group of poor people were identified and some amount from the CFUG fund was flowed to the group. The group decided whom to give the loan and from this loan the poor people started buffalo farming or goat farming and returned the loan on time in the form

of goat or buffalo or in cash. This returned amount or animals was then lent to another member and kept rotating.

Income Generating Activities Trainings: Another direct benefit obtained by the members was the trainings on IGA. Some IGA included vegetable farming, cycle repair, hair cutting, sewing and handicraft. These trainings directly affected in the income of the household. People were able to utilize their limited agricultural lands for cash crops and turn their trainings into supporting and uplifting their livelihood.

NTFPs: NTFPs have been another source of income for the members of the CFUG. The major NTFPs collected and traded were *asparagus*, wild fruits such as *Embelica officinalis, Syzygium cumini*, various species of mushrooms, *Swertia chiraita,* different parts of Sal (*Shorea robusta*) such as leaves for making leaf plates, seed for oil, resins for making incense.

Table 5.26:Role of CF in Income of CFUG Members

Variables	Category	Response in %					
		Role of IGA in Income Generation			NTFPs' Role in Income Generation		
		Major	Minor	Not Important	Major	Minor	Not Important
Well Being	Well Off	25.00	37.50	37.50	-	37.50	62.50
	Medium	20.97	48.38	30.65	10.77	18.46	70.77
	Poor	30.00	45.71	24.29	17.14	21.43	61.43
Caste	Brahmin/Chettri/Newar	29.76	45.24	25.00	8.33	23.81	67.86
	Ethnic	17.65	52.94	29.41	17.65	14.71	67.65
	Occupational	22.73	40.91	36.36	13.64	22.73	63.64
	Total	**25.71**	**46.43**	**27.86**	**11.43**	**21.43**	**67.14**

From the above table we can see that such IGA trainings are important for the income of the household. About 46.43% of the respondents perceived that these trainings are important to some extent whereas the role of NTFPs in household income was less important for the respondents.

5.2.4. Social Capital Formation

In the context of the sustainable livelihoods framework social capital is taken to mean the social resources upon which people draw in pursuit of their livelihood objectives.

Memberships in FUG

The community is representation of different classes of people. The table below shows the representation of the households in terms of well being and caste group. From the table we can see that in total there were 1420 households out of which 5% belonged to well off, 44.44% belonged to medium class and remaining 50.56% belonged to the poor class. But when we see the representation in user committee 25% of the members are from the well off and poor class and 50%

members are from middles class. So this reflects the poor representation of the poor class though 50% of the HHs are from poor class. On other hand though there is only 5% of the members from the well off class, their representation in the committee is 25%.

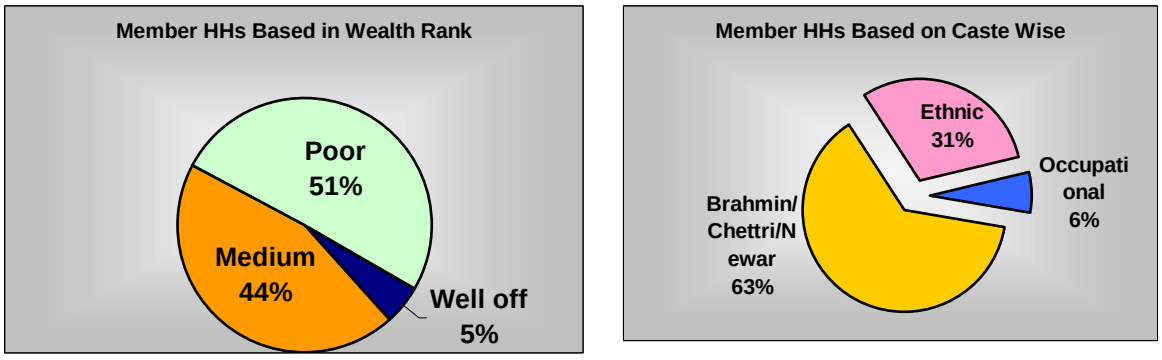
Similarly, when we see the representation from the caste wise classification, we can see that 63.03% of the members belong to the Brahmin/Chettri/Newar class followed by 30.56% of ethnic and 6.41% of occupational. But when we analyse the representation in the committee, we can observe that 83.25% of the members in forest user committee (FUC) belonged to the Brahmin/Chettri/Newar caste whereas 15.63% belonged to the ethnic caste and only 3.13% belonged to occupational caste.

The representation of the women in FUC was also analysed. Under the CF regulation, the provisions to have memberships of women at different levels of FUG are crucial. So, when we see the numbers of women representation in the committee, we can clearly see that the representation of women is only for the sake of fulfilling this provision made under the CF regulation. So, the representations were very poor.

Table 5.27.Membership in CFUGC.

Variables	Category	Member HHs	User Committee			
			Male	Female	Total	%
Wealth Rank	Well Off	71 (5.00)	8	0	8	25
	Medium	631 (44.44)	12	4	16	50
	Poor	718(50.56)	7	1	8	25
	Total	1420 (100)	27	5	32	100
Caste	Brahmin/Chettri/Newar	895 (63.03)	23	3	26	81.25
	Ethnic	434 (30.56)	3	2	5	15.63
	Occupational	91 (6.41)	1	0	1	3.13
	Total	1420 (100)	27	5	32	100

Figure 5.12. Composition of Membership from Wealth Rank and Caste Rank.



Perception in Benefit Sharing and Decision Making

The wealth rank and ethnic group of the members affect benefit sharing and decision making in CF. The sustainability of the CFUG also lies in this two major factors as it helps CFUG either to group cohesion or contradict due to the conflicts in benefit sharing and decision making. Perception of the respondents on benefit sharing and decision-making were collected and analyzed for the interpretation.

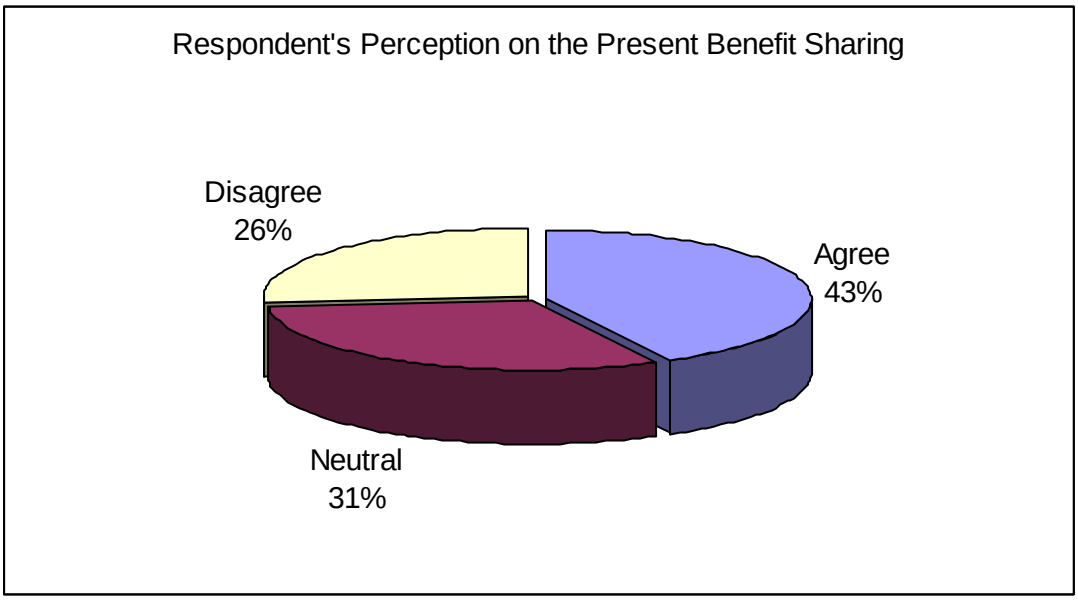
Out of the total respondents, 42.14% agreed on the current pattern of benefit sharing of the forest products. Currently, the CFUG members are free to collect forest products such as fodder, grass and litters free of cost and year round. There is also free grazing of the goats and sheep in the designated areas of the CF. Regarding the sharing of the fuelwood, the CFUG harvests the fuelwood using the appropriate harvesting tools and careful selection of the trees to be harvested. The collected fuelwood is then sold to the CFUG members for the price of NRs 5.00 per bhari[18]. The users were supportive to this as they felt that it makes people more responsible to use the fuelwood. But those who were against it said that there should be no price put on the forest products. In case of timber, members in need of timber should apply in FUC, which will be then evaluated, and on the base of the need the members were distributed the timber on nominal price.

Table: 5.28. Perception on the Benefit Sharing in CFUGs

Variables	Category	Benefit Sharing			
		Agree	Neutral	Disagree	Total
Well Being	Well Off	37.50	37.50	25.00	100
	Medium	51.61	32.26	16.13	100
	Poor	34.29	30.00	35.71	100
Caste Group	Brahmin/Chettri/Newar	47.62	28.57	23.81	100
	Ethnic	29.42	35.29	35.29	100
	Occupational	40.91	36.36	22.73	100
	Total	**42.14**	**31.43**	**26.43**	**100**

[18] 1bhari= 30 kg

Figure 5.13: Overall Perception of the Respondents on the Present Benefit Sharing



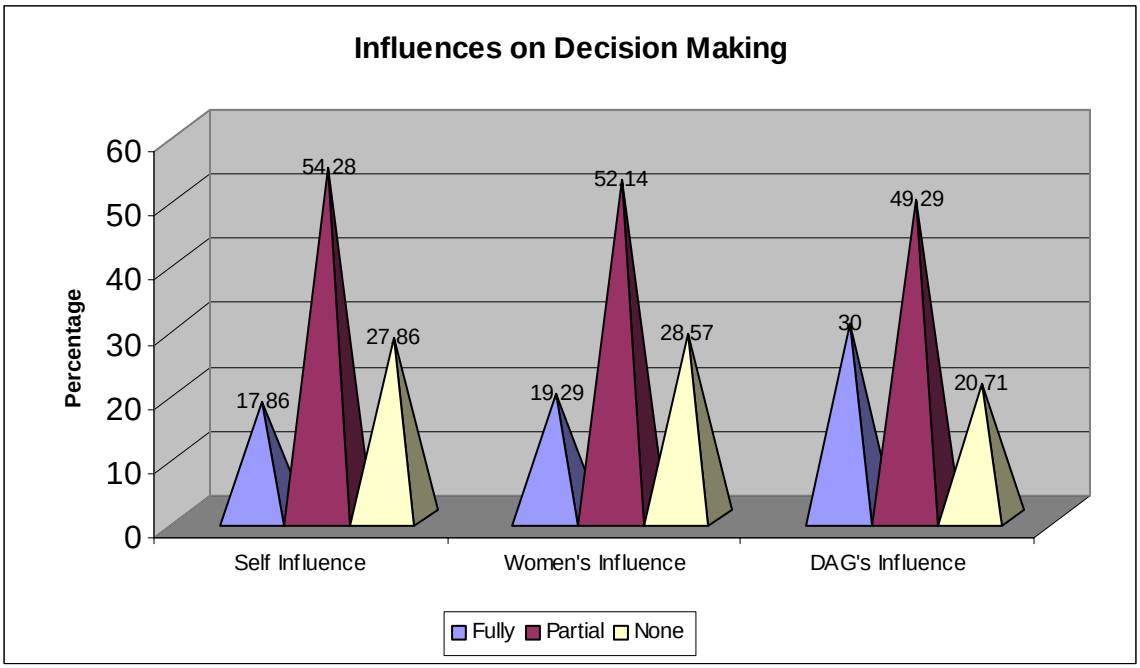
Decision-making process is very important in running the CFUG smoothly. To avoid the breaking of the harmony of the community from various classes needs a decision that is acceptable to everyone. Several conflicts arise due to bad decision-making. To understand the existing situation of the decision-process, analysis was done from three aspects viz. influence of the respondents in decision-making, influence of the women in decision-making and influence of the DAGs in the decision-making.

54.28% of the respondents felt that there was partial influence of them in the decision-making. 27.86% felt that there was no any influence of them in the decision-making activities. Similarly there was partial influence of women and DAGs in decision-making activities. The details are given in the table below.

Table 5.29. Level of Influence in Decision Making by Different Groups

Variables	Category	Self Influence (%)			Women's Influence (%)			DAG's Influence (%)		
		Fully	Partial	None	Fully	Partial	None	Fully	Partial	None
Well Being	Well Off	25.00	62.50	12.50	0.00	75.00	25.00	25.00	75.00	0.00
	Medium	32.26	51.61	16.13	19.35	50.00	30.65	38.71	50.00	11.29
	Poor	8.58	55.71	35.71	21.43	51.43	27.14	22.86	45.71	31.43
Caste	Brahmin/Chettri/Newar	16.67	58.33	25.00	10.71	53.57	35.71	30.95	51.19	17.86
	Ethnic	23.53	50.00	26.47	38.24	41.18	20.59	26.47	50.00	23.53
	Occupational	13.64	45.45	40.91	22.73	63.64	13.64	31.82	40.91	27.27
	Total	17.86	54.28	27.86	19.29	52.14	28.57	30.00	49.29	20.71

Figure 5.14: Influence on Decision Making



Conflicts:

The success of both CFUGs lies in the fact that it has very trustful relationships among the members, which has helped to run the CFUG smoothly. All the respondents from both the CFUGs felt that there are no any inter or intra disputes. Intra conflicts arise basically due to benefit sharing or identification of the users. But in case of both CFUGs, there are no such issues. Resources are getting richer and richer with every year and funds generated are used as per the discussions and decisions taken during the Annual General Assembly (AGA).

Perception regarding the priority to poor and DAG in various programs was also analyzed by simply asking " What is your view on the priority to the Poor and DAG in several programs in CFUG?" The answers were as listed in the table below.

Table 5.30. Perception on the Priority to the DAG and Poor

Variables	Category	Priority to DAG (%)			Priority to Poor (%)		
		Agree	Neutral	Disagree	Agree	Neutral	Disagree
Well Being	Well Off	62.50	37.50	0.00	62.50	37.50	0.00
	Medium	67.74	17.74	14.52	62.90	22.58	14.52
	Poor	74.29	17.14	8.57	71.43	27.14	1.43
	Total	70.71	18.57	10.71			
Caste	Brahmin/Chettri/Newar	67.86	23.81	8.33	64.29	26.19	9.52
	Ethnic	58.82	17.65	23.53	70.59	26.47	2.94
	Occupational	100.00	0.00	0.00	72.73	22.73	4.55
	Total	**70.71**	**18.57**	**10.71**	**67.14**	**25.71**	**7.14**

Majority of the respondents agreed that there should be some priority to the poor and DAG and this also shows that there is trustful relation among the users.

5.2.5. Physical Capital Formation

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods (DFID, 1999).

- Infrastructure consists of changes to the physical environment that help people to meet their basic needs and to be more productive.
- Producer goods are the tools and equipment that people use to function more productively.

The following components of infrastructure are usually essential for sustainable livelihoods:

- Affordable transport;
- Secure shelter and buildings;
- Adequate water supply and sanitation;
- Clean, affordable energy; and
- Access to information (communications).

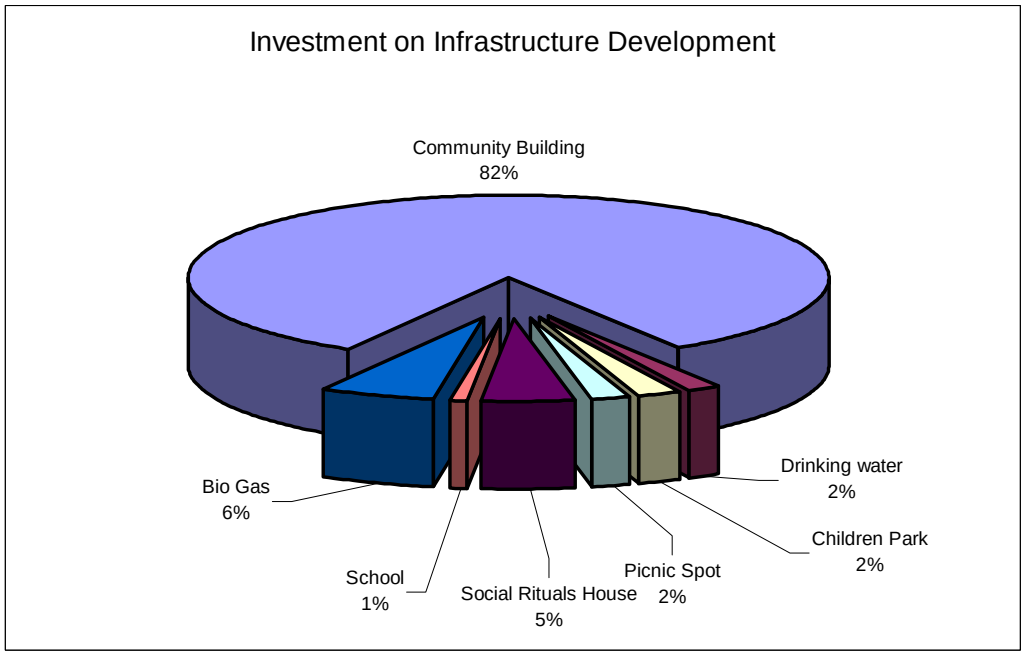
Contribution to the Physical capital is one of the major programs of many CFUG. Funds generated from the CF are utilized to support to develop community and household level physical capitals. Some common capitals where the CFUGs have invested were school, roads, drinking water, milk collection center, bridge reconstruction, irrigation, health posts, community buildings etc. Since these activities are clearly seen by the CFUG members, most were aware of such activities. Most of the time the CFUG had partial role in funding the development activities but people perceived that all the works were carried by CFUG itself. Development activities like constructing the roads, bridges, drinking water or irrigation canal the role of the CFUG was to provide the human resources in the form of voluntary or forest products such as timber.

Among the household level some support provided by the CFUG was in installation of biogas plant, toilet, improved cook stoves and timbers at discount rate while making house or sheds.

Infrastructures Development due to CF

As stated earlier different infrastructure development activities were carried out in both CFUGs some of the major investments as per the audit report of the CFUGs are summarized in the figure below.

Figure 5.15: Investment on Infrastructure Development



Here we can see that major investment was done in the construction of the community building which acts as the multiple use building. Most of the development activities are supported by the development agencies and the role of the CFUG is more to provide the voluntary human capital for carrying out the construction works. Beside this the investment in the term of timber and other forest products are not seen from the audit report. Under the investment of the school only the cost of wages given to the carpenter is seen in the report but the materials such as wood is not seen from the report so the contribution of the CFUG is much higher then what is seen on the report.

Development in the Personal Physical Capital due to CF

Community developments are easily observed but beside these directly seen developments there are other physical capitals that has been developed due to the CF. These capitals are mostly private. Such capitals include the construction of the home after getting the timber from the CF, increase or decrease in the livestock due to the increase in the forest resources and regulations, or change in other types of assets due to the CF.

So analysis was also done on this aspect. Two major questions were asked to the respondents viz.

- Increase or decrease in the livestock and role of CF
- Increase or decrease in the assets and role of CF

Table 5.31. Perception on Increase in Personal Physical Assets After CFUGs.

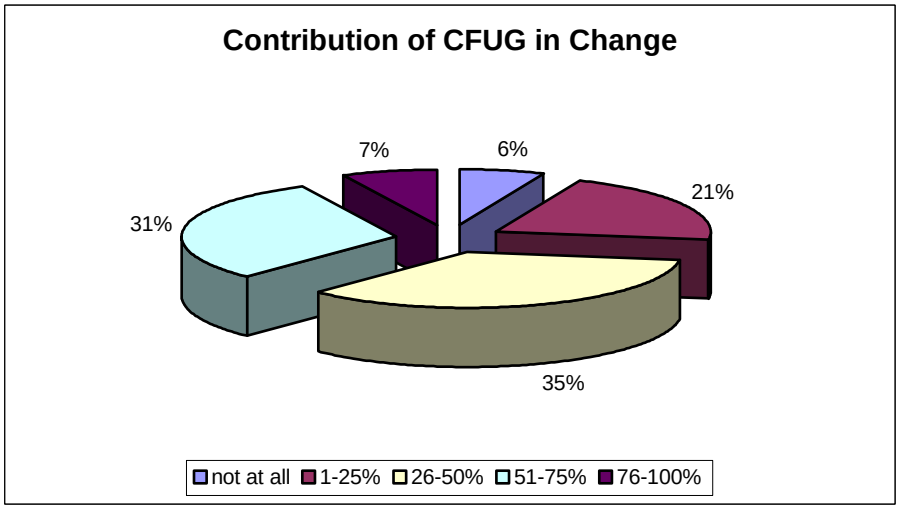
Variables	Category	Livestock after CF (%)			Asset after CF (%)		
		Increased	Same	Decreased	Increased	Same	Decreased
Well Being	Well Off	50.00	12.50	37.50	75.00	25.00	0.00
	Medium	29.03	32.26	38.71	35.48	61.29	3.23
	Poor	21.43	27.14	51.43	20.00	80.00	0.00
Caste	Brahmin/Chettri/Newar	27.38	27.38	45.24	36.90	61.90	1.19
	Ethnic	32.35	29.41	38.24	26.47	70.59	2.94
	Occupational	13.64	31.82	54.55	9.09	90.91	0.00
	Total	26.43	28.57	45.00	30.00	68.57	1.43

From the above table we can see that 45% of the respondents had decreased the livestock population after the handover of the forest to the CFUG. Whereas there has been only 26.43% respondents have increased their livestock population whereas 28.57% respondents had no change in the population.

On other hand we can observe that there has been 30% of the respondents whose assets has increased. These assets were in the terms of new house, more lands, or more savings in bank. Only 1.43% of the respondents felt that their assets have decreased.

The respondents were then asked to evaluate the role of the CF in the change of their personal physical capital. The result is summarized in the figure below. It shows that 6% of the respondents felt that there was no any contribution of CFUG in the change of their physical capital. 7% rated that CFUG had 1-25% of role. Majority of respondents rated that the contribution of the CFUG was between 26-50% closely followed by 31% of the respondents who felt that the role of the CFUG was between 51-75%.

Figure 5.16:Contribution of CFUG in Change of Physical Capital



5.3. CROSS CUTTING ISSUE IN SAMPLE CFUGS - GENDER

Women irrespective of age, ethnicity and economic status are involved in various forest management activities. It is known fact that women contribute most of the labour for agriculture and household work. It is reported that women are given '*lighter*' work however, this is contested because for example, women tend to transport manure, plants, weeds and harvests etc. On other hand men tend to plough, bond, irrigate, thrash etc. It remains to be judged which of these types of work are lighter and which is heavier. The perception of the villagers is that workloads of women are lighter and they receive less daily wages as result. Though the women are the key actors in collecting forest products from CF but they do not have adequate information of what sorts of decisions were made in committee and assemblies. Like men, they also did not recognize their importance to be involved in decision-making process of the CF management system. Since men used to participate in the events like forestry related training, tour/visits and so forth, women are not familiar with better harvesting options of the forest products.

The role of women in forest management is equally important. Out of 143 thousand of Community Forest User Committee (CFUC) members there are 35 thousand women members making decision in day-to-day CF management (Kanel and Niraula, 2004). As per the provision of CFUG rules there should at least be 33% women members in the CFUC. But there are many occasions when these provisions become silent representatives (Nightingale, 2002).

So the study also looked on the role of women in the management of both Rani and Chuchekhola CFUGs of the study area. In the both CFUCs, the men representation was higher and only 2 (27%) out of 11 executive members were women in Rani CFUG where as 3 (14%) out of 22 were in Chuchekhola CFUG. And it was found that in the assembly of the user group, mostly men participated and a few women were physically present. Not involving women in CF decision-making process, also in opportunities like forestry training and so forth caused a detrimental effect to forest resources and the social capital of the CFUG.

From the group discussions and household interview with the female respondents, it was found that the female felt that there has been improvement on the following aspects:

- ***Participation:*** After CFUG formation there has been provision to have at least 33% in CFUC and this provision has made women to come out and participate in different meetings. Though most of the time they are silent participants still this provision has helped female to come out and observe the process. Most of the women mentioned that at the initial stage of the CFUG they didn't dare to speak as they had no idea on what CF was. But at present time they speak about their problems freely. Now women are also participating.

- ***Knowledge:*** Every woman felt that there has been increase in their knowledge of forest management and technical aspects. Time to time participation in the forest management activities has helped them to understand what to harvest and what to leave. Their knowledge on how to extract the different products from the CF without any harm is also increased.
- ***Built in Confidence:*** Participation has helped to bring the community more closer. Working closely with other members has helped to reduce the hesitation which was before CFUG. This has helped to speak about problems female are facing. Ability to express the problems in the general assembly and community gathering as helped to built confidence in females.
- ***Respect:*** Before CFUG, the community people took it in bad manner when a woman spoke openly. The woman was taken as loose character if she spoke with other man outside the family. But this has now changed. Women's views are now taken seriously and women take part in discussions as well.

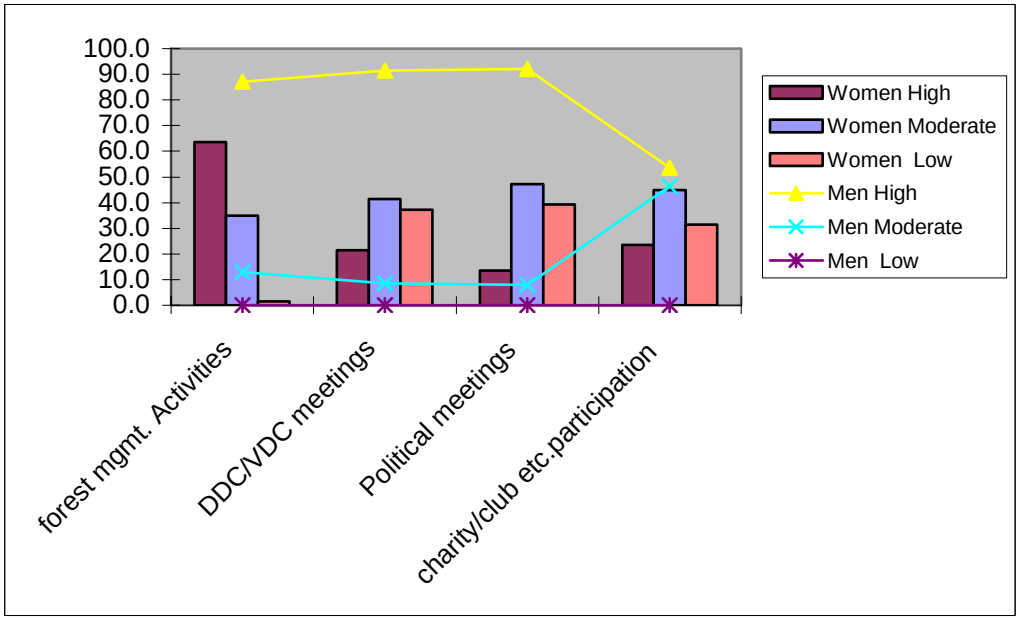
Thus, respondents in the study area were asked on three major aspects.

- Women's participation in different community activities
- Contribution of labour in community activities

5.3.1. Women's participation in different community activities:

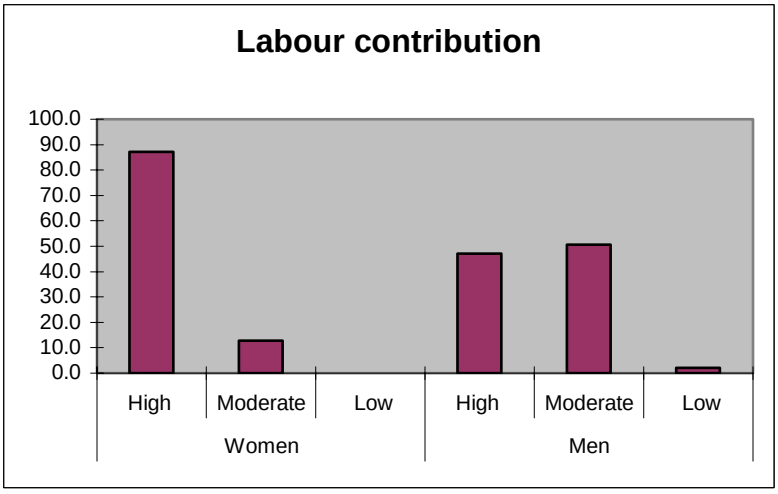
There are several community activities, which range from forest management, meeting in DDC and VDC, political meeting and participation in different charity works. The table below shows the respondents views on the participation of men and women in community activities.

Figure 5.17:Level of Female Participation in Different Activities



From this figure we can see that the involvement of women is moderate in terms of DDC/VDC meetings, political meetings and Charity participation but were high in forest management. When compared with the male the women's participation seems very low but this is due to the fact that there is workload pressure on the women in the household. Women are also responsible for cooking and caring the livestock, children and family. The contribution of labour is very high by women when compared to men.

Figure 5.18:Comparision of Labour Contribution in Community Development Activities



5.3.2. Constrains

The causal factors for the indicated problems were: inadequate access of information to women, their lack of knowledge about institutional management processes of FUGs, and a lack of focus on power relation between men and women in FUGs. These issues need to be considered when designing and implementing community forestry policies and strategies. The promotion of women and poor's access to decision-making processes in forest user groups depend on effective national strategies that consider and incorporate gender issues, and a corresponding commitment at the FUGs level.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

Two CFUG was taken as a case study to explore the capital formation in the CFUG. The management system that evolved some 30 years ago to meet the objectives of maintaining forest quality and mean time fulfilling the subsistence needs of the communities by involving local people in forest management.

Experiences showed that the sustainability of a community-based organizations depend on a combination of common interests, capital formation, capacity building, grooming activities and formal organization because each factor is complementary (IFAD, 1997). Many studies have been carried out on the aspects of capacity building, formal organizations and common interests of community forestry but little care has been given on the on the role of capital formation despite many community forestry researchers identifying that the existence of a common forest development fund is important for the sustainability of CF (Karki et al., 1994; Victor, 1996; Byron, 1996).

Thus this study was carried out to see how capitals are formed in the CFUG and how they are utilized. The study tried to assess the contribution of CFUG in capital formation and its role in sustaining the CF and mean time supporting the people in their livelihood.

6.1. FINDING CONCLUSIONS:

Vulnerability Context: The vulnerability context frames the external environment in which people exist. People's livelihoods and the wider availability of assets are fundamentally affected by critical trends as well as shocks. Factors such as shock and trends are important to analyze as they have direct impact on people's asset status. Shock can destroy assets directly and can force people to abandon their home areas and dispose of assets prematurely. Trends may be predictable and have important influence on rates of return (DFID, 1999).

The vulnerability context of two CFUGs before handover of the forest was identified from the group discussions. These are listed in the table 6.1.

Table 6.1. Vulnerability Context of the Studied CFUGs.

Shocks	▪ High shortage of forest products ▪ Landslide in the forest areas affecting the whole communities ▪ Poor infrastructures with no budget for maintenance. ▪ Low diversity in the economic activities ▪ Poor drinking water facilities
Trend	▪ High smuggling of the forest products especially timber ▪ High dependency on the governments fund for any kind of activities in communities. ▪ Schools had no proper furniture and classrooms affecting the study when there was poor weather. ▪ Conflicts existed due to share in drinking water and other resources. ▪ Poor health due to lack of clean environment and water

These above listed vulnerability context have been reduced after the handover of the forest to CFUGs. The formation of capitals has helped to eliminate or reduce the shocks and trends.

The capitals formed after handover of the CFs are listed on the table 6.2.

Table 6.2. Capital formation from the CFs in both CFUGs:

Natural Capital	▪ Improvement of forest ▪ Increase in forest products ▪ Decrease in time spent for collection of forest products.
Physical Capital	▪ Construction of the drinking water ▪ Construction of the roads ▪ Construction of the milk collection centers ▪ Construction of school ▪ Construction of Picnic Spot
Social Capital	▪ Access to membership of CFUG ▪ Access to membership of co-operatives ▪ Cohesiveness and trust build up between each other in the village
Financial Capital	▪ Access to soft loan from different financial institutions for income generation activities ▪ Increased annual income from agricultural products
Human Capital	▪ Trainings and Seminars ▪ Increase in the capacity building of the members ▪ Increase in awareness of the people leading to active participation in the conservation and management of the resources.

The findings suggest that capital formation in CFs ties the community and forest together and this is helped to change the role of community from destroyers to protectors. The increase in the Natural capital has clearly benefited the community. The sale of the forest products has helped to generate the fund, which is then used for generating other forms of capital in CFUG such as Physical and Human Capital. The establishment of nursery has helped to carry out plantations of valuable species not only in the bare lands of the CFs but also in the private lands. The funds are used for several purposes and this has helped to increase the awareness of the people resulting in less destruction of forest resources. Thus a change is taking place in users attitude and behaviour towards the better management of community forest. The realization of the value capital formation through the CFs has paved the way for the CFUG members to do more. Large portions of the members thought that successful capital formations bring changes in the people's livelihood through change in the attitude and behaviour. Higher the formation of capital from the forest, higher is the value of the forest for the members. This in turns results more positive attitude towards the CFUGs and greater development of feelings of ownership by CFUG members.

Investment of the funds in education, capacity building were highly supported by the members from both CFUGs. This is because the investment on this aspect would bring more trained and awareness among the community people as well

as generate diversification in income sources. This provides security for the future and leads towards the sustainability of the resources.

The conclusion of the research is that capital formation from the CFs helps in bringing the members of the community together and acting together for the change in attitudes, behaviors and their by over all development of the communities.

6.2. RECOMMENDATIONS FOR THE FUTURE:

Capital formation is CF makes much easier for the CFUG to afford the goods and services needed. It has lead to the development of the CFUG and also increased the people's participation in conservation and management of the forest resources. There is direct relation between the magnitude of capital formation and people's motivation for forest management. The people when recognizes the benefits from their conservation efforts will then tend to sustain the activities (Durst, 1995). Thus to keep the people involved in conservation of the forest it is necessary that there is continuous capital formation from the forest resources. These capitals in turn must be helpful in sustaining the livelihood of the people. It should be able to address the social, economic and ecological benefits to the people.

The management plans of both CFUGs are still a primitive type though there had been amendments. The new management plans have been able to address the growing stock, available products and annual harvesting volume of major timber species. But it still lacks to mention the details of the other forest products. This also highlights that detail planning is still under developed. The reason behind this is the lack of the technical know-how to local people. Without this the local people cannot understand the management terms. This can only be achieved if the CFUG and concerned departments such as DFO invest more funds on providing trainings to the local people.

It was also observed that there were high potential for the various Income Generating Activities (IGAs), which are based on the forest and agriculture but most demands the technical expertise and initial-investment. So, CFUGs and concerned agencies should focus on this aspect and more funds should be separated for the initial investment.

CF, which was initially perceived for protecting the forests through the people's participation, was further developed to meet the subsistence needs of the local people. But the development of the CFUG and increase in the capitals has paved the people to see more big dreams. Now the CFUG are intending for more steps and go beyond the subsistence needs of the people. But it requires long and careful planning, budgeting and strong support as well. The market for the CFUGs is very important so the government and other line agencies should now start identifying the good markets of the sell of different products from CFs.

Beside these all, there are another aspects that should be taken seriously. The issues in CFUGs are existing hierarchy of class and caste should able to be addressed in every step while planning the programs. The successful CFUG is only possible when these groups participate in the CFUG procedures and this can only be achieved if these people are obtaining some concrete benefit from management of CF.

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APPENDIXES

Appendix 1: Questionnaires

SN	Questions	Answer
1	**Respondent Name**	
2	CFUG name	
3	Village	
4	VDC	
5	Ward	
6	Date of interview	
7	Well being (Based on well being ranking)	Well off .....1 Medium.....2 Poor 3
8	Date of Entry	

A. About Respondent

	Questions	Answer	Skip
A1	Name of Respondent		
A2	Relationship with household head		
A3	Well being (Based on well being ranking)	Well off .....1 Medium .....2 Poor 3	
A4	Age		
A5	Sex of the respondent	Male .....1 Female 2	
A6	Caste of household head	B/C/N.....1 Ethnic .....2 Occupational .....3 Others 4	
A7	Educational status	Illiterate.....1 Just Literate.....2 Primary Level .....3 Secondary Level.....4 SLC Passed .....5 Intermediate .....6 Above Intermediate 7	
A8	Primary occupation of the household ***(Based on time spent on economic activities)***	Agriculture .....1 Student.....2 Business.....3 Service .....4 Wage labor.....5 Cottage industry .....6 Occupational work.....7 Others (specify).....8	
A9	Secondary occupation of the household ***(Based on time spent on economic activities)***	Agriculture .....1 Student.....2 Business.....3 Service .....4 Wage labor.....5 Cottage industry .....6 Occupational work.....7 Others (specify).....8	
A10	HH Size	Male Female	
A11	Educational status	<table><tr><td></td><td>**Literate**</td><td>**Illiterate**</td></tr><tr><td>Male</td><td></td><td></td></tr><tr><td>Female</td><td></td><td></td></tr></table>	
A12	Do you have own house?	Yes.....1 No.....2	
A13	What would be its value?	NRs	
A14	Do you have own land	Yes.....1 No.....2	
A15	Total land holdings (Area)	Cultivated _____ Ropani Uncultivated _____ Ropani	
A16	What would be its current value?	NRs	
A17	Livestock holding	<table><tr><td>Type</td><td>Number</td><td>Value</td></tr><tr><td>1. Buffalo</td><td></td><td></td></tr><tr><td>2. Oxen</td><td></td><td></td></tr><tr><td>3. Cow/Calves</td><td></td><td></td></tr><tr><td>4. Goat /Sheep</td><td></td><td></td></tr><tr><td>5. Pig</td><td></td><td></td></tr><tr><td>6. Chicken/ducks</td><td></td><td></td></tr><tr><td>7. Others (specify).....</td><td></td><td></td></tr></table>	

B. Human Capital

SN	QUESTIONS	ANSWERS
B1	Have you or any member of your household taken trainings related to CF?	Yes .....1 No.....2
B2	If yes, number of people from your family trained	**Training** / **Male** / **Female** Forest management Skill development/IGA Fund management Office admistration Leadership/Awareness Gender Others
B3	After the introduction of CF, do you feel that your access to training has changed?	Increase.....1 No change .....2 Decrease 3
B4	If change, what percent of change is attributable to CF?	----------**%**
B5	Have you or any member of your household participated in exposure related visit after the introduction of CF?	Yes .....1 No..... 2
B6	If yes, number of people from your family participated	Number Male Female
B7	After the introduction of CF, do you feel that your access to exposure visits has changed?	Increase.....1 No change .....2 Decrease 3
B8	If change, what percent of change is attributable to CF?	----------**%**
B9	Does your access to non-formal education have changed after CF?	Increase.....1 No change .....2 Decrease 3
B10	If change, what percent of change is attributable to CF?	----------**%**
B11	Did your children's access to formal education change after CF?	Increase.....1 No change .....2 Decrease 3
B12	If change, what percent of change is attributable to CF?	----------**%**
B13	Did your access to health facilities change after CF?	Increase.....1 No change .....2 Decrease 3
B14	If change, what percent of change is attributable to CF?	----------**%**
B15	Did your operational health safety measures in harvesting forest products change after CF?	Increase.....1 No change .....2 Decrease 3
B16	If change, what percent of change is attributable to CF?	----------**%**
B17	Are you satisfied with the capacity building efforts of your CFUGs?	Satified ..... 1 Some what ..... 2 Unsatisfied..... 3
B18	Give reasons	

C. Financial Capital

SN	QUESTIONS	ANSWERS
C1	Have you borrowed any money during the past 12 months?	Yes ..... 1 No 2
C2	If yes, what were your sources? ***(At most three)***	Money lenders ..... 1 NGOs ..... 2 Friend/relatives ..... 3 Bank ..... 4 Cooperatives ..... 5 CBOs/Groups ..... 6 CFUGs ..... 7 Others (specify 8
C3	Has CF brought any change on your access to financial institutions?	Increase ..... 1 No change ..... 2 Decrease 3
C4	If change, what percent of change is attributable to CF?	----------%
C5	Has CF brought any change on your dependency on moneylender?	Increase ..... 1 No change ..... 2 Decrease 3
C6	If change, what percent of change is attributable to CF?	----------%
C7	Has your debtness change after CF?	Increase ..... 1 No change ..... 2 Decrease 3
C8	If change, what percent of change is attributable to CF?	----------%
C9	Please explain how CF had changed your debtness?	
C10	Does your CFUGs provide loan to the user groups?	Yes ..... 1 No 2
C11	If yes, for what purposes?	Emergency relief ..... 1 IGAs ..... 2 Family affiars ..... 3 Any purpose ..... 4 Others (specify 5
C12	What is the interest rate per annum?	
C13	Is there any change in cost of forest products after the introduction of CF?	

	Increase	Decrease	No change
Timber			
Fuelwood			
Fodder			
Grass			
Litter			
NTFPs			
Others			

C14	Have you received FUG fund grants, to cope with the crisis?	Yes ..... 1 No 2
C15	If yes, on what type of crises	1. 2. 3. 4. 5.
C16	How has it supported you?	

SN	QUESTIONS	ANSWERS
C17	Has your CFUGs supported on enterprise development activity?	Yes ..... 1 No.....2
C18	If yes, on what type of activities?	1. 2. 3. 4. 5.
C19	How do you access its utility?	High ..... 1 Medium..... 2 Low..... 3 Not at all……...4
C20	Do you support that membership fees should be taken?	Yes ..... 1 No..... 2
C21	Funds collected from sales of forest products are enough for forest protection	Yes ..... 1 No..... 2 No idea……3
C22	Are you satisfied with the fund mobilization pattern of your CFUGs?	Satified ..... 1 Some what ..... 2 Unsatisfied..... 3 No idea……4
C23	Giver reasons	

D. Natural Capital

SN	QUESTIONS	ANSWERS
D1	Do you have any trees on your private land?	Yes ..... 1 No..... 2
D2	If yes, how many	
D3	Have you participated in any forest management activities during the last year?	Yes ..... 1 No..... 2
D4	How many times?	Once..... 1 Twice ..... 2 Three times..... 3 More than three times..... 4
D5	What are the forest management activities normally undertaken by your CFUG? ***(Multiple answers possible)***	Thinning..... 1 Pruning ..... 2 Felling..... 3 Singling..... 4 Weeding ..... 5 Cleaning ..... 6 Planting ..... 7 Others _____..... 8 Do not know..... 9
D6	Are NTFP promotion activities carried out in your CF?	Yes ..... 1 No..... 2 Do not know..... 3
D7	What are the current NTFP promotion activities carried out in your CF? ***(Multiple answers possible)***	Nursery..... 1 Cultivation..... 2 Processing..... 3 Harvesting ..... 4 Trading ..... 5 Others _____..... 6
D8	Is there any soil and water conservation activities carried out in your CFs?	Yes ..... 1 No..... 2 Do not know..... 3
D9	What are the current soil and water activities carried out in your CF?	

D10. Do you feel any changes in your CFs ?

1. Species richness	Increased	Similar	Decreased
2. Tree density	Increased	Similar	Decreased
3. Crown cover	Increased	Similar	Decreased
4. Regeneration	Increased	Similar	Decreased
5. Plantation	Increased	Similar	Decreased
6. Water	Increased	Similar	Decreased
7. NTFPs	Increased	Similar	Decreased
8. Wildlife	Increased	Similar	Decreased
9. Soil erosion	Increased	Similar	Decreased
10 Forest conditions	Improved	Same	Degraded
11 Harvesting damages	Increased	Similar	Decreased

D11. Do you feel any change on biotic pressure after CF?

1. Grazing	Increased	Similar	Decreased
2. Looping	Increased	Similar	Decreased
3. Encroachment	Increased	Similar	Decreased
4. Illicit felling	Increased	Similar	Decreased
5. Green harvesting	Increased	Similar	Decreased
6. Fire incidence	Increased	Similar	Decreased

D12. Is there any change in quantity of forest products collected after the introduction of CF?

	Increased	**Similar**	**Decreased**	**Contribution of CF %**
Timber				
Fuelwood				
Fodder				
Grass				
Litter				
NTFPs				
Others				

D13. Can CF fully meet your HH demand of forest products?

SN	Forest Products	Units	Annual Need	Obtained From CF	Deficit	Coping strategies			
						Private Forest	Agri. Residual	Natl. Forest	Others
1	Fuelwood								
2	Timber								
3	Poles								
4	Grasses								
5	Fodder								
6	Others								

SN	**QUESTIONS**	**ANSWERS**
D14	After the CF, is there any change on time spent to collect the forest products	Increase..... 1 Same ..... 2 Decrease 3
D15	Are you satisfied with the forest management systems of your CFUGs?	Satified ..... 1 Some what..... 2 Unsatisfied..... 3
D16	Give reasons	

E. Social Capital

SN	QUESTIONS	ANSWERS	SKIP
E1	Are you or your family is member in any other village level institutions	Yes ..... 1 No 2	**If no, go to I**
E2	If yes, please name those institutions	S/C group..... 1 Farmer group ..... 2 Infrastructure related group..... 3 Village Panchyat ..... 5 NGOs..... 6 Others..... 7	
E3	Has CF brought any changes on you or your family members participation in FM activities	Yes ..... 1 No 2	

E4. If yes, please specify

FM Activities	Code	Response		Your participation		
Nursery	1	Yes	No	High	Moderate	Low
Plantation	2	Yes	No	High	Moderate	Low
Protection and patrolling	4	Yes	No	High	Moderate	Low
Rehabilitation work (Regeneration)	5	Yes	No	High	Moderate	Low
Motivating other to participate	6	Yes	No	High	Moderate	Low
Silviculture and tending operation	7	Yes	No	High	Moderate	Low
Conflict resolution	8	Yes	No	High	Moderate	Low
Community development	9	Yes	No	High	Moderate	Low
Soil and moisture conservation	10	Yes	No	High	Moderate	Low
Income generating/Fund generation	12	Yes	No	High	Moderate	Low
Other	13	Yes	No	High	Moderate	Low

	QUESTIONS	ANSWERS	SKIP
E5	Has CF brought any changes on you or your family members participation in community activities	Yes ..... 1 No 2	**If no, go to I**

E6. If yes, please specify

FM Activities	Male			Female		
DDC/VDC meetings	High	Moderate	Low	High	Moderate	Low
Political meetings	High	Moderate	Low	High	Moderate	Low
Participation in charity/club etc.	High	Moderate	Low	High	Moderate	Low
Labour contribution in community activities	High	Moderate	Low	High	Moderate	Low
Other specify _____	High	Moderate	Low	High	Moderate	Low

	QUESTIONS	ANSWERS
E7	In your FUG, is there a any sub group or special interest group formed?	Yes ..... 1 No..... 2 Do not know..... 3
E8	If yes, what are they?	
E9	Are there any systems to share forest products with the poor/DAGs/Dalits?	Free ..... 1 Subsidized ..... 2 With charge ..... 3 Do not know..... 4

	QUESTIONS	ANSWERS
E10	Do you think that plans made in the FUG are based on the needs of socially excluded groups?	Fully..... 1 Partially..... 2 Not at all ..... 3 Don't know……4
E11	How often are you able to influence the decision on CF	Fully..... 1 Partially..... 2 Not at all 3
E12	How often women are able to influence the decision on CF	Fully..... 1 Partially..... 2 Not at all 3
E13	How often DAGs are able to influence the decision on CF	Fully..... 1 Partially..... 2 Not at all 3
E14	Is there any conflict within your CFUGs?	Yes ..... 1 No..... 2 Do not know..... 3
E15	If yes, on what issues	Membership..... 1 Forest product use..... 2 Fund mobilsiaiton ..... 3 Leadership..... 1 Encraochment ..... 2 Others specify..... 3
E16	What are the steps taken to resolve this conflict?	
E17	Is there any conflict between your CFUGs and other CFUGs?	Yes ..... 1 No..... 2 Do not know..... 3
E18	If yes, on what issues	
E19	What are the steps taken to resolve this conflict?	

F. Physical capital

	QUESTIONS	ANSWERS
F1	What are the infrastructure development activities carried out by your CFUGs?	1. 2. 3. 4. 5.
F2	Is there any change on village infrastructures after handover of forest to CFUG	Increase..... 1 Same ..... 2 Decrease 3
F3	If change, what is the contribution of CF?	----------%
F4	Are you satisfied with the infrastructure development activities of your CFUGs?	Satified ..... 1 Some what..... 2

	QUESTIONS	ANSWERS
		Unsatisfied..... 3
F5	Give reasons	
F6	Has your crop yield changed CF?	Increase..... 1 Same ..... 2 Decrease 3
F7	What proportion **(percent)** of the change is attributable to the CF?	
F8	Has your number of trees on farmland changed CF?	Increase..... 1 Same ..... 2 Decrease 3
F9	What proportion **(percent)** of the change is attributable to the CF?	
F10	Has your livestock number changed after CF?	Increase..... 1 Same ..... 2 Decrease 3
F11	What proportion **(percent)** of the change is attributable to the CF?	
F12	Has your livestock productivity changed after CF?	Increase..... 1 Same ..... 2 Decrease 3
F13	What proportion **(percent)** of the change is attributable to the CF?	
F14	Has your household assets changed after CF?	Increase..... 1 Same ..... 2 Decrease 3
F15	What proportion **(percent)** of the change is attributable to the CF?	

G. Livelihoods outcomes

	QUESTIONS	ANSWERS	SKIP
G1	What are your major livelihood activities?	1. 2. 3. 4. 5.	
G2	Has the CF brought any changes on your livelihood activities?	Yes ..... 1 No..... 2	
G3	If yes, please explain?		
G4	Has your **livelihood activities** changes after CF	Increased.....1 No change .....2 Decreased 3	
G5	What proportion **(percent)** of the change is attributable to the CF?		
G6	What are your sources of income?	1. 2. 3. 4.	

	QUESTIONS	ANSWERS	SKIP
		5.	
G7	Has the CF brought any changes on your income sources?	Yes ..... 1 No..... 2	
G8	If yes, please explain?		
G9	Has your **HHs income** changes after CF	Increased.....1 No change .....2 Decreased 3	
G10	What proportion **(percent)** of the change is attributable to the CF?		

G11. Please indicate your HH labour use before and after the CF

	Now	Before CF	Contribution of CF
Wood collection			
Farm activity			
Migratory Labor			
NTFP collection			
Off farm activity			
Forest work			
Others (specify)			